

**SELF STUDY REPORT**  
**OF**  
**Chitkara University - Himachal Pradesh**  
[www.chitkarauniversity.edu.in](http://www.chitkarauniversity.edu.in)



Atal Shiksha Kunj, Atal Nagar, Barotiwala, District Solan-174103  
Himachal Pradesh

SUBMITTED TO

**National Assessment  
and Accreditation Council (NAAC)**

(An autonomous Institution under University Grants Commission)  
P.B. No 1075, Opp to NLSIU, Bangalore University Campus,  
Nagarbhavi 2nd stage, Bangalore - 560072, Karnataka, India  
[www.naac.gov.in](http://www.naac.gov.in)

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*Brig (Dr) R S Grewal, VSM (Retd)*  
*Vice Chancellor*

**CHITKARA**  
**UNIVERSITY**



*CU/REG/13978*

*February 14, 2015*

To  
*The Director,*  
NAAC, P.B.No 1075,  
Nagarbhavi, *Bangalore – 560072*

Dear Sir,

**Subject: Submission of Self Study Report of Chitkara University, Solan, Himachal Pradesh.**

Sir, I take this opportunity, to thank NAAC for accepting our LOI at the first stage and subsequent process of submission of our University's Self Study Report (SSR).

We enclose our University's SSR for your kind perusal. We will be sending all the hardcopies as per the specified time line along with the prescribed fees within the stipulated time frame.

The SSR preparation was a very challenging and also great experience for our institution. We came across various facets pertaining to the University which might not have been possible without NAAC process of assessment and accreditation. This has provided us with invaluable guidelines for the future growth of our University. Preparation of the SSR is a long and hectic process for any institution, but we have realised that it is a MUST NEEDED activity for all the institutions which are serious in improving their quality standards.

I would like to take this opportunity, to thank our Management for their kind and absolute support in all the stages of NAAC assessment process preparation and also I would like to thank all faculty and staff members for their immense contribution, without their support it would not have been possible to complete this documentation within the stipulated time. I can say that the TEAM WORK was at its BEST during all this period.

We are eager and prepared for the onsite visit inspection by the esteemed Peer Team Members.

Once again I would like to thank NAAC, for their wonderful contribution towards taking a leading role in initiating quality assurance measures in Higher Education Institutions across India.

Thanking You

Yours faithfully

  
**Vice Chancellor**  
**Chitkara University**

*Email: [vc@chitkarauniversity.edu.in](mailto:vc@chitkarauniversity.edu.in)*

*Mobile: 09779450703*

[www.chitkarauniversity.edu.in](http://www.chitkarauniversity.edu.in)  
[info@chitkarauniversity.edu.in](mailto:info@chitkarauniversity.edu.in)

University Campus  
Pinjore - Barotiwala Highway (NH-21A)  
Himachal Pradesh 174 103, T +91.1795.661011

## **Executive Summary**



Chitkara University is a State Private University which was established in the Year 2008 based on an Act passed by the Legislature of Himachal Pradesh. The Campus is spread over approximately 17 acres with a built up area of about 32,330.26 sq.mts. Located about 30 Km north of Chandigarh, the University provides state-of-the-art facilities and ambience for a conducive learning environment.

Chitkara University has been founded by a family of academicians. Consequently, our ethos is geared towards development of society by providing high quality education.

Our vision is to contribute in building a knowledge society through innovation and academic excellence.

Our mission is to be amongst the top 10 private universities in the country by the Year 2020.

We hold a strong commitment to high standards in all aspects of our educational activities, learning outcomes and support services and also seek to continuously strengthen the overall effectiveness of our operations. We embrace and promote diversity in our policies and practices. Our faculty strives to prepare our learners to work successfully and to compete in an increasingly dynamic and diverse society. We are committed to create a learning environment by welcoming all stakeholders who bring assorted but distinct ideas, values, backgrounds and beliefs to the learning and work culture. The University has

worked out a perspective plan and is working according to it. Instead of going in for rapid expansion we rely more on quality and have put a cap on numbers.

Our curriculum is based on a learning centric approach commensurate with our vision and mission. Accordingly, we have identified certain values that are reflected in our graduate attributes. Thus, our charter provides directions to the faculty and staff to ensure all round development of our students. Our strong linkages with industry are reflected in our contemporary curricula that lays emphasis on academics as well as co-curricular activities. Use of technology finds its deserved place in our teaching-learning processes. We respect the guidelines provided by various regulatory bodies. Innovation and research form the hallmarks of our guiding philosophy while working out various processes. Industry has reposed faith in our system that is reflected in an excellent record of student placements. Our students have won laurels at national level in various professional activities. Inculcating entrepreneurial skills is given its due importance and the University has established its incubation centre.

We recognize that in a shrinking globe students have to possess skills to work in an international environment. Thus, we have gone in for collaboration with a large number of reputed foreign universities that encompass articulation arrangements, student and faculty exchanges and research collaborations as the main stay of such joint ventures.

We continually seek feedback from all our stakeholders, analyse it and take action wherever required. We are conscious of the need to adopt various measures for quality assurance and have taken suitable measures in that direction. Transparency in all our operations, emphasis on an honest and sincere approach, has gained us respect and we are the preferred choice of the faculty and students in northern India.

Our teaching-learning processes that encompass project based learning have helped us in achieving our goal of active and higher order learning. We have identified learning outcomes for all our programmes and that is reflected in the quality of our students. Innovation and rigorous evaluation processes provide us and the students with suitable feedback to institute remedial measures for further improvements. Students and faculty are involved in different facets of our operations to bring in a feeling of ownership in different policies that are promulgated.

Research has been accorded its due importance despite the University being still in its stage of infancy. Faculty members have been able to obtain grants from various funding agencies. The University has established three research centres to give a boost to research activities. A number of reputed companies have sponsored laboratories that have been set

up in the campus and facilitate research. A modest beginning has been made towards providing consultancy services to the industry.

The University takes pride in its extension activities related to its Institutional Social Responsibility. The students and faculty have participated enthusiastically to serve the community in the neighbourhood of the campus that has instilled good moral values and a sense of responsible citizenship among the students. The faculty takes on the role of mentors to the students and act as their friends, philosophers and guides, thus, providing the much needed emotional support in this fast moving and competitive world.

The infrastructure and student support services of the University have established benchmarks in the region that are worth emulating. The Management has provided active support to the University to ensure that the faculty and students get the best possible facilities. Optimal utilization of the resources is the guiding principle in all our operations and processes.

Faculty empowerment strategies formulated by the University have instilled a sense of belonging and an urge for lifelong learning among the faculty.

A SWOC analysis of the University is outlined below:-

### **Strengths**

- Qualified, committed and motivated faculty members
- Excellent ambience with state-of-the-art equipment in a sprawling campus.
- Pro-active approach of learning-by-doing. Emphases on higher order learning.
- Good research culture having linkages with R&D organizations.
- Well established library with online access to journals and learning resources.
- Excellent campus placement record.
- Excellent infrastructure with Campus-Wide-Networking through ERP solution (provided by Chalkpad) and wi-fi connectivity to the hostels.
- Well placed alumni in reputed industries and academic institutions across the globe.
- Increased availability of resources from advanced research labs.
- Memoranda of Understanding (MOUs) with industry, R&D centres and foreign universities.
- Centre for English Language Training (CELT) rendering services to students of rural background and the community at large.
- Established Industry-Academia Interface enabling interaction between the Institute and Industry.

- Research oriented faculty members who have submitted research project proposals to various funding agencies like DST.
- Faculties are having research publications in international and national journals.
- Students are encouraged to pursue innovative projects.
- Seed money to students for entrepreneurial activities and to faculty to formulate research proposals.
- Ample opportunity for the students to participate and organise co-curricular activities.
- Award of scholarships to meritorious students.

### **Weaknesses**

- Shortage of senior and experienced faculty.
- Limited financial support from funding agencies.
- Lack of good quality research scholars for doctoral programmes.
- University is located in a rural area, where the connectivity is limited. There is lack of essential amenities like good schools, shopping complex etc., which is discouraging for the faculty to stay on campus.

### **Opportunities**

- Faculty Development Programmes and other measures to enhance the skills and qualifications of the faculty.
- Availability of industry base in surrounding areas, implying scope for collaboration in respect of staff exchange, student internships, joint consultancy and projects.
- Establishment of Incubation Centre.
- Improving quality of instruction by supplementing with e-learning.
- Institutionalizing services to community by making use of technology.
- Transforming research & development into patentable products.
- Utilizing strong alumni network in Institution building.
- Starting industry specific PG programmes.
- Availability of abundant space for horizontal expansion.

### **Challenges**

- Grooming the faculty to switch over from a teacher and examination centric approach to a learning centric approach.
- Generating adequate funds for research activities.

- Competition with the vast number of Universities/Colleges which have come up in the recent years.
- Slow down of economy resulting in lesser employment opportunities in infrastructure sector.

The University was established in the Year 2008 and in a short span of time it has created a niche for itself in the academic fraternity in northern India. We are sanguine that our current policies, dedication towards providing good wholesome education and thrust on research activities will go a long way in attaining our mission.



## PROFILE OF THE UNIVERSITY

1. Name and Address of the University:

Name:	<b>Chitkara University</b>	
Address:	<b>Atal Shiksha Kunj, Atal Nagar, Barotiwala, District Solan, Himachal Pradesh</b>	
City: Barotiwala	<b>Pin: 174103</b>	<b>State: Himachal Pradesh</b>
Website: <b>www.chitkarauniversity.edu.in</b>		

2. For communication :

Designation	Name	Telephone with STD Code	Mobile	Fax	Email
Vice Chancellor	Brig (Dr.) R.S. Grewal	<b>O:</b> 01795-661001 <b>R:</b>	97794 50703	01795-661013	vc@chitkarauniversity.edu.in
Registrar	Dr. Varinder S Kanwar	<b>O:</b> 01795-661002 <b>R:</b>	98059 65401	01795-661013	registrar@chitkarauniversity.edu.in
Steering Committee / IQAC Co-ordinator	Col Y.C. Chhibber	<b>O:</b> 01795-661035 <b>R:</b>	98059 65403	01795-661013	yc.chibber@chitkarauniversity.edu.in

3. Status of the University:

**State Private University** ☒

4. Type of University:

**Unitary** : ☒

5. Source of funding:

**Self-financing** ☒

6. a. Date of establishment of the university: **29/04/2008** (dd/mm/yyyy)

b. Prior to the establishment of the university, was it a/an: **N/A**

i. PG Centre Yes ☐ No ☒

ii. Affiliated College Yes ☐ No ☒

iii. Constituent College Yes ☐ No ☒

iv. Autonomous College Yes ☐ No ☒

v. **Any other (please specify): Started as University**

If yes, give the date of establishment (dd/mm/yyyy): **N/A**

7. Date of recognition as a university by UGC or any other national agency:

Under Section	dd	mm	yyyy	Remarks
<b>i. 2f of UGC*</b>	<b>14</b>	<b>05</b>	<b>2009</b>	The University was established vide Governemnt of Himachal Pradesh Gazette Notification No. EDN-A-Gha(8)6/2006(Loose) dated 29 <sup>th</sup> April, 2008

\* certificate of recognition enclosed.

Government of Himachal Pradesh  
Higher Education Department

No: EDN-A-Gha(8)6/2006(Loose)

Dated Shimla-2, the 29<sup>th</sup> April 2008

**"NOTIFICATION"**

The Governor, Himachal Pradesh in exercise of the powers vested in him vide Section 6(1) of "Himachal Pradesh Private Universities (Establishment & Regulation) Act, 2006" is pleased to order the establishment of private University namely "Chitkara University" to be established by Chitkara Educational Trust, Chandigarh, at Kallu Jhanda (Barotiwala) District Solan with the jurisdiction in the area constituting Himachal Pradesh, subject to the completion of all codal formalities as required under the Act *ibid*.

The Governor, Himachal Pradesh is further pleased to order to insert the necessary entry in the Schedule appended to the Act *ibid*.

By Order,


Secretary (Higher Education) to the  
Government of Himachal Pradesh

Endst. No.:As above

Dated: Shimla-02 29-4-2008

Copy for information and necessary action to :-

1. The Secretary to the Governor, Himachal Pradesh, Shimla.
2. The Principal Secretary to the Chief Minister, Himachal Pradesh, Shimla.
3. All the Principal Secretaries/Secretaries to the Government of Himachal Pradesh.
4. The Secretary, HP Vidhan Sabha, Shimla-171004.
5. The Registrar, Himachal Pradesh University, Summer Hill, Shimla-5
6. The Registrar, Yashwant Singh Parmar Horticulture and Forestry University, Nauni, Solan, HP.
7. The Registrar, CSK Krishi Vishva Vidyalaya, Palampur, Distt. Kangra, HP.
8. The P.M. Secretary to the Education Minister, Himachal Pradesh, Shimla-2
9. The Chairman of Chitkara Educational Trust, Chandigarh, at Kallu Jhanda (Barotiwala) District Solan, HP.
10. The Director of Higher Education, HP Shimla-01.
11. The Director of Elementary Education, HP Shimla-01.
12. The Controller, Printing & Stationery, H.P. Shimla-5 with the request to publish this notification in Rajpatra (extra-ordinary).
13. The Guard File.

  
Addl. Secretary (Hr. Edu.) to the  
Govt. of Himachal Pradesh.

Ph. 2424651, 2424670, 2321772, 23214816  
1/232873, 2328211, 2328675, 23239431



Speed Post

विश्वविद्यालय अनुदान आयोग  
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नई दिल्ली-110 002  
UNIVERSITY GRANTS COMMISSION  
BAHADURSHAH ZAFAR MARG  
NEW DELHI-110 002

No. F. 9-12/2008 (CPP-I)

May, 2009

✓ The Registrar,  
Chitkara University,  
HIMUDA Education Hub,  
Kallujhanda(Barotiwal),  
Distt. Solan – 174 103,  
Himachal Pradesh.

19 MAY 2009

Subject: - Chitkara University Act.

Sir,

With reference to your letter dated 31<sup>st</sup> January, 2009 received through Chancellor, Chitkara University I am directed to inform you that 'Chitkara University', Solan, Himachal Pradesh has been established by Act No. 2 of 2009 State Legislature of Himachal Pradesh and empowered to award degrees as specified by the UGC under Section 22 of UGC Act, 1956 through its main campus with the approval of Statutory Councils, wherever required.

You are requested to take an immediate action on the following points:-

1. To ensure that no Off Campus Centre(s) is opened by the University outside the territorial jurisdiction of the State in view of the judgement of Hon'ble Supreme Court of India in case of Prof. Yashpal vs. Government of Chhattisgarh.
2. In case the University has already started any Off Campus Centre outside the state, it must be immediately closed. It may also be ensured that any Off Campus Centre within the state shall also be opened only as per the provisions laid down in the UGC (Establishment of and Maintenance of Standards in Private Universities) Regulations, 2003 with the prior approval of UGC.
3. The University can not start courses under distance mode without the approval of UGC-AICTE and DEC-Joint Committee

Yours faithfully

(S. C. Chadha)  
Deputy Secretary

^ Enclose certificate of recognition by any other national agency/agencies, if any: **N/A**

8. Has the university been recognized?

- a. By UGC as a University with Potential for Excellence? **No**
- b. For its performance by any other governmental agency? **No**

9. Does the university have off-campus centres? **No**

10. Does the University have off-shore campuses? **No**

11. Location of the campus and area:

	<b>Location *</b>	<b>Campus area in acres</b>	<b>Built up area in sq. mts.</b>
1. Main campus area	<b>Rural</b>	<b>17 acres</b>	<b>32,330.26</b>

(\* Urban, Semi-Urban, Rural, Tribal, Hilly Area, Any other (please specify))

If the university has more than one campus, it may submit a consolidated self-study report reflecting the activities of all the campuses: **N/A**

12. Provide information on the following: In case of multi-campus University, please provide campus-wise information.

- Auditorium/seminar complex with infrastructural facilities: **Yes**

<b>Total</b>	<b>8</b>
Indoor	5
Outdoor	3

- Sports facilities : **Yes**

- \* Playground : **Yes (Athletics track, Cricket ground, Basketball, Volleyball, Beach Volleyball, Lawn Tennis etc.)**
- \* Swimming pool: **No**
- \* Gymnasium : **Yes**
- \* Any other (please specify): **Indoor sports facilities (Badminton, Table Tennis, Pool Table etc.)**

- Hostel

- \* Boys' hostel

- i. Number of hostels : **02**
- ii. Number of inmates : **966**
- iii. Facilities: **Wi-Fi, Gym, Air Cooled, Laundry Services, Mess, Tuck shop, Cafeteria, Medical Room**

- \* Girls' hostel
  - i. Number of hostels: **04**
  - ii. Number of inmates: **432**
  - iii. Facilities: **Wi-Fi, Gym, Partly Air Conditioned, Laundry Services, Mess, Tuck shop, Cafeteria, Medical Room, Beauty Saloon**

- \* Working women's hostel: **Nil**
  - i. Number of hostels
  - ii. Number of inmates
  - iii. Facilities

- Residential facilities for faculty and non-teaching: **Limited facilities are available in hostels and guest house.**

- Cafeteria: **Yes**

- Health centre: **Yes**

Nature of facilities available:

- ✓ Inpatient: **No**
- ✓ Outpatient: **Yes**
- ✓ Ambulance: **Yes**
- ✓ Emergency care facility: **Yes**
- ✓ Others: **Resident Doctor available**

- Facilities like banking, post office, book shops, etc:

- ✓ **ATM**
- ✓ **UCO Bank Branch Banking**
- ✓ **Book Shop**
- ✓ **Laundry**
- ✓ **Daily Postal Services (Indian Postal Services)**
- ✓ **Courier Services**
- ✓ **Captive power supply 1000 KWH**

- Transport facilities to cater to the needs of the students and staff: **Yes**

- ✓ **Student Buses (26 Buses)**
- ✓ **Faculty Buses**
- ✓ **Mini Bus**
- ✓ **Cars**
- ✓ **Ambulance**
- ✓ **Carriage Vehicles**

- Facilities for persons with disabilities: **Yes**
- Animal house: **No**
- Incinerator for laboratories: **No**
- Power house: **Yes**
- Waste management facility: **Yes**

13. Number of institutions affiliated to the university: **Nil**

14. Does the University Act provide for conferment of autonomy (as recognized by the UGC) to its affiliated institutions? If yes, give the number of autonomous colleges under the jurisdiction of the University: **N/A**

The University Act does not permit the University to affiliate any institution with it.

15. Furnish the following information:

Particulars	Number	Number of Students
a. University Departments		
Undergraduate	<b>3</b>	<b>2766</b>
Post graduate	<b>2</b>	<b>13</b>
Research centres on the campus	<b>1</b>	<b>18</b>

16. Does the university conform to the specification of Degrees as enlisted by the UGC?

Yes ☒ No ☐

If the university uses any other nomenclatures, please specify: **N/A**

17. Academic programmes offered by the university departments at present, under the following categories: (Enclose the list of academic programmes offered)

Programmes	Number
UG	<b>03 - BE (CE/ CSE/ ECE)</b>
PG	<b>02+ 4* - ME (CSE/ ECE) * ME(CTM), M.Sc.(Physics), M.Sc.(Mathematics) and MA (English) being offered from Academic Year 2015-16</b>
Ph.D.	<b>04 (CE/CSE/ECE/Applied Sciences)</b>
<b>Total</b>	<b>09 (*ME-4)</b>

18. Number of working days during the last academic year: **220**

19. Number of teaching days during the past four academic years.

**181** **180** **180** **181**

(‘Teaching days’ means days on which classes were engaged. Examination days are not to be included)

20. Does the university have a department of Teacher Education?

Yes ☐ No ☒

21. Does the university have a teaching department of Physical Education?

Yes ☐ No ☒

22. In the case of Private and Deemed Universities, please indicate whether professional programmes are being offered?

Yes ☒ No ☐

If yes, please enclose approval / recognition details issued by the statutory body governing the programme: **As indicated at Para 7**

23. Has the university been reviewed by any regulatory authority? If so, furnish a copy of the report and action taken there upon: **Yes, by UGC (A Copy of the report attached at Annexures – 1 & 2)**

24. Number of positions in the university:

Positions	Teaching faculty			Non-teaching staff	Technical staff
	Professor	Associate Professor	Assistant Professor		
Sanctioned by the UGC / University / State Government	23	45	136	265	73
Recruited	22	35	120	271	75
Yet to recruit	01	10	16	Nil	Nil
Number of persons working on contract basis	-	-	-	-	-

\* Total strength of the faculty is as per the sanctioned strength

25. Qualifications of the teaching staff

Highest qualification	Professor		Associate Professor		Assistant Professor		Total
	Male	Female	Male	Female	Male	Female	
Permanent teachers							
D.Sc./D.Litt.	-	-	-	-	-	-	-
Ph.D.	11	5	14	7	0	0	37
M.Phil.	0	0	0	1	3	3	7
PG	6	2	5	8	42	70	133



26. Emeritus, Adjunct and Visiting Professors.

	<b>Emeritus</b>	<b>Adjunct</b>	<b>Visiting</b>
<b>Number</b>	<b>1</b>	<b>0</b>	<b>11</b>

27. Chairs instituted by the university: **Nil**

28. Students enrolled in the university departments during the current academic year, with the following details:

<b>Students</b>	<b>UG</b>	<b>PG</b>	<b>M.Phil.</b>	<b>Ph.D.</b>	<b>Integrated Ph.D.</b>
	<b>*M *F</b>	<b>*M *F</b>	<b>*M *F</b>	<b>*M *F</b>	<b>*M *F</b>
From the state where the university is located	M-125 F-35	-	-	-	-
From other states of India	M-244 F-77	-	-	-	-
NRI students	-	-	-	-	-
Foreign students	-	-	-	-	-
<b>Total</b>	<b>481</b>				

\*M-Male \*F-Female

29. 'Unit cost' of education

*(Unit cost = total annual recurring expenditure (actual) divided by total number of students enrolled)*

(a) including the salary component = **Rs. 1,58,386/-**

(b) excluding the salary component = **Rs. 1,04,815/-**

30. Academic Staff College: **N/A**

31. Does the university offer Distance Education Programmes (DEP)?

Yes ☐ No ☒

32. Does the university have a provision for external registration of students?

Yes ☐ No ☒

33. Is the university applying for Accreditation or Re-Assessment? If Accreditation, name the cycle.

Accreditation: **Cycle 1** ☒

34. Date of accreditation\* (applicable for Cycle 2, Cycle 3, Cycle 4 and re-assessment only):  
N/A

35. Does the university provide the list of accredited institutions under its jurisdiction on its website? Provide details of the number of accredited affiliated / constituent / autonomous colleges under the university: N/A

36. Date of establishment of Internal Quality Assurance Cell (IQAC) and dates of submission of Annual Quality Assurance Reports (AQAR):

IQAC 28/08/2012 (dd/mm/yyyy)

AQAR – Prepared for our Internal Quality Monitoring Mechanism

1. 30/07/2013

2. 25/07/2014

We will submit every year as per NAAC guidelines once our Assessment process is completed.

37. Any other relevant data, the university would like to include (not exceeding one page).

**Strengths of the University:**

- Learning centric approach
- Application oriented teaching
- Industry relevant curriculum
- Industry Oriented Hands on Training/ Industry Oriented Hands on Experience
- Project based learning
- Regular webinars by professors from foreign universities to enhance the skill levels of faculty
- Guest lectures by eminent experts and industry oriented projects in the curriculum
- Faculty Exchange programmes /Faculty Development programmes
- Continuous evaluation system based on CGPA

- Seed Money to develop proposals for research.
- Due emphasis on co-curricular and cultural activities
- Collaboration with foreign universities to include student exchange, faculty exchange, articulation arrangements, semester abroad, cultural exchange, research collaborations etc.
- University has its own ERP package
- Language Development Training and Personality Development modules for students
- Student-mentorship programs
- Alumni Network of the University
- Fully functional and pro-active placement cell
- Indoor and Outdoor Sports Facilities
- Accidental Insurance of all employees and students over and above the ESI facility as applicable
- Fully Wi-Fi Campus
- 24 Hrs Medical facility available in the campus
- Preparation for competitive exams
- Scholarship for brilliant students
- Digital library with access to online books and journals
- Incubation centre for inculcating research and entrepreneurship qualities among students.
- Self financing NSS unit of the University
- Regular offering of course through MOOCS
- Due emphasis on regular training of faculty
- Active collaborations with reputed industries

## **Criteria - wise Inputs**

## ***CRITERION I : CURRICULAR ASPECTS***

### **1.1 Curriculum Design and Development**

#### ***1.1.1 How is the institutional vision and mission reflected in the academic programmes of the university?***

##### **VISION**

To contribute in building a knowledge society through innovation and academic excellence

##### **MISSION**

To be amongst the top 10 private universities in the country by the Year 2020.


##### **VALUES**

Chitkara University has defined certain values for those who are directly or indirectly involved in the working of the University.

**The values identified and adopted by Chitkara University are as follows:**


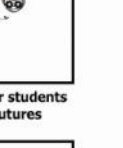







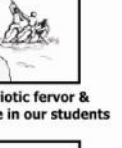
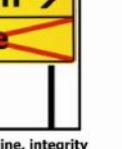

- **Care** – For us, welfare of our students and employees is our top priority.
- **Supportive**-We are supportive. We go an extra mile to support our stakeholders i.e. students, faculty member, parents, government and industry.
- **Academic Excellence and Learning** – We value excellence in learning by adopting suitable pedagogy and ensuring that our faculty remains in touch with the latest in the field. We also ensure that our students are able to compete at global level.
- **Quality** – We hold a strong commitment to high standards in all aspects of our educational activities, learning outcomes and support services. We seek to continuously strengthen the overall effectiveness of our operations.
- **Faith** – We treasure our ethos and our charter.
- **Integrity** – We conduct our operations and make our public representations in an ethical manner. We practice honesty and objectivity in dealing with our stakeholders.
- **Diversity** – We embrace and promote diversity in our policies and practices to prepare our learners to live and work successfully in an increasingly diverse society. We strive to create a learning environment by welcoming teachers, learners and staff who bring diverse ideas, values and backgrounds and beliefs to the learning and work environment.

- **Leadership** – We seek to develop responsible leaders committed to a common goal.
- **Freedom of Inquiry and Expression** – We support the rights of our people to freely inquire and express their opinions and suggestions. We involve and encourage an open exchange of ideas and seek inputs from one and all who wish to participate in the learning process of teaching.
- **Communication** – We believe in open, honest, respectful and timely communication at all levels.
- **Accountability** – We are accountable to all the stakeholders and the general public for fulfilling our mission in an appropriate manner by openly assessing the operations.
- **Innovation** – We provide imaginative and effective solutions to our challenges and innovative ways to fulfill our mission.
- **Collaboration** – We seek and nurture partnerships with educational institutions in India & abroad, research establishments, industry and the communities, to have an effective learning environment.
- **Access to Underprivileged** – We aim to promote social mobility by creating opportunities for the underprivileged, to gain access to our educational system. Hence, we hold a strong commitment to the inalienable right to their pursuit of happiness.
- **Time Management** – We aim to train our people to manage time effectively so that the right time is allocated to the right activities and specific time slots to activities as per their importance.
- **Social and Cultural Sensitivity** – We value and respect diversity and hence, we are committed to function effectively in various cultures. Our aim is to make our workforce sensitive to cultural differences.



**CHITKARA**  
UNIVERSITY

## OUR CHARTER

 <p>Let's <b>educate</b> our students for brilliant futures</p>	 <p>Let's <b>prepare</b> our students for the industry</p>	 <p>Let's <b>enthuse</b> patriotic fervor &amp; pride for our heritage in our students</p>	 <p>Let's <b>empower</b> our students with great communication skills</p>
 <p>Let's <b>inculcate</b> team spirit and camaraderie among our students</p>	 <p>Let's <b>foster</b> civic engagement in our students</p>	 <p>Let's <b>instill</b> discipline, integrity and honesty in our students</p>	 <p>Let's <b>stimulate</b> scholarly energy and diligence in our students</p>
 <p>Let's <b>educate</b> our students to become globally competitive</p>	 <p>Let's <b>encourage</b> our students to think out of the box</p>	 <p>Let's <b>infuse</b> leadership skills in our students</p>	 <p>Let's <b>ingrain</b> spirit of entrepreneurship among our students</p>

Academic programmes of the university have been designed to ensure active and lifelong learning and we strive to produce students who are socially responsible, knowledgeable, possess requisite skills and are able to take up their assigned roles in the industry immediately after graduating from the University. Due emphasis is laid on the research activities. The curricula for all the programmes are designed based on inquiry based learning. Research programmes have been incorporated in the offerings gradually to ensure requisite level of excellence.

Considering the above the University has prepared its own perspective plan that is commensurate with our Mission. We are confident that by attaining a ranking amongst the top 10 in the country, the University will be able to contribute significantly in building a knowledge society.

***1.1.2 Does the university follow a systematic process in the design and development of the curriculum? If yes, give details of the process (need assessment, feedback, etc.).***

Yes, the University follows a systematic process in the design and development of the curriculum. Each department has got its own Board of Studies. The faculty works in close conjunction with the Boards of Studies. Each department prepares the student outcomes for the programmes being offered by it. The curriculum, thereafter, is designed to ensure meeting those student outcomes. The proposals prepared by the Boards of Studies are then put up before the Academic Council, which further refines it, and approves the curricula to be adopted by different departments. Requisite inputs are taken from various stakeholders – like industry, students, alumni and faculty, at different levels before finalization of the curriculum.

***1.1.3 How are the following aspects ensured through curriculum design and development?***

***Employability***

Student outcomes for each programme – wherein it is specified what a student should know and should be able to do after successful completion of the programme - are laid down in great detail. This gives a direction to the faculty in curriculum design and development. The outcomes are designed based on extensive interaction with the industry so that our students are able to contribute to the productivity of their respective organizations from Day One. To ensure this, the curricula that have been designed have a fair proportion of activities involving learning by doing, internships and projects in the industry. Emphasis is also laid on exposing students to various management techniques and to application of knowledge. Problem solving techniques are also incorporated in the curriculum. Special modules have been incorporated to make the curricula industry relevant. Examination system is designed to test retention of knowledge, comprehension, application of knowledge, evaluation, analysis and to test the creative abilities of the students.

To make our graduates industry ready and more employable, following special measures are taken –

- Pre assessment tests of students are conducted right at the beginning of the programme to exactly identify the problem areas in terms of lack of communication skills, mathematical skills, logic building or technical knowledge etc.



- Along with the regular technical courses, special classes are conducted to enhance the level of students on all these four critical parameters. Infact, classes to improve communication skills are conducted in a batch size of as small as 12 to 14 students only.
- Hard core trainers are hired to improve the Logical Reasoning skills of students.
- Students are given a large number of Pre Placement tests so as to make them understand the challenges of the industry and make them better ready for the actual on campus placements.
- The curriculum is designed through an equitable proportion of hands-on practical training for skill acquisition and sound theoretical knowledge, which serves to equip the students to face real-time situations and societal needs. The curriculum attempts to address the needs of various stakeholders such as industries, Government agencies etc.

### ***Innovation***

The University has adopted project-based learning as a keystone of its pedagogy. The students are assigned projects in each semester to develop their innovative potential. The project statements are designed after due deliberations and the students are encouraged to arrive at the driving question and the problems that need to be solved based on that. The projects are so designed that they have more than one solution and the students are encouraged to apply their minds to identify those solutions, evaluate those and adopt the most suitable solution. Regular interaction is held with faculty-guides to imbibe the learnings and to analyse the mistake made.

The University holds regular technical competitions to encourage spirit of innovations amongst the students.

The practical exercises in various laboratories are also designed to develop creativity amongst the students. For this purpose simulation software, like LABVIEW, MATLAB, Full suite of Cadence Design Tools, STAD PRO etc., have been procured by different departments. Such softwares have either been sponsored by the industry or have been procured by the University from the market.

University realizes that young minds of students remain highly energetic and innovative. Role of the university is to keep their energy channelized in right direction so as to harvest the benefit of their innovative ideas.

University is quite liberal at providing opportunities to students to present their innovations at various national and international platforms. Students have participated in

various competitions organized by its partner Industries (which have established their laboratories in our campus) and also won laurels for the university. All expenses to support the innovative ideas of students and also making sure that they participate in these competitions are borne by University.

Other than this, University has been successfully able to create a kind of fearless atmosphere where students do not hesitate to share their ideas of innovations with any of the higher authorities, to encourage the culture of innovation.

Further, University has also tied up with Professional Patent Attorneys who visit university on regular basis and encourage students and Faculty members to indulge themselves more in innovations and process of filing more and more number of patents.

These measures have resulted in great deal of academic freedom enabling the introduction of new and innovative courses, like Innovative Idea Generation. The University with different departments of study provides the right ambience for introducing several innovative interdisciplinary programmes.

### ***Research***

The University is just about 6 years old and it takes time to establish a strong base with research culture all around.

But, right kind of seeds have been sown very successfully by encouraging faculty members to submit their research projects to Government agencies like DST, CSIR etc.

Faculty members are provided Seed Money to initiate their research interest at small level and then try to make it big in terms of final submission of their research proposals to Government agencies.

Further, University adopts a liberal policy in allowing and supporting its faculty members to participate in national and international conferences in country and abroad. The students are oriented to research through participation in minor and major projects.

The University has also entered into collaborations with a number of institutions to foster a culture of research amongst the faculty and the students.

#### ***1.1.4 To what extent does the university use the guidelines of the regulatory bodies for developing and/or restructuring the curricula? Has the university been instrumental in leading any curricular reform which has created a national impact?***

The guidelines laid down by the regulatory bodies are given vital importance while framing the curriculum. For example courses like Environmental Science, Disaster

Management, Cyber Security and Human Rights and Values have been introduced in the curricula for various programmes. The University has been following the Cumulative Grade Point Average (CGPA) system right from the beginning. Even the semester system had been introduced even before the UGC or the AICTE guidelines were issued. The University over the years has introduced new need-based courses of study and revised the curricula to suit the needs of society and the local and global demands. The curriculum developed by the University is well regarded in academic circles and has also been acknowledged by many foreign universities who accept credit transfer from our University.

Besides this, almost all Boards of Studies have representation from industry and potential employers of students. Their inputs are also given due consideration and accordingly changes are made in the course curriculum permissible within the framework of guidelines of the regulatory bodies.

University has been quite instrumental in developing a course curriculum, which has helped its graduates get employment in top industries of repute.

***1.1.5 Does the university interact with industry, research bodies and the civil society in the curriculum revision process? If so, how has the university benefitted through interactions with the stakeholders?***

We have academic scholars, experts who advise top Indian corporations, the authors of important texts in technology and faculty who develop fresh approaches in information management, latest technology and many other fields. With brilliant students and talented teachers, we have become partners in pursuit of purposeful learning and experience. Chitkara University, Himachal Pradesh has been in the forefront of developing great industry-academia interface and has successfully achieved 100% campus recruitment across major companies in respective sectors. In addition, the Industry reposed faith in the academic standards of the University and companies like nVIDIA, one of the leading companies in the parallel computing space, has granted the status of “CUDA teaching Centre” to Chitkara University. Marquee companies such as ARM, Cadence and NXP Semiconductors are supporting us in terms of supplying state-of-the-art equipment for best hands-on classroom training. Infosys Campus Connect and Wipro 10X Mission have provided us an important framework for our engineering curriculum. We have forged strong linkages with industry leaders such as CISCO, Ericsson, National Instruments and Oracle to develop and deploy industry-relevant curricula on various technologies for our engineering curriculum.

A systematic process is followed for designing and development of curriculum. The curricula are developed and reviewed by respective boards of studies under the direction of academic council, which is a blend of senior academia and industry experts. The board of study meet periodically to develop the curricula for new programmes as well as review the curricula of existing programmes. Further, its academic programmes and curricula are designed keeping in view the human resource requirements of these industries ensured by the industry experts on the board of studies and academic council.

***1.1.6 Give details of how the university facilitates the introduction of new programmes of studies in its affiliated colleges.***

NA

***1.1.7 Does the university encourage its colleges to provide additional skill-oriented programmes relevant to regional needs? Cite instances (not applicable for unitary universities).***

NA

## **1.2 Academic Flexibility**

### **1.2.1 Furnish the inventory for the following:**

**\* Programmes taught on campus**

*B.E. (Civil Engineering)*

*B.E. (Electronics and Communication Engineering)*

*B.E. (Computer Science and Engineering)*

*M.E. (Micro Electronics)*

*M.E. (Computer Science and Engineering)*

*Ph.D.*

*M.E (Construction Technology and Management), M.Sc. Mathematics, M.Sc. Physics, and M.A. English – commencing with effect from academic year 2015-16*

**\* Overseas programmes offered on campus**

*None at present*

**\* Programmes available for colleges to choose from**

*Not Applicable*

### **1.2.2 Give details on the following provisions with reference to academic flexibility**

**a. Core / Elective options**

About 70% of the syllabus belongs to the core area. The elective options are designed on the basis of the skill based, applied nature of the course and requirements of the industry. Students are given option to select the electives based on their choice.

**b. Enrichment courses**

The University provides the students opportunities and facilities to enrich their personalities through enrichment courses like life skills development; environmental engineering, department specific training and industry oriented hands-on training. Students are also exposed to knowledge related to our national heritage. The University has published its own book for that purpose. Similarly students are encouraged to take up modules related to spiritual aspects like Art of Living and Yoga etc.

***c. Courses offered in modular form***

There are certain courses which have a modular design. These are offered in face to face mode, online mode and through self study mode, for example Innovative Idea Generation, Disaster Management etc.

***d. Credit accumulation and transfer facility***

The University allows mid course transfer from one University to another. There are number of cases in which such transfers have taken place on the recommendation of equivalence committee constituted by the University. When a student applies for a transfer, the credits earned by him upto that juncture are validated by the equivalence committee of the University.

***e. Lateral and vertical mobility within and across programmes, courses and disciplines***

The University proposes to adopt lateral and vertical mobility within and across programmes, courses and disciplines after it consolidates its operations at the present level and also increases the number of offerings of programmes by different departments.

***1.2.3 Does the university have an explicit policy and strategy for attracting international students?***

Right from the day of its inception Chitkara University has made an endeavour to internationalize its operations. That involves both attracting foreign students and also ensuring that our own students and enjoy the benefit of global mobility. This has been achieved by adopting industry relevant and contemporary curricula for various programmes.

The University has a very positive and proactive approach towards attracting students from the other countries. In this process Chitkara has signed collaboration arrangements with 27 prestigious universities, such as Glasgow Caledonian University, UK, ESTP, Paris to name a few.

Our Student Exchange Programmes provide understanding of the multiple perspectives of the international issues and increase the competencies of students to work in an increasingly interdependent world. The semester abroad programs foster personal development, global awareness, meaningful engagement and cross-cultural understanding among the students.

***1.2.4 Have any courses been developed targeting international students? If so, how successful have they been? If 'no', explain the impediments.***

Since the University is just about six year old all the programmes are open for both national and international students. However, at a later date specific programmes would be launched to attract foreign students. As a first step, the University plans to launch its Summer School beginning with the year 2016 onward.

***1.2.5 Does the university facilitate dual degree and twinning programmes? If yes, give details.***

No

***1.2.6 Does the university offer self-financing programmes? If yes, list them and indicate if policies regarding admission, fee structure, teacher qualification and salary are at par with the aided programmes?***

As per the Chitkara University Act, the University is self financing University. Thus, in effect all programmes are self financed.

***1.2.7 Does the university provide the flexibility of bringing together the conventional face-to-face mode and the distance mode of education and allow students to choose and combine the courses they are interested in? If 'yes,' give operational details.***

The University realises the importance of gaining from experts in the industry and other Universities, both in India and abroad. Thus, the University has initiated measures to incorporate online content in certain courses like Innovative Idea Generation, Fundamental of Electronics Engineering etc. In addition, students and faculty are encouraged to acquire additional certifications through MOOCS offered by reputable universities abroad.

***1.2.8 Has the university adopted the Choice Based Credit System (CBCS)? If yes, for how many programmes? What efforts have been made by the university to encourage the introduction of CBCS in its affiliated colleges?***

Not at present, however, the University is planning to adopt CBCS system in subsequent years.

**1.2.9 What percentage of programmes offered by the university follow:**

- Annual system
- Semester system -- 100%
- Trimester system

**1.2.10 How does the university promote inter- disciplinary programmes? Name a few programmes and comment on their outcome.**

The University gradually plans to increase programmes being offered. Inter-disciplinary programmes will be offered at that stage. To begin with we propose to offer programmes dealing with nano technology, bio technology in the first phase. However, as a first step interdisciplinary research activities in various disciplines like Bioinformatics algorithms, Analysis of microarray gene expression and protein sequence/structure data to help fuel physiological information discovery, Human computer interaction, Engineering Geomorphology and Geosciences are being undertaken. We are confident that this will inspire new interdisciplinary programmes in the near future.

**1.3 Curriculum Enrichment**

**1.3.1 How often is the curriculum of the university reviewed and upgraded for making it socially relevant and/or job oriented / knowledge intensive and meeting the emerging needs of students and other stakeholders?**

The process of revising and upgrading the syllabus is a routine process periodically taken up in the University. No fixed time line for revision of the syllabi has been laid down. However, our Boards of Study are very active and revise the syllabi frequently based on inputs receive from industry, feedback from students and alumni.

**1.3.2 During the last four years, how many new programmes at UG and PG levels were introduced? Give details.**

**Inter-disciplinary:** As explained earlier the University is still in its stage of infancy and we plan to introduce Inter-disciplinary programmes shortly.

**Programmes in emerging areas**

As explained earlier the University is still in its stage of infancy and we plan to introduce programmes in emerging areas shortly.



### ***1.3.3 What are the strategies adopted for the revision of the existing programmes?***

#### ***What percentage of courses underwent a syllabus revision?***

As explained earlier the strategies adopted for the revision of the existing programmes is based on inputs received from industry, feedback from faculty, students and the alumni. During the past four years approximately 30% of the programme content has undergone changes and also the courses have been suitably modified. The professors, senior faculty members are engaged in the framing of updated syllabi.

The University has also joined a consortium - promoted by Anglia Ruskin University, UK under the aegis of British Council – of universities in South Asia. This initiative is known as South Asia Anglia Partnership. Chitkara University was assigned to host the first Knowledge Enterprise Partnership Project that entitled Employer Engagement in curriculum development. Workshop was conducted with the theme “Employer Engagement to Inform and Influence Curriculum Development”.

### ***1.3.4 What are the value-added courses offered by the university and how does the university ensure that all students have access to them?***

In addition to the prescribed syllabus the university offers value-added courses involving activities of social significance and the larger welfare of mankind. The university is aware of the phenomena of education as one that affects the overall development of the personality and skills of its students. The students are taught to develop a mindset that enables them to work locally and think internationally. Courses like soft skills development, national heritage etc are mandatory. Another value added course namely General Education Social Skills (GES) is being offered to all branches where due weightage is given to the co-curricular and socially relevant activities. Inlingua language lab that works towards the personality developments and development of soft skills of the participants has been a big boon. Moreover students are encouraged to participate in extension activities. They are involved in activities and programmes such as adoption of villages, creating awareness programmes in the villages, ‘cast your vote’ awareness programmes, women empowerment programmes health care programmes, AIDS awareness programmes, city cleanliness programmes are a few to name. The University also gears up NSS volunteers to carry out value-added activities and programmes. Further case studies, role plays, management games, simulations, experiential learning, quizzes, seminars, groups discussions are also used to add value to course delivery.

***1.3.5 Has the university introduced any higher order skill development programmes in consonance with the national requirements as outlined by the National Skills Development Corporation and other agencies?***

Yes, the University has introduced higher order skill development programmes. For example, students of CSE are encouraged to acquire certifications in CCNA and CCNP, and parallel programming. Students of ECE are encouraged to acquire certifications in VLSI design and instrumentation. Students of CE are encouraged to acquire certifications in CAD.

***1.4 Feedback System***

***1.4.1 Does the university have a formal mechanism to obtain feedback from students regarding the curriculum and how is it made use of?***

Yes. We have formal mechanism to get feedback from the students. A format utilized for obtain the feedback is attached at Annexure 3. The feedback received is analysed by the faculty members under the guidance of the HOD. Thereafter, it is also discussed during the meetings of the Boards of Study, Academic Council and the Board of Management. Suitable remedial measures are incorporated, if required.

***1.4.2 Does the university elicit feedback on the curriculum from national and international faculty? If yes, specify a few methods such as conducting webinars, workshops, online discussions, etc. and its impact.***

The University has devised a very novel concept known as Global Engineering Week. So far this has been held twice. Eminent faculty members from reputable universities from all over the world attend this event. Apart from conducting seminars and workshops they also interact with faculty and provide feedback that helps the University in making its curriculum contemporary. Faculty members of other institutions of national importance and scientists from national level research institutes are also invited to visit the University. Their expertise is utilized in modifying the curriculum.

The University has also joined a consortium - promoted by Anglia Ruskin University, UK under the aegis of British Council – of universities in South Asia. This initiative is known as South Asia Anglia Partnership. Chitkara University was assigned to host the first Knowledge Enterprise Partnership Project that entitled Employer Engagement in curriculum development. Workshop was conducted with the theme “Employer Engagement to Inform and Influence Curriculum Development”.

***1.4.3 Specify the mechanism through which affiliated institutions give feedback on curriculum enrichment and the extent to which it is made use of.***

NA

***1.4.4 What are the quality sustenance and quality enhancement measures undertaken by the university in ensuring the effective development of the curricula?***

The university takes the following steps for quality sustenance and quality enhancements in ensuring the effective development of its curricula:

- (a) The university regularly evaluates and reviews its curricula in the light of the feedback obtained from its students, faculty members, professionals, alumni, subject experts invited from outside of the University and other stake holders like the parents of the students, business organizations and also the curricula of the other national and international institutions.
- (b) The university holds the meetings of the board of studies and concerned departments regularly to discuss the various aspects of the curricula to be revised and upgraded. The university incorporates all the necessary suggestions so collected, documented and approved by the concerned academic bodies. The University also takes care of the recommendations of various regulatory bodies like – AICTE, UGC and the State Government.
- (c) The revision of the courses of study takes place based on feedback received from various stakeholders and on the request of the particular department.
- (d) There is statutory provision for an external expert member in the Research Degree Committee, Board of Studies and Academic Council. This ensures regular comparability, improvement and enrichment of the curriculum development and up gradation.
- (e) In addition to above the following quality sustenance and quality enhancement measures have been taken by the University to ensure the effective development of curricula;
  - i. Introduction of project based learning to motivate the students to learn the basic concepts through application of their creativity and ingenuity
  - ii. Introduction of Industry Oriented Hands on Courses in specific fields to make the students industry ready.
  - iii. Organizing expert lectures by industry experts in fields involving latest advancement in technology.
  - iv. Organizing Global Engineering Week wherein faculty from the international Universities / colleges come and deliver lectures in their fields of expertise.

Collaboration with industries to obtain feedback regarding relevance of the curricula and modification required.

## ***CRITERION II: TEACHING-LEARNING AND EVALUATION***

### ***2.1 Student Enrolment and Profile***

#### ***2.1.1 How does the university ensure publicity and transparency in the admission process?***

##### ***Publicity:***

The University ensures wide publicity to the admission process through notification and advertisements in local and national newspapers as well as on the University website. Admission notifications along with the eligibility criteria are circulated through newspapers. These notifications are also placed on the University website. The process is implemented by the Admission Cell. The Admission Cell is entrusted with the responsibilities like the preparation of admission notification, course directory and identification of centres for entrance examinations, if required. There is a separate admission procedure for M. E. and Ph. D. courses administered through Post Graduate Admission Cell and Departmental Research Committees.

##### ***Transparency:***

In order to bring transparency, information containing general merit list, category and other related matters is displayed at the counseling venue and on the University website. Enough time is also given to report grievances, if any. The University calls the students for counselling based on reservation and merit criteria already stated in the admission notification. For each phase of admissions, students are given information about the admission procedure, facilities available in the concerned Departments and the University, course structure, besides placement opportunities.

#### ***2.1.2 Explain in detail the process of admission put in place by the university. List the criteria for admission: (e.g.: (i) merit, (ii) merit with entrance test, (iii) merit, entrance test and interview, (iv) common entrance test conducted by state agencies and national agencies (v) other criteria followed by the university (please specify).***

The admissions for engineering programmes are based strictly on merit basis through the rank obtained in JEE. The process is totally transparent and there is NO management quota. For being eligible to get admission in bachelor of engineering courses, the student must have secured at least 60% marks in 10+2 exams and should have obtained rank in the all India engineering entrance examination (JEE).

The admission committee of the university decides the admission criteria in accordance with rules and regulations of the University and direction given by the concerned regulatory bodies. The University adopts entrance test mode for all its courses. The University has also aligned itself with the state level admission test for admitting students.

***2.1.3 Provide details of admission process in the affiliated colleges and the university's role in monitoring the same.***

NA

***2.1.4 Does the university have a mechanism to review its admission process and student profile annually? If yes, what is the outcome of such an analysis and how has it contributed to the improvement of the process?***

Yes. A review is carried out every year immediately after the admission process is completed. Student profile is reviewed based on criteria like performance in the qualifying examination, regional diversity, gender, reserved categories and so on. Based on the above the process for subsequent years is improved by instituting suitable measures. For example hostel capacity was increased based on inputs received from such reviews and it helped in attracting students from different states.

***2.1.5 What are the strategies adopted to increase / improve access for students belonging to the following categories:***

- ***SC/ST***
- ***OBC***
- ***Women***
- ***Persons with varied disabilities***
- ***Economically weaker sections***
- ***Outstanding achievers in sports and other extracurricular activities***

The University is very conscious about ensuring accessibility to deserving students especially those from SC, ST, OBC, physically handicapped categories and those belonging to hill state Himachal Pradesh. Accordingly, on the first day of the admission process seats are allocated only to the above mentioned categories. Seats to general category are allotted only after exhausting the merit list from the above categories.

**2.1.6 Number of students admitted in university departments in the last four academic years:**

Categories	Year 1 (2011-12)		Year 2 (2012-13)		Year 3 (2013-14)		Year 4 (2014-15)	
	Male	Female	Male	Female	Male	Female	Male	Female
SC	10	08	18	09	04	02	16	04
ST	0	0	05	02	03	0	02	01
OBC	19	05	31	09	13	02	24	04
General	492	295	477	280	417	184	327	103

**2.1.7 Has the university conducted any analysis of demand ratio for the various programmes of the university departments? If so, highlight the significant trends explaining the reasons for increase / decrease.**

Regular data is collected beginning with at least one year before the admission season to assess the demand for various courses and suitable measures are instituted. For example, programmes like M.Sc. (Physics, Mathematics), M.A. (English), M.E. (Construction Technology and Management) are being introduced in the academic year 2015-16.

**2.1.8 Were any programmes discontinued / staggered by the university in the last four years? If yes, please specify the reasons.**

No

## **2.2 Catering to Student Diversity**

### ***2.2.1 Does the university organize orientation / induction programme for freshers? If yes, give details such as the duration, issues covered, experts involved and mechanism for using the feedback in subsequent years.***

The University organizes orientation / induction programme for the freshers in the University. Such joint orientation/induction programmes for all freshers at the university level are organised in the University Auditorium which are chaired by the Vice Chancellor of the University and attended by the officers and faculty members from all the departments of the University. Even senior students take part in such orientation programmes and brief the new students. Freshers are invited with their parents/guardians to inspire confidence and to make them aware of their respective programmes, rules and regulations of the University, facilities available and other salient aspects related to student life. Such programmes provide necessary guidance and effective motivation to the freshers as these programmes bridge the gap between the freshers and the University authorities. In such orientation / inductions programmes the freshers in the presence of their parents and guardians get an opportunity to meet and interact with the Vice Chancellor and other officers and authorities such as Deans, Finance Officer, Registrar, Deputy Registrar and Assistant Registrars holding different portfolios, librarian, sports officers, hostels wardens, and the Heads of the various departments. The freshers are told how and whom to address their queries and problems. The duration of such centralized orientation/ induction programmes extends to one full day. In addition to the centralised orientation / induction programmes, the departments of the University also organise freshers welcome at the departmental level. These programmes are cultural as well as informative as the faculty of the different department informs the freshers about various rules and regulations to be followed by them.

They are informed of the anti ragging rules, disciplinary rules, attendance regulations and also the ideal code of conduct to be followed in the University. Such programmes introduce the fresher to the traditions and practices and the particular expectations of the department in the educative and academic matters. The freshers interact with the seniors in the presence of responsible senior faculty members so that they may feel comfortable in the University campus. The concerned Deans make students aware of the rules and regulations and rights and duties meant for them. The freshers are informed about the different University committees such as the redressal cell, the anti-ragging cell, the women

grievance cell, the internal assessment procedures, the departmental conferences and seminars schedules etc. Hostel and day scholar students are also told about different facilities, rules, regulations and procedures. The University is sensitive towards gender equality and women grievance cell is functional to look after such issues.

University has a very strong student mentorship cell, where faculty is assigned to each student, who act as a friend, philosopher and guide about which he is told on the day of orientation itself.

***2.2.2 Does the university have a mechanism through which the “differential requirements of the student population” are analysed after admission and before the commencement of classes? If so, how are the key issues identified and addressed?***

Yes. The University attracts student from metropolitan cities, district headquarters and rural areas. Consiquently there is differential in their academic standards, communication skills and mental makeup. Measures are instituted within the first year itself to overcome the handicaps by holding special classes, assigning faculty members as mentors and adoption of buddy system among the students wherein senior students act as guides to the new comers.

***2.2.3 Does the university offer bridge / remedial / add-on courses? If yes, how are they structured into the time table? Give details of the courses offered, department-wise/faculty-wise?***

So far the University has not felt the need for any bridge courses. However, remedial courses like communication skills and communicative English are conducted after the class hours to bring weak students at par with others.

***2.2.4 Has the university conducted any study on the academic growth of students from disadvantaged sections of society, economically disadvantaged, physically handicapped, slow learners, etc.? If yes, what are the main findings?***

Although no structured studies on the above aspects has been undertaken, it is seen that the academic growth of students from the above sections of societies varies from person to person and does not follow any set pattern. Accordingly additional inputs are provided to such students who are below the requisite standards.

The University pays due attention to the slow learners, economically disadvantaged sections of students. For slow learners the central library provides special facilities by way



of a well equipped lab. The reservation policies of State and Central Government are strictly followed and the students from disadvantaged sections of society are encouraged to avail the facilities of the language lab in the department of English. Teachers and mentors pay extra attention to slow learners by personal counseling, extra classes, and mentoring from time to time.

#### ***2.2.5 How does the university identify and respond to the learning needs of advanced learners?***

- Advanced learners are identified based on their performance in the sessional tests, assignments, end term examination and their interaction with the subject teachers.
- Advanced learners are given relatively difficult projects in each semester that meets their intellectual aspirations and they are constantly guided and motivated for solving such problems. Based on their response and performance the difficulty level of problem is gradually elevated.
- Advanced learners are also encouraged to refer to reference books and other study material available on the internet.
- They are encouraged to participate in technical competition and seminars outside the university.
- Advanced learners are also encouraged to help other students who are weak in studies. This helps in instilling a sense of achievement in advanced learners and also fosters a sense of comradeship among the students.
- Special coaching for various competitive examinations like GRE / GATE is given for advanced learners.

## 2.2 Teaching-Learning Process

### 2.3.1 How does the university plan and organise the teaching, learning and evaluation schedules (academic calendar, teaching plan, evaluation blue print, etc.)?

#### Academic Calendar

The University prepares the central academic calendar based on inputs obtained from various departments, which is strictly followed. The academic calendar is uploaded on the University ERP Portal well in advance before the start of academic session. The Academic Calendar gives details of Academic Session, Examination Schedule, List of Holidays, Conferences / Seminars schedule, curricular, co-curricular and extracurricular activities. Academic Calendar for 1<sup>st</sup> Semester of Academic Year 2014-15 is as under

#### July – 2014

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
30 June Class work starts for Ongoing Batches	1	2	3	4	5	6
7	8	9	10 Announcement of TI Analog Design Contest 2015	11	12	13
14 Workshop on “Big Data” by Dr. Sumeet Dua	15 Workshop on “Big Data” by Dr. Sumeet Dua	16 Workshop on “Big Data” by Dr. Sumeet Dua	17 Workshop on “Big Data” by Dr. Sumeet Dua	18 Workshop on “Big Data” by Dr. Sumeet Dua	19	20
21	22	23	24	25	26	27
28	29	30	31			

**August – 2014**

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
				1	2	3
4	5	6	7	8	9	10 Raksha Bandhan
11	12	13	14	15 Independence Day	16 Off Day	17
18 Janmashtami	19	20	21	22	23	24
25	26	27	28	29 Cross Country	30 Off Day	31

## September – 2014

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	2	3	4	5 <ul style="list-style-type: none"> <li>•Teacher's day celebrations in the After Noon / Clubs / Society activities</li> <li>•Blood Donation camp</li> <li>•Seminar on "Computer Society of India"</li> <li>•IETE Student chapter organizes Seminar: TECHNOVIZ -2014</li> </ul>	6	7
8 General Technical Quiz	9	10	11	12	13 Off Day	14 Seminar on "Interoductoria Seminario"
15	16	17	18 Pirates of Chitkara	19	20 Pirates of Chitkara	21
22	23	24	25 Hostel Nite in the evening	26 Algothym + Fresher's Party	27 Algothym	28
29	30					

### October – 2014

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
		1	2 Gandhi Jayanti	3 Dussehra	4 Off Day	5
6	7	8	9	10	11	12 Workshop on “Circuit Designing”
13 Crack the Code	14 Pirates of Chitkara	15	16	17	18	19
20	21	22 Diwali Holidays	23 Diwali Day	24 Diwali Holidays	25 Diwali Holidays	26
27	28	29	30	31 • National Unity Day • Run for Unity		

### November – 2014

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
					1 Off Day	2
3	4	5 Workshop on Basic Photography	6 Guruparav	7	8	9
10	11 • Guest Lecture for Batch-2013 (Dr. Pramod Vohra, NIU, USA) • National Education Day	12 Seminar on “Patents, Trademarks and Copyrights” by Patent Attorney’s	13	14 Blood donation Camp	15	16
17	18 Workshop on “Disaster Management and Mitigation” by Prof. Chandan Ghosh	19	20 • Seminar on “Introductria Digimart” • Workshop on “RF Module”	21 Annual Athletic Meet	22 Faculty Sports Meet	23
24	25	26	27	28	29	30

### December – 2014

<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>	<b>Saturday</b>	<b>Sunday</b>
1	2	3	4	5	6	
8 Conduct of Practical Exams	9 Conduct of Practical Exams	10 Conduct of Practical Exams	11 Conduct of Practical Exams	12 Conduct of Practical Exams	13	
15  End Term Theory Exams Starts	16  End Term Exam	17  End Term Exam	18  End Term Exam	19  End Term Exam	20  End Term Exam	21  End Term Exam
22 End Term Exam	23 End Term Exam	24 End Term Exam	25 Christmas	26 End Term Exam	27 End Term Theory Exams End	28 Winter Break
29 Winter Break	30 Winter Break	31 Winter Break				

## January 2015

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
			<b>1</b> Winter Break	<b>2</b> Winter Break	<b>3</b> Winter Break	<b>4</b>
<b>5</b> Registration for New Semester for all batches Class work for II Semester starts	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b> Off Day	<b>11</b>
<b>12</b> Expert talk on “What to do outside the campus”	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>
<b>19</b>	<b>20</b> Chancellor’s Day Batch 2012 Section 1,2,3	<b>21</b>	<b>22</b> • Chancellor’s Day Batch 2012 Section 4,5,6 • Workshop on “Ecological Imbalance and Himalyas”	<b>23</b>	<b>24</b> Off Day	<b>25</b> Himachal Day
<b>26</b> Republic Day	<b>27</b>	<b>28</b> Workshop on “SCRAP IT” organized by CIVINGS	<b>29</b> Chancellor’s Day Batch 2012 Section 7,8,9	<b>30</b>	<b>31</b>	



## February 2015

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
						<b>1</b> T-20 Tournament starts
<b>2</b>	<b>3</b>	<b>4</b> Chancellor's Day Batch 2012	<b>5</b>	<b>6</b> Autodesk Workshop	<b>7</b> Off Day Autodesk Workshop	<b>8</b> T-20 matches
<b>9</b>	<b>10</b> Chancellor's Day Batch 2013	<b>11</b>	<b>12</b> Chancellor's Day Batch 2013	<b>13</b> Autodesk Workshop	<b>14</b> Off Day Autodesk Workshop	<b>15</b> T-20 matches
<b>16</b>	<b>17</b> Maha Shivratri	<b>18</b>	<b>19</b>	<b>20</b> Autodesk Workshop	<b>21</b> Autodesk Workshop	<b>22</b> T-20 matches
<b>23</b>	<b>24</b> Chancellor's Day Batch 2013 Section 7,8,9,10	<b>25</b> Chancellor's Day Batch 2014 Section 1,2,3,4,5	<b>26</b> Civil Engg. Department Conference	<b>27</b> Civil Engg. Department Conference  Autodesk Workshop	<b>28</b> Autodesk Workshop	

### March 2015

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
						<b>1</b>
<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b> Holi Holiday	<b>6</b> Holi Holiday	<b>7</b> Off Day	<b>8</b>
<b>9</b>	<b>10</b> Chancellor's Day Batch 2014 Section 6,7,8,9	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b> RMC plant visit	<b>15</b>
<b>16</b> Workshop on "ArcGIS"	<b>17</b> Workshop on "ArcGIS"	<b>18</b>	<b>19</b>	<b>20</b>	<b>21</b> TECHELO NE	<b>22</b> NSS Camp Activities
<b>23</b> GEW Batch 2013 sponsored by (IEEE/CSI/ IETE)/ NSS Camp Activities	<b>24</b> GEW Batch 2013/ NSS Camp Activities	<b>25</b> GEW Batch 2013/ NSS Camp Activities	<b>26</b> GEW Batch 2013/ NSS Camp Activities	<b>27</b> GEW Batch 2013/ NSS Camp Activities	<b>28</b> Ram Navami / NSS Camp Activities	<b>29</b> NSS Camp Activities
<b>30</b> NSS Camp Activities	<b>31</b> NSS Camp Activities					

**April 2015**

<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>	<b>Saturday</b>	<b>Sunday</b>
		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b> Off Day	<b>5</b>
<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b> Farewell Party for Batch 2011	<b>12</b>
<b>13</b>	<b>14</b>	<b>15</b> Himachal Day/Blood Donation Camp	<b>16</b>	<b>17</b>	<b>18</b> Off Day	<b>19</b>
<b>20</b>	<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b> Cement plant visit	<b>26</b>
<b>27</b>	<b>28</b>	<b>29</b>	<b>30</b>			

**May 2015**

<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>	<b>Saturday</b>	<b>Sunday</b>
				<b>1</b>	<b>2</b>	<b>3</b>
<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b> Off Day	<b>10</b>
<b>11</b> End Term Theory Exam Starts	<b>12</b> End Term Exam	<b>13</b> End Term Exam	<b>14</b> End Term Exam	<b>15</b> End Term Exam	<b>16</b> End Term Exam	<b>17</b>
<b>18</b> End Term Exam	<b>19</b> End Term Exam	<b>20</b> End Term Exam	<b>21</b> End Term Exam	<b>22</b> End Term Exam	<b>23</b> End Term Exam	<b>24</b>
<b>25</b> End Term Exam	<b>26</b> End Term Exam	<b>27</b> End Term Exam	<b>28</b>	<b>29</b>	<b>30</b> Off Day	<b>31</b>

**June 2015**

<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>	<b>Saturday</b>	<b>Sunday</b>
<b>1</b>	<b>2</b>	<b>3</b> Summer Break	<b>4</b> Summer Break	<b>5</b> Summer Break	<b>6</b> Summer Break	<b>7</b> Summer Break
<b>8</b> Summer Break	<b>9</b> Summer Break	<b>10</b> Summer Break	<b>11</b> Summer Break	<b>12</b> Summer Break	<b>13</b> Summer Break	<b>14</b> Summer Break
<b>15</b> Summer Break	<b>16</b> Summer Break	<b>17</b> Summer Break	<b>18</b> University reopens after summer break	<b>19</b>	<b>20</b>	<b>21</b>
<b>22</b> Regular classwork starts for ongoing Batches	<b>23</b>	<b>24</b>	<b>25</b>	<b>26</b>	<b>27</b>	<b>28</b>
<b>29</b>	<b>30</b>					

**Teaching Plan:** Based on the ratified credits each faculty member prepares a course handout (Course Delivery Plan) giving the objectives, detailed delivery schedule, reference materials and components for internal, sessional and end term evaluations and other relevant information. Teaching plan for each session is prepared by the faculty member and is approved by the Head of Department. Course handout is discussed with the students on the commencement of the academic semester. Each head of department maintains a file of course handouts of the courses being taught in the semester. The progress of the course taught viz-a-viz course handouts is monitored periodically by the department so that the remedial action can be taken, if required. A sample of course handout (Course Delivery Plan) is appended below

<b>Institute / School Name</b>	Chitkara School of Engineering and Technology		
<b>Program Name</b>	BE (CSE)		
<b>Course Code</b>	CSL3201		
<b>Course Name</b>	Object Oriented Programming		
<b>Lecture / Tutorial (per week)</b>	4-1-0	<b>Course Credits</b>	3
<b>Course Coordinator Name</b>	Mr. Girish Rao		

### 1. Scope and Objectives of the Course

1. The course is meant to provide knowledge of programming language (C++) and to inculcate logic building among students.
2. To provide a clear modular structure for programs which makes it good for defining abstract data types where implementation details are hidden and the unit has a clearly defined interface.
3. To make students familiar with inconceivable features of OOPS such as code re-usability, code-extensibility, testability and increased quality.
4. The course aims to provide students idea about real-time application development using Object oriented programming methodology such as user friendly software's.

### 2. Textbooks

**TB1:** 'Object Oriented Programming with C++' by E Balagurusamy, 4<sup>th</sup> Edition, Tata McGraw Hill.

### 3. Reference Books

**RB1:** Object Oriented Programming in C++' by Robert Lafore, Third Edition, Galgotia 2008.

**RB2:** The Complete Reference C++' by Herbert Schildt, Tata McGraw Hill.

**RB3:** Stroustrup, Bjarne, The C++ Programming Language, Pearson Education.

**RB4:** Lippman, S.B. and Lajoie, J., C++Primer, Pearson Education.

#### 4. Other readings and relevant websites

S.No.	Link of Journals, Magazines, websites and Research Papers
1.	<a href="http://www.cprogramming.com/tutorial/c++-tutorial.html">http://www.cprogramming.com/tutorial/c++-tutorial.html</a>
2.	<a href="http://www.cplusplus.com/doc/tutorial/">http://www.cplusplus.com/doc/tutorial/</a>
3.	<a href="http://www.tenouk.com/cncplusplusutorials.html">http://www.tenouk.com/cncplusplusutorials.html</a>
4.	<a href="http://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-088-introduction-to-c-memory-management-and-c-object-oriented-programming-january-iap-2010/">http://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-088-introduction-to-c-memory-management-and-c-object-oriented-programming-january-iap-2010/</a>

#### 5. Course Plan

Lecture Number	Topics	Text Book(s) referred	Page numbers of Text Book(s)
1-2	<b>Introduction:</b> Introduction to basic concepts of object-oriented programming, Comparison between procedural programming paradigm and object-oriented programming paradigm.	TB1 RB3	1-15 21-24
3-6	<b>Functions in C++:</b> inline functions, default arguments, function prototyping, function overloading, call by reference (call by value & call by pointer).	TB1 RB3 <a href="http://www.cplusplus.com/doc/tutorial/functions/">http://www.cplusplus.com/doc/tutorial/functions/</a>	77-87 143-156
7	<b>Tutorial-1</b>		
8-12	<b>Classes and Objects:</b> Specifying a class, Creating class objects, Accessing class members, Access specifiers – public, private, and protected, Classes, Objects and memory, Static members, Static objects, constant member function, constant objects, friend functions, friend class.	TB1 RB1 <a href="http://www.tenouk.com/Module12.html">http://www.tenouk.com/Module12.html</a>	96-124 216-259
13	<b>Tutorial-2</b>		
14-17	<b>Dynamic Memory Management &amp; pointers:</b> Understanding pointers, Accessing address of a variable, Declaring & initializing pointers, Accessing a variable through its pointer, Pointer arithmetic, Pointer to a pointer, Pointer to a function, Dynamic memory management - new and delete Operators, Pointers and classes, Pointer to an object, Pointer to a member, this Pointer, Possible problems with the use of pointers - Dangling/wild pointers, Null pointer assignment, Memory leak and allocation failures.	TB1  <a href="http://www.cplusplus.com/doc/tutorial/">http://www.cplusplus.com/doc/tutorial/</a>	52-53 , 251-273
18	<b>Tutorial-3</b>		

18-22	<b>Constructors and Destructors:</b> Need for constructors and destructors, Copy constructor, Dynamic constructors, Destructors, Constructors and destructors with static members	TB1 <a href="http://www.tenouk.com/Module12a.html">http://www.tenouk.com/Module12a.html</a>	144-162
23	<b>Tutorial-4</b>		
24-27	<b>Operator Overloading and Type Conversion:</b> Defining operator overloading, Rules for overloading operators, Overloading of unary operators and various binary operators, Overloading of new and delete operators, Type conversion - Basic type to class type, Class type to basic type, class to class type.	TB1 RB1 RB3	171-186 319-360 261-275
28	<b>Tutorial-5</b>		
<b>ST-I (Syllabus covered from 1-27 lectures)</b>			
29-31	<b>Inheritance:</b> Introduction, Defining derived classes, Forms of inheritance (single, multilevel, multiple, hybrid & hierarchical), Ambiguity in multiple and multipath inheritance.	TB1 RB3 <a href="http://www.tenouk.com/Module14.html">http://www.tenouk.com/Module14.html</a>	201-240 302-313
	<b>Tutorial-6</b>		
32-35	<b>Virtual base class,</b> Overriding member functions, Order of execution of constructors and destructors, inheritance with constructor.	TB1 <a href="http://www.tenouk.com/Module16.html">http://www.tenouk.com/Module16.html</a>	201-225
36	<b>Tutorial-7</b>		
37-40	<b>Virtual Functions and Polymorphism:</b> Concept of Binding - Early binding and late binding, Virtual functions, Pure virtual functions, Abstract classes, Virtual destructors & polymorphism.	TB1 <a href="http://www.tenouk.com/Module17.html">http://www.tenouk.com/Module17.html</a>	275-281
41	<b>Tutorial-8</b>		
41-44	<b>Exception Handling:</b> Review of traditional error handling, Basics of exception handling, Exception handling mechanism, Throwing mechanism, Catching mechanism, Rethrowing an exception, Specifying exceptions.	TB1 RB3 <a href="http://www.tenouk.com/Module21.html">http://www.tenouk.com/Module21.html</a>	380-392 355-384
45	<b>Tutorial-9</b>		
46-49	<b>Templates and Generic Programming :</b> Function templates, Class templates, overloading of template functions	TB1 RB1	359-375 682-702
50	<b>Tutorial-10</b>		
51-52	<b>Console I/O:</b> Concept of streams, Input/Output using Overloaded operators >> and << and Member functions of I/O stream classes, Formatting Output, Formatting using ios class functions and flags, Formatting using manipulators.	TB1 RB1 <a href="http://www.tenouk.com/Module18.html">http://www.tenouk.com/Module18.html</a>	290-317 568-576



53	<b>Tutorial-11</b>		
54-57	<b>Data Files management:</b> File streams, Hierarchy of file stream classes, Error handling during file operations, Reading/Writing of files, Accessing records randomly.	TB1 RB1 <a href="http://www.tenouk.com/Module19.html">http://www.tenouk.com/Module19.html</a>	323-353 577-616
58	<b>Tutorial-12</b>		
<b>ST-II (Syllabus covered from 29-57 lectures)</b>			
<b>ST-III (Syllabus covered from 1-57 lectures)</b>			

#### 6. Evaluation Scheme:

Component 1*	Sessional Tests (STs)*	30
Component 2	Assignment Evaluation	10
Component 3**	End Term Examination**	60
	<b>Total</b>	<b>100</b>

\* There are three Sessional Tests (STs) for all theory papers. Average of best two will be considered.

\*\* The End Term Comprehensive examination will be held at the end of semester. The mandatory requirement of 75% attendance in all theory classes is to be met for being eligible to appear in this component.

### SYLLABUS

Topics	No of lectures	Weightage
<b>Introduction:</b> Introduction to basic concepts of object-oriented programming, Comparison between procedural programming paradigm and object-oriented programming paradigm.	2	6%
<b>Functions in C++:</b> inline functions, default arguments, function prototyping, function overloading, call by reference.	4	7%
<b>Classes and Objects:</b> Specifying a class, Creating class objects, Accessing class members, Access specifiers – public, private, and protected, Classes, Objects and memory, Static members, Static objects, constant member function, constant objects, friend functions, friend class.	5	9%
<b>Dynamic Memory Management &amp; pointers:</b> Understanding pointers, Accessing address of a variable, Declaring & initializing pointers, Accessing a variable through its pointer, Pointer arithmetic, Pointer to a pointer, Pointer to a function, Dynamic memory management - new and delete Operators, Pointers and classes, Pointer to an object, Pointer to a member, this Pointer, Possible problems with the use of pointers - Dangling/wild pointers, Null pointer assignment, Memory leak and allocation failures.	3	10%

<b>Constructors and Destructors:</b> Need for constructors and destructors, Copy constructor, Dynamic constructors, Destructors, Constructors and destructors with static members.	5	8%
<b>Operator Overloading and Type Conversion:</b> Defining operator overloading, Rules for overloading operators, Overloading of unary operators and various binary operators, Overloading of new and delete operators, Type conversion - Basic type to class type, Class type to basic type, class to class type.	4	10%
<b>Inheritance:</b> Introduction, Defining derived classes, Forms of inheritance, Ambiguity in multiple and multipath inheritance, Virtual base class, Overriding member functions, Order of execution of constructors and destructors, inheritance with constructor.	3	10%
<b>Virtual base class,</b> Overriding member functions, Order of execution of constructors and destructors, inheritance with constructor.	4	8%
<b>Virtual Functions and Polymorphism:</b> Concept of Binding - Early binding and late binding, Virtual functions, Pure virtual functions, Abstract classes, Virtual destructors & polymorphism.	4	9%
<b>Exception Handling:</b> Review of traditional error handling, Basics of exception handling, Exception handling mechanism, Throwing mechanism, Catching mechanism, Rethrowing an exception, Specifying exceptions.	4	4%
<b>Templates and Generic Programming:</b> Function templates, Class templates, overloading of template functions.	4	8%
<b>Console I/O:</b> Concept of streams, Hierarchy of console stream classes, Input/Output using Overloaded operators >> and << and Member functions of I/O stream classes, Formatting Output, Formatting using ios class functions and flags, Formatting using manipulators.	2	5%
<b>Data Files management:</b> File streams, Hierarchy of file stream classes, Error handling during file operations, Reading/Writing of files, Accessing records randomly	4	6%

**This Document is approved by:**

<b>Designation</b>	<b>Name</b>	<b>Signature</b>
Course Coordinator	Mr. Girish Rao	
H.O.D	Mr.Sushil Bansal	
Dean	Dr. Rajnish Sharma	
Date	June 20, 2014	

**Evaluation and Examination Blue Print:**

Internal assessment is done through quiz tests, presentations, assignments and project work. Two sets of question papers are asked from each faculty and out of these two, without the knowledge of faculty, one question paper is chosen for the concerned examination. Examination rules and regulations are uploaded on the student's portal. Evaluation is a very transparent process and the answer sheets of sessional tests, internal assessment assignments are returned back to the students.

The components of evaluations alongwith their weightage followed by the University is given below

Sessional Test 1	15%
Sessional Test 2	15%
Sessional Test 3	15%
Assignments/Quiz Tests/Seminars	10%
End term examination	60%

(From amongst the three sessional tests best of two are considered)

***2.3.2 Does the university provide course outlines and course schedules prior to the commencement of the academic session? If yes, how is the effectiveness of the process ensured?***

Yes, the University has a process through which each faculty provide the details of course handouts and lecture schedule. The plan itself is vetted by the Heads of Departments and Dean and it defines in details how a course is being covered lecture by lecture. The course handouts include a detailed explanation of the learning objective of the course. The number of assignments and weightage, methodology to be used for teaching and text and other study material that would be used are clearly defined in the course handout. A sample course handout can be referred at para 2.3.1 above. During orientation rounds held on first day, outline of the course is explained to all the students.

***2.3.3 Does the university face any challenges in completing the curriculum within the stipulated time frame and calendar? If yes, elaborate on the challenges encountered and the institutional measures to overcome these.***

The University has not faced any major challenge or problem in completing the curriculum design because of regular adherence to the academic calendar. The teachers complete the curriculum within the stipulated time frame. Extra holidays or closures of the University are to be compensated with extra classes taken by teachers. Teachers make special efforts to arrange special classes for weak students to address their particular problems and individual difficulties. In addition to the regular faculty the University has support from industry professionals and experts who supplement the lectures taken by regular faculty members.

***2.3.4 How is learning made student-centric? Give a list of participatory learning activities adopted by the faculty that contributes to holistic development and improved student learning, besides facilitating life-long learning and knowledge management.***

The learning is made through students' involvement. Academic delivery by lectures is supplemented by other activities like group tasks, role plays, presentations, assignments and tutorials.

At our university, learning is by doing. Thus, learning is experiential and student centric. In order to improve academic and technical skills of students, we organize expert lectures and industrial visits. We encourage our students to become members of technical societies. We have established student chapters of IETE and IEEE etc. The students who want to pursue their postgraduate studies in Engineering/ Management, are also provided suitable guidance for success in the relevant competitive examinations. The University clubs are responsible for organizing various activities to promote social interaction and interpersonal skills. The club activities are managed by students with assistance from the faculty. Our students are also members of the Chitkara Centre for Entrepreneurship Development (CCED) that organizes various activities for developing and honing the entrepreneurial skills of interested students.

Our objective is not only to impart technical knowledge but to make them good human beings skilled in all walks of life.

### ***2.3.5 What is the university's policy on inviting experts / people of eminence to deliver lectures and/or organize seminars for students?***

The University follows a systematic plan for inviting experts as guest speakers. Before the beginning of the semester a schedule of lectures is prepared and eminent guest speakers are identified and approached to find out their availability for taking on the assignment. Suitable reserves are also nominated to cater for unforeseen contingencies. Similarly, a detailed plan for workshops and seminars is prepared and implemented.

The University encourages the departments to invite experts, professionals, industrialists and people of eminence to deliver lectures and participate in seminar and conferences organized by various departments. Such special invited lectures are organized at the departmental level as well as the university level in accordance with the thrust of the lectures or the seminars. Experts are invited not only from national and international teaching and research Institutes of repute but also from industries so as to have a close industry-university interaction. Global Engineering Week is a regular yearly feature of the University where the international faculty from reputed international universities deliver lectures.

### ***2.3.6 Does the university formally encourage blended learning by using e-learning resources?***

Yes, the university formally encourages blended learning by using e-learning resources. All the students and faculty members are provided Wi-Fi enabled Computing facilities in the campus. Internet facility of 1Gbps (BSNL) and 22Mbps (Tata) is available round the clock throughout the campus in all the labs, offices, faculty rooms and hostels. The students work on their lap tops. We also have one of the largest network set ups of nearly 700 desktops systems in the laboratories and faculty rooms in addition to 50 laptops for the faculty and staff. On line tests for the students are conducted on these systems in addition to the regular labs.

The State-of-the-art Learning Management System incorporated in the University ERP ‘Chalkpad’ provides very strong support for the dynamic and transparent academic and administrative system.

University encourages a blended learning system by incorporating e-learning. Study material and lecture webinars from reputed foreign universities, NPTEL have been downloaded on the University server and made available to the faculty and the students. Advanced learners and the faculty are encouraged to make use of this study material.

In addition, students are encouraged to acquire addition certifications through MOOCS. There are some courses where atleast some portions of the academic delivery is online.

With the help of the University ERP system, detailed reports on the academic achievements and attendance, etc. of all the students are visible to them on internet. Useful information like Faculty Time Table, Class time table, notices, lecture notes etc. is also available to all the users at the respective links. Uploaded assignments, important instructions, question banks and useful guidance are accessible to the concerned students. Students are encouraged to make extensive use of audio visual aids like LCDs, projection system etc. for projects, presentations, tutorials’ and lab work. Laptop being compulsory for all students and Wi-Fi being available round the clock on the campus, students make extensive use of the internet facility.

### ***2.3.7 What are the technologies and facilities such as virtual laboratories, e-learning, open educational resources and mobile education used by the faculty for effective teaching?***

- The University is a member of NMEICT and is entitled to Virtual Laboratory facilities available through it. A modest beginning has been made in this direction.

- E-learning facilities are available in all the Departments through internet connectivity.
- Open educational resources are used by the faculty and students for teaching and learning through MOOCS.
- E-mail correspondence is encouraged.
- There are many facilities available for faculty some of which are enumerated below:
  - (a) Simulation software: These are available on servers and can be accessed through specialized laboratories (for CAD, STAAD PRO, etc) and in some cases through individual laptops in the class room
  - (b) Learning Management System on campus is accessible to all students and faculty and can be used for sharing material, submitting assignments in e-form, conduct of online quiz etc.
  - (c) University owned ERP portal is a unique initiative where faculty and students add material in a systematic manner and this is stored and accessed through this portal.

***2.3.8 Is there any designated group among the faculty to monitor the trends and issues regarding developments in Open Source Community and integrate its benefits in the university's educational processes?***

Yes, designated committee of faculty members has been constituted who regularly interact with faculty members in leading institutions and also surf the internet to locate open source study material that could be incorporated into our curriculum or could be made use of by faculty as a teaching aid or by advanced learners to satisfy their intellectual aspirations. Our membership of the IUCEE and contacts developed with faculty members in foreign universities also helps in this direction.

***2.3.9 What steps has the university taken to orient traditional classrooms into 24x7 learning places?***

The University has ensured that all classrooms are fitted with state-of-art gadgets like computers, LCD projectors & other audio-video aids. In addition, the ERP package of the Univesity has an LMS that supports self learning by the students. Some of the facilities are provided are as follows:-

- Wi-Fi campus which extends to campus and all the hostels.
- Access to University ERP Portal from outside the campus.
- Faculty members have been trained to adopt pedagogical techniques that promote a 24 x 7 learning environment. For example, faculty members upload typical problems on the LMS before the conduct of classes and the students come prepared to the class with their respective solutions. The solutions are prepared by the students in groups through mutual discussions on Chat forums provided by the LMS. During the class the teacher takes the discussion forward to analyze various solutions proposed by the students. Thus active learning takes place. More traditionally, the classrooms are utilized even after normal working hours for conducting classes for weak students or for holding sessions to supplement the classroom teaching. Students who may have missed a particular class are facilitated by providing access to lecture notes and presentations etc of the faculty through the LMS.

***2.3.10 Is there a provision for the services of counsellors / mentors/ advisors for each class or group of students for academic, personal and psycho-social guidance? If yes, give details of the process and the number of students who have benefitted.***

Yes. The University is aware that the students who join the University as freshers come from a highly supervised environment. Some of them need guidance to manage the independence that comes with the life in University. Some students due to their socio-economic background or being from regional language medium schools or some other similar reasons may need additional support. The University, therefore, pays lot of attention to provide emotional support to such students. A well qualified student counsellor has been appointed. The counsellor meets the students in private and discusses their problems. If need be, parents of the student and the concerned faculty members are also consulted before providing counselling to the student. Thereafter, regular interaction is maintained with the student by the faculty and the student counsellor.

Apart from the above each student is assigned a teacher-mentor who acts as a friend, philosopher and guide to the student. Requisite day to day counselling pertaining to life in the University and for future careers is provided by these mentors. The teacher mentor also remains constantly in touch with the parents to keep them apprised of the performance of their ward.

The Dean of Students' Welfare and Hostel wardens are shouldering the same responsibility in an informal way. The Career Counseling and placement cell is also imparting counseling / conducting personality development activities for the students.



***2.3.11 Were any innovative teaching approaches/methods/practices adopted / put to use by the faculty during the last four years? If yes, did they improve learning? What were the methods used to evaluate the impact of such practices? What are the efforts made by the institution in giving the faculty due recognition for innovation in teaching?***

The University encourages innovative teaching approaches/ methods / practices introduced by the faculty in their respective departments. The university has taken steps to convert traditional class rooms into modern class rooms equipped with latest gadgets. In addition to the traditional classroom teaching innovative methods like project based learning, webinars, seminars, role plays, management games etc. are adopted by the University. City visits, industrial visits, educational tours, community development projects, on job trainings, field works and similar other innovative methods/approaches/practices are adopted by the faculty and students of the University in the recent years. These innovative approaches and methods have raised the standards of teaching learning process of the University as the students are made to take more interest and show, more involvement in the academic life of the University.

Project based learning has been a very successful pedagogical technique that has been adopted. Combined with Industry Oriented Hands on Training and also industry internships it has helped us in making our students industry ready. The results have been reflected in Campus Placements and also the awards won by our students in various competitions all over the country.

The faculty members using these innovative methods and practices are duly recognized. The faculties who have shown the way to others through these initiatives are rewarded through the rewards that may include a memento and an appreciation letter, which is handed over in University functions. Depending on the novelty and utility the faculty gets to score high points in the Appraisal System and also benefit through increments and /or out of turn promotions. With the adoption of these innovative approaches in teaching learning process over the years, the results in the placement, higher studies and other fields have been encouraging.

***2.3.12 How does the university create a culture of instilling and nurturing creativity and scientific temper among the learners?***

University nurtures a culture amongst the learners through patronizing curricular and extra-curricular activities in various fields for creative performances. Right from the

beginning the students are provided opportunities in the laboratories to experiment with problems that foster creativity. In addition, project based learning has been a big boon in helping us develop creativity among the students. The question papers for sessional tests and also the end term tests carry certain questions that test level of creativity of the students. Technical competitions and festivals are regularly held within the campus. Students are also encouraged to participate in technical competitions organized by other elite institutions and industry. It is a matter of great pride that our students have performed well consistently in these competitions.

Faculty members of every department are also involved with the periodical review, meetings, group discussion, etc., on such aspects that automatically raise scientific temper among the learners. In the tutorial classes the students are given a problem and are asked to find out a solution to the same through creative and interactive approach. Also during their industrial training, the industry concerned is approached to assign live projects which the students should be able to solve through creative and innovative approach.



**Annual Technical Festival known as “TECHELONE”**

**2.3.13 Does the university consider student projects mandatory in the learning programme? If yes, for how many programmes have they been (percentage of total) made mandatory?**

Yes 100% of the programmes have student projects mandatory. In fact, the undergraduates have two mandatory projects on campus and one during internship in the industry. Masters students pursue an internship project in the Industry.

Faculty has a very important role in facilitation of these projects through their personal contacts, guidance and interest. Faculty also visits the industry during the project, and collaborates with experts in these organizations.

**; Number of projects executed within the university**

Department	Academic Year	No. of Projects
CSE	2012-13	90
	2013-14	100
	2014-15	85
ECE	2012-13	80
	2013-14	72
	2014-15	28
CE	2012-13	40
	2013-14	40
	2014-15	40

**; Names of external institutions associated with the university for student project work**

A large number of industrial organizations, both private and PSUs, are associated with the project work assigned to the students. Rather, one of the strengths of our curriculum is association of the industry with projects undertaken by our students. Some of the industries associated with the project work are as follows:

- L & T
- PWD
- BSNL
- Texas Instruments
- nXP Semiconductors
- STMicroelectronics

- Megrisoft
- A2IT soft
- Aditya Birla Idea Cellular
- Advance Technology India Pvt. Ltd.
- Agilent Technologies International Pvt. Ltd
- Aircel India Ltd
- Airtel
- Amazon
- Aon Hewitt
- Bharat Electronics Limited (BEL)
- Bharat Heavy Electricals Limited
- BitWise Solutions Pvt. Ltd
- Biz Info Techno Pvt. Ltd.
- CDAC (Center for Development of Advanced Computing), Mohali
- Continental Device India Limited
- CS Soft Solutions
- Defence Research & Development Organisation (TBRL)
- DKOP LABS PVT. LTD.
- Ericsson India Pvt. Ltd.
- Eureka Electrosoft Solutions Pvt. Ltd.
- Flipkart Internet Pvt. Ltd.
- Global Pueblo Solutions
- Haryana Information Security Management, Hartron
- HP India Sales Pvt. Ltd.
- IBM
- Idea Cellular Limited
- Infosys Limited
- N.H.P.C
- Nagarro Software Pvt. Ltd.
- Newgen Software Technologies Limited
- NICE Technologies
- Nucleus Software
- Philips India Limited

- Punjab Communication Limited
- Q3 TECHNOLOGIES
- Quadrant Televenture
- Reliance Communications Ltd.
- Reliance Industries
- SAP INDIA ENTERPRISES
- Schoolpad Technologies Pvt. Ltd.
- Secure-Net Technologies
- Siemens IAG Automation
- Sigma Freudenberg NOK Pvt. Ltd.
- TATA MOTORS LIMITED.
- Tata Tele Services Limited
- TCIL -IT
- Tech Mahindra
- TECHNO CAMPUS
- Telecommunications Consultants India Ltd
- THE INSTITUTION OF ELECTRONICS AND TELECOMMUNICATION ENGINEERS (IETE),
- TRI INNOVATIONS PRIVATE LIMITED
- Trideal
- TT CONSULTANTS
- Unisys Global Services
- Ved Robotics
- Videocon
- Webcom Systems Pvt Ltd
- Wipro Technologies
- Wonder Systems Pvt. Ltd. Mohali
- XLPAT Labs-TT Consultants Pvt. Ltd.
- Yellow Cursor

**; Role of faculty in facilitating such projects.**

- Assigning project to the student based on objectives of various courses being taught in the semester/ programme and learning outcomes of the programme.
- Giving guidelines for the project

- Identifying the driving question associated with the project.
- Identifying other related problems in the project
- Arriving at various options to execute the projects and adopting the most suitable option.
- Motivating students to come up with new Ideas
- Scheduling of various milestones
- Testing and Debugging the project at various stages
- Providing feedback at different stages
- Report Checking and Continuous Evaluation.

***2.3.14 Does the university have a well qualified pool of human resource to meet the requirements of the curriculum? If there is a shortfall, how is it supplemented?***

The university has an adequate pool of qualified human resources in the form of regular full time faculty, adjunct faculty, visiting faculty to take care of its requirements. Considering the prevailing environment in the country the faculty members of the University are suitably qualified and are regularly provided opportunities to enhance their skills. The process of curriculum designing in the University has already been explained. However, it is to be mentioned again that the qualified pool of human resource in the University works hand in hand with other scholars and experts invited from the other universities at the State and National level. If any short fall is identified in any part of the qualified pool of human resource, the services of experts outside the university is availed. Short fall, if any, is supplemented by appointing part time / temporary faculty in different areas as well as utilizing the services of qualified administrative staff.

***2.3.15 How are the faculty enabled to prepare computer-aided teaching/ learning materials? What are the facilities available in the university for such efforts?***

- The faculty is provided with all facilities like access to internet, library facilities and are encouraged to attend seminars/ workshops/ symposium within the university or outside. This helps the faculty to gain expertise in use of modern gadgets. In addition, the faculty is also encouraged to use computer aided teaching during the regular class hours. LMS similar to MOODLE is incorporated into the University ERP and is utilized in teaching practice.

- Faculty development programmes are conducted to guide faculty members for using ICT tools in teaching - learning.
- LCD projectors and laptops are provided.
- Internet connectivity has also been extended to classrooms.

***2.3.16 Does the university have a mechanism for the evaluation of teachers by the students / alumni? If yes, how is the evaluation feedback used to improve the quality of the teaching-learning process?***

Yes, the University has a very robust system of obtaining feedback from the students. Format used for obtaining the feedback is enclosed at Annexure 3. The feedback is obtained online. Identity of the student is kept confidential. Faculty members are apprised of the details of the feedback obtained to help them improve. Feedback from the alumni is obtained during the meetings held at regular intervals. In addition, alumni are encouraged to write to the University as and when they have any relevant advice. Faculty members interact with the alumni in the industry during the visits of the former to the industry and obtain their feedback.

## **2.3 Teacher Quality**

***2.4.1 How does the university plan and manage its human resources to meet the changing requirements of the curriculum?***

The university encourages its teachers to participate in various orientation programmes, refresher courses, skill development programmes organised by the UGC, AICTE and other professional agencies. Dean Academics has become member of Global Engineering Deans' Council (GEDC). The Council works in close conjunction with American Society for Engineering Education (ASEE) and World Engineering Education Forum (WEEF).

Faculty members are encouraged to obtain membership of professional bodies like IEEE, Institution of Engineers, Indian Science Congress, Computer Society of India, IETE etc. Due recognition is given to faculty members who publish papers in reputed journals. The annual appraisal system has got provisions to award points for such intellectual pursuits. Chitkara University has also launched its own publication house. It is a matter of great pride that our faculty members have authored 6 books through Chitkara Publications and 4 books through other reputable publishers.

The teachers of the University are also encouraged to visit prestigious institutions of learning like – IIT, NIT at the State and National level and foreign Universities at the International level for which the expenses are borne by the University. This helps them understand and enhance competency levels. The university also encourages its faculty to organize seminars, conferences, workshops and special invited lectures. Apart from adding to their domain knowledge it helps the faculty members in developing organizational capabilities that prepares them for higher positions later in life.

Further, a number of faculty development programmes for training faculty on newer software are also organized periodically on need basis. The University also encourages the faculty to upgrade their qualifications.

#### **2.4.2 Furnish details of the faculty**

Highest qualification	Professor		Associate Professor		Assistant Professor		Total
	Male	Female	Male	Female	Male	Female	
Permanent teachers							
D.Sc./D.Litt.	-	-	-	-	-	-	-
Ph.D.	11	5	14	7	0	0	37
M.Phil.	0	0	0	1	3	3	7
PG	6	2	5	8	42	70	133
Temporary teachers - NIL							
Part-time teachers - NIL							

#### **2.4.3 Does the university encourage diversity in its faculty recruitment? Provide the following details (department / school-wise).**

<b>Department/ School</b>	<b>% of faculty from the same university</b>	<b>% of faculty from other universities within the State</b>	<b>% of faculty from universities outside the State</b>	<b>% of faculty from other countries</b>
Civil Engineering	Nil	16	84	NIL
Electronics and Communication Engineering	3	3	94	
Computer Science and Engineering	8	14	78	-
Applied Science	Nil	17	83	



***2.4.4. How does the university ensure that qualified faculty are appointed for new programmes / emerging areas of study (Bio-technology, Bio-informatics, Material Science, Nanotechnology, Comparative Media Studies, Diaspora Studies, Forensic Computing, Educational Leadership, etc.)? How many faculty members were appointed to teach new programmes during the last four years?***

The University is still in stage of infancy. New programmes are being introduced with effect from Academic Year 2015-16. Normal process for recruitment of faculty will be followed. In addition, experts from relevant disciplines would be invited to be members of the selection committee to ensure that candidates with right credentials and as required by the industry are selected.

As far as appointment of faculty members for programmes already being run by the University are concerned a due process has been laid down. Each department is asked to furnish its requirement atleast three months before the commencement of the semester.

On compilation of faculty requirement of each department, the list of faculty positions are approved, and advertised for seeking profiles of suitable candidates. The medium used for such advertisement includes print media, job postings on Chitkara University website, postings on job portals, internal circulation in the University for referrals, recruitment consultants etc. From the pool of CVs that is generated, they are then screened as per the recruitment guidelines as laid down by regulatory authorities and short listing criteria. On short listing, the candidates are then contacted telephonically and through email to understand their inclination in the open position as identified and to attend an interview. A copy of their latest resume is also sought at this time. With the lining up of candidates, process of selection begins. A CV of the candidate is sent to the HODs/Dean Academics and a selection panel for interview is formed. Such panel is called a Selection Committee in the University and generally comprises of Vice Chancellor, Dean Academic, HODs (as per relevant position) and subject matter experts. An invite is sent across to the Selection committee members seeking their participation to finalize convenient interview dates. On finalization of the date and location of Selection Committee, the candidates already shortlisted are informed and interaction takes place. The candidates appearing for the interview are screened / interviewed. Invariably, candidates are asked to take a demo class to assess their teaching capabilities. The candidates are selected based on their domain specific knowledge areas, soft skill parameters, past experience and interpersonal and leadership abilities. All such interview details are listed and documented in Selection

Committee proceedings. All selection committee proceedings are later verified and approved by the Board of Management and by the Chancellor of the University. List of faculty members recruited during the last four years is attached at **Annexure 4**.

***2.4.5 How many Emeritus / Adjunct Faculty / Visiting Professors are on the rolls of the university?***

At present we have a total of 15 such faculty members comprising Emeritus Professors, Adjunct Faculty or Visiting Professors on the rolls of the university.

***2.4.6 What policies/systems are in place to academically recharge and rejuvenate teachers (e.g. providing research grants, study leave, nomination to national/international conferences/ seminars, in-service training, organizing national/international conferences etc.)?***

The University provides incentives and encouragements to its faculty members to apply for academic scholarship / fellowships made available by institutions of national and international repute. Once selected, the faculty members are provided study leave/privilege leave/and/or duty leave for availing these facilities. Financial assistance is provided for participation in seminars and other academic programmes. Sometimes financial assistance is also provided from the general funds of the University. Financial support is provided for organizing seminars in the University. Those who get extraordinary recognition and achievements (like obtaining patents) are given cash awards. This helps to recharge and rejuvenate the research endeavour of the teacher and to remain academically active. The faculty members, who get financial grants from fund granting agencies for projects or seminars are duly recognized.

***2.4.7 How many faculty received awards / recognitions for excellence in teaching at the state, national and international level during the last four years?***

The following faculty received awards / recognition for excellence in teaching

- Mr Sushil Kumar Bansal – Bronze Level Faculty Award in 2013 from Infosys Ltd.
- Ms Sapna Saxena – Bronze Level Faculty Award in 2013 from Infosys Ltd.
- Dr Shaily Jain - Bronze Level Faculty Award in 2014 from Infosys Ltd.
- Mr Rinku - Bronze Level Faculty Award in 2014 from Infosys Ltd.
- Mr Shankar Aggrawal - Bronze Level Faculty Award in 2014 from Infosys Ltd.

**2.4.8 How many faculty underwent staff development programmes during the last four years (add any other programme if necessary)?**

<b>Academic Staff Development Programmes</b>	<b>Number of faculty</b>
Refresher courses	8
Orientation programmes	25
Staff training conducted by the university	13
Staff training conducted by other institutions	16
Summer / Winter schools, workshops, etc.	64

**2.4.9 What percentage of the faculty have been**

Invited as resource persons in Workshops / Seminars / Conferences organized by external professional agencies?	4%
Participated in external Workshops / Seminars / Conferences recognized by national / international professional bodies?	40%
Presented papers in Workshops / Seminars / Conferences conducted or recognized by professional agencies?	30%
Teaching experience in other universities / national institutions and other institutions?	30%
Industrial engagement?	4%
International experience in teaching?	1%

**2.4.10 How often does the university organize academic development programmes (e.g.: curriculum development, teaching-learning methods, examination reforms, content / knowledge management, etc.) for its faculty aimed at enriching the teaching-learning process?**

One Saturday is devoted to formal faculty development programmes within the University. Two faculty members from each department are selected to give presentations on topics assigned to them in the presence of the Vice Chancellor and Dean Academics who provide their valuable inputs. During summer vacations, a number of faculty development programmes (FDPs) are organized for the faculty. Faculty members are encouraged to participate in the similar FDPs elsewhere in the country. In addition a number of workshops, seminars, conferences and symposia are organized on regular basis.

Professionals clubs set up by each department also conduct various activities to contribute in this direction.

Chitkara University is a member of IUCEE. Reputed faculty members from foreign universities are invited to visit our campus during the summer vacations to conduct modules for specified courses. This helps the faculty members to hone their skills in their respective domains. Faculty members are also deputed to attend similar programmes conducted by IUCEE at other consortium institutions in the country. IUCEE conducts regular webinars and the same are attended by our faculty members.

Faculty has been empowered by making them attend one-week Mission 10x workshops and two day Advance Mission 10x workshops organized by Wipro Technologies.

Any faculty who has the opportunity to attend FDPs/Seminars/Conferences/Workshops elsewhere in the country / abroad has to give a brief presentation to the concerned department for the benefit of others.

The Application oriented approach and continuous association with core industries like NXP Semiconductors, Cadence and nVIDIA have encouraged them to establish their labs in the campus. They have not just established their labs but also scheduled their experts to visit and train the faculty members with the new technology and trends in the market.

***2.4.11 Does the university have a mechanism to encourage mobility of faculty between universities for teaching? Faculty exchange programmes with national and international bodies? If yes, how have these schemes helped in enriching the quality of the faculty?***

The University encourages faculty members to visit different Universities / Institutes as guest / visiting faculty. Similarly, the University also invites distinguished scholars as Visiting Faculty and Guest Faculty.

The University has signed number of MOU's with International Universities which has the provision of faculty exchange.

The list of MoUs are attached at **Annexure 5**.

## **2.4 Evaluation Process and Reforms**

### ***2.5.1 How does the university ensure that all the stakeholders are aware of the evaluation processes that are in place?***

The evaluation processes is explained in the students hand book and programme guide, which are provided to all the students. Parents also have access to these details. In addition these are also uploaded on University ERP system, which can be accessed by all concerned.

### ***2.5.2 What are the important examination reforms initiated by the university and to what extent have they been implemented in the university departments and affiliated colleges? Cite a few examples which have positively impacted the examination management system.***

The University has introduced various examination reforms. The important ones are as follows:

- The design of question papers has been changed to confirm to Bloom's Taxonomy wherein retention, comprehension, application of knowledge, analytical ability, evaluation capability and creativity are tested.
- The degree of difficulty of question papers is adjusted to conform to the standards of the student community.
- There is 100 percent coding and decoding of answer books to maintain confidentiality and objectivity in the evaluation process.
- Two sets of question papers along with model answers are prepared by paper setters for each subject. Moderation of question papers is done by the department moderating team, comprising of Dean, HoD of concerned department and a subject matter expert, if required.
- Transparency is ensured by discussing and returning the sessional tests and internal assessment scripts to students.
- The printing of answer books with complete instructions to examiners regarding the concerned rules about evaluating and endorsing of marks on the answer sheet is done.
- Increasing the pages in the main answer sheets to avoid the use of supplementary answer sheets by the candidates so as to check the possibilities of manipulation of tagged supplementary answer books by way of Unfair Means (UFM) at any stage in the examinations. However, additional supplementary answer book is provided to the students if required in the examination hall. The invigilators ensure the proper use of the first answer book before providing the second answer book to the examinee.

- OMR sheets based compilation of award sheets in caase of MCQs to avoid the possibilities of clerical errors.
- The answer books received in a particular paper from various examination venues are pooled and mixed before the coding process and this makes a random distribution of written answer books to the examiners to minimize the element of subjectivity in the evaluation process.
- The quick collection and sealing of written answer books from the examination venues to eliminate the possibility of mishandling and tempering.

***2.5.3 What is the average time taken by the university for declaration of examination results? In case of delay, what measures have been taken to address them? Indicate the mode / media adopted by the university for the publication of examination results (e.g. website, SMS, email, etc.).***

The University takes pride in maintaining its record of declaring the results of the examinations within 45 days of examination being held. The results are put up on the University ERP. Each student is able to see his/her own result only.

***2.5.4 How does the university ensure transparency in the evaluation process? What are the rigorous features introduced by the university to ensure confidentiality?***

In addition to what has been stated in Para 2.5.2 above, complete transparency is maintained in the evaluation system (secrecy codes applied to answer sheets) as evaluation is carried out under the supervision of COE. Separate pre exam cell, highly restricted entry and, that too, by invitation only are some of the measures. Almirahs with double lock & keys are used. Proper procedure for handing taking over of keys, if required, is adopted. The evaluation room is under CCTV surveillance round the clock.

***2.5.5 Does the university have an integrated examination platform for the following processes? Pre-examination processes – Time table generation, OMR, student list generation, invigilators, squads, attendance sheet, online payment gateway, etc. Examination process – Examination material management, logistics, etc.***

**Pre-examination processes:**

Time table for University examination is generated in consultation with the Heads of Departments and Dean Academics. It is placed before the Examination Committee for discussion and approval at least one month before the commencement of examination. All

necessary instructions including seating plan and examination schedule is made available to the students in notice form prior to the commencement of examination through its ERP Portal.

A person to be appointed as a paper setter must have at least 3 years of teaching experience in the concerned subject with PG qualification. None of his/her relations should be appearing in the examination for which the paper is to be set.

In certain subjects multiple choice question system is adopted. Answers are ticked on the OMR sheets. This speeds up the evaluation process.

Invigilators are appointed by Controller of Examinations. It is mandatory to appoint only teachers as invigilators. Flying squads are appointed by the University to check unfair practices during examination. Attendance sheets are prepared on prescribed formats and they are sent to the evaluation centre after verification by centre superintendents.

#### **Examination Process:**

The confidential material is sent in sealed envelopes under security arrangements to the examination venues and handed over to the invigilators. For online examinations the procedure mentioned in Para 2.5.2 is followed. COE ensures that every Question Paper has specific instructions related to course, like use of graphs, tables, calculator etc.

#### **Post examination Process:**

The written answer books are evaluated centrally through a central evaluation system. The attendance of the examinees is verified and recorded and accordingly written answer books are coded before evaluation and decoded after evaluations for the posting of marks. Multiple Choice Questions papers based examination is used in certain subjects. Evaluation is done through Auto processing of OMR sheets with the help of computer added devices and results are generated in a speedy and time bound manner.

The University has a centralized examination setup under the direct control of the Controller of Examinations of the University. The question papers are printed confidentially under the direct supervision and control of CoE of the University. The office of the CoE of the University provides an integrated platform for all the pre and the post examination activities such as generation of examination schedules, setting and printing of questions papers coding and decoding and evaluation of written answer books and declaration of results thereof. All records related to attendance captured during examination, OMR-based exam result, auto processing of results in case of online examination, generic result processing, etc are maintained in the office of CoE.

#### **2.5.6 *Has the university introduced any reforms in its Ph.D. evaluation process?***

The University has framed its own rules and regulations for Ph.D programme based on guidelines provided by the University Grant Commission (UGC) and amended from time to time. The University has constituted a Doctoral Research Committee to oversee the Ph.D. evaluation process which broadly encompasses study of two core courses, progress review seminars and publication of research work, the details of which are given below

The programme includes two core courses of study namely; Research Methodology and Doctoral Foundation Course in the specific domain. These courses are completed during the first semester, through on campus delivery.

- Progress Review Seminar: The seminar tracks progress of research work. These are to be held once every six months after approval of synopsis. Four such seminars are held by the University with intensive mentoring by Doctoral Research Committee.
- Publishing Research Work: The candidates are expected to write well researched articles and publish these in international/ national refereed journals before completion of their study.
- Submission of Research Work: Pre Thesis Submission Seminar is held before the submission of final Ph.D. thesis.
- Evaluation of Thesis: Evaluation of thesis is undertaken by two external examiners preferably one from abroad and other from reputed Indian Universities/Institutes, which is followed by oral thesis examination in the presence of one of the external examiners.
- Award of Doctoral Degree: All the successful research scholars are awarded doctoral degree.

#### **2.5.7 *Has the university created any provision for including the name of the college in the degree certificate?***

Not applicable

#### **2.5.8 *What is the mechanism for redressal of grievances with reference to examinations?***

- The university has its Examination Committee, Unfair Means Committee (UMC), Grievance Redressal Cell that constitutes the mechanism for redressal of grievances with reference to examination.



- Declaration and rectification of results is being done under provision given in Chapter 8 of the Examination Regulations of the University.
- The results tabulated are put up to the Vice Chancellor for approval after which the results are published.
- A student is entitled to have his/her answer books re-evaluated on payment of prescribed fee for each paper subject to the following condition:
  - a) The application for re-evaluation is received by the Controller of Examinations or his /her nominee within 15 (fifteen) days of the date of publication of result.
  - b) The Controller of Examinations gets re-evaluation done to ascertain whether the marks awarded to various answers have been correctly added and whether the examiner has evaluated answers to all the questions written by the examinee.
  - c) If any mistake is discovered as a result of re-evaluation as above, the CoE rectifies the result.
  - d) Students are provided with opportunity to see their answer script in case they so desire. A student is required to apply for the same with requisite fee. The answer sheet is shown to the student in the presence of subject expert alongwith the person nominated by COE.
  - (e) Timely online cross-verification of all documents such as grade card, provisional degree, CGPA document, transcripts and final degree is done by examination department as per the demand of industry.
- Since the University follows a transparent evaluation system, the grievances if any, are addressed by the faculty, followed by HoD and the Dean Academics. In case the student is not satisfied, the student can approach the higher authorities through the Dean Academics. The grievance handling system with respect to examination is outlined in the Examination Regulations.
- Examinations regulations are attached at Annexure 6.

***2.5.9 What efforts have been made by the university to streamline the operations at the Office of the Controller of Examinations? Mention any significant efforts which have improved the process and functioning of the examination division/section.***

Examination Section of the University has streamlined operations of the examinations.

- The university examinations cell has been divided into various segments for streamlining and better coordination of its operation namely secrecy branch, conduct

branch, pre, post examination and degree section. For a systematic, continuous and progressive evaluation the examination system has been divided as under

- (a) Internal Assessment cell that includes quiz tests, seminars, class participation and sessional examinations.
  - (b) External End Semester examination cell at the end of each semester.
- The dates of Examination(s), Sessional and End Term are specified in the Academic Calendar.
  - Grade Cards for all years are provided to the students.
  - Various kinds of documents such as migration certificate, grade card, transcript etc. are made available by the Student Facility Centre.
  - Transcripts are provided to the students which includes Credits, CGPA, and Grade for complete study period.
  - CGPA certificate, Provisional degree certificate and Migration Certificate are provided to the students as per their need.
  - The University confers degrees on all eligible students during the convocation held by the University every year. Students who are unable to attend the convocation are allowed to collect their degree parchments personally or through authorized personnel.

## **2.6. Student Performance and Learning Outcomes**

### **2.6.1 Has the university articulated its Graduate Attributes? If so, how does it facilitate and monitor its implementation and outcome?**

The University feels that Graduate Attributes are the characteristics, qualities, skills and capabilities that it seeks to develop in students by the time they graduate. Chitkara University's Graduate Attributes are designed to help the students become ethical and engaged contributors to more inclusive, sustainable and prosperous society. This would help create an intellectual capital that is so vital for a knowledge economy. Considering above, the University has identified the following Graduate Attributes for its students:-

- i. Ability to communicate
- ii. Ability to work in teams
- iii. Critical appraisal skills
- iv. Ability to generate ideas
- v. Cross-cultural and international outlook

The above are facilitated and monitored by assessing and monitoring the following:-

- (a) Clarity of written and spoken expressions, including public speaking and through appropriate use of technology.
- (b) Collaborating and contributing effectively in diverse settings and working in teams involving personnel from different disciplines, social and regional backgrounds and genders.
- (c) Developing the planning, organizing, problem solving and decision making skills by encouraging students to work in teams and pursuing projects.
- (d) Developing the courage and confidence to be creative and innovative. Again through activities like project based learning.

Making the students engage productively and harmoniously with diverse culture by making them work in teams comprising student from different social and geographical backgrounds, genders and some cases in international settings.

***2.6.2 Does the university have clearly stated learning outcomes for its academic programmes? If yes, give details on how the students and staff are made aware of these?***

The University has clearly stated the Learning Outcomes for its academic programmes. The same are described below:-

**BE (CSE) Programme**

At the end of the four-year degree programme the student should: -

- (a) Possess an ability to apply knowledge of computing and mathematics appropriate to the discipline
- (b) Possess an ability to analyse a problem, and identify and define the computing requirements
- (c) Possess ability to design, implement, and evaluate a computer-based system, process, component, or programme to meet the desired needs
- (d) Ability to apply knowledge of electric circuits and analog and digital electronics in building, testing, operation and maintenance of computer systems and associated software systems
- (e) Ability to design, set up, operate and maintain a local area network
- (f) Ability to analyse, design and implement hardware and software computer systems

- (g) Possess an ability to function effectively as a member of a team to accomplish a common goal
- (h) Have an understanding of professional, ethical, legal, security and social issues and responsibilities
- (i) Possess an ability to communicate effectively with a range of audiences
- (j) Possess the ability to apply project management techniques to computer systems
- (k) Possess an ability to analyse the local and global impact of computing on individuals, organisations and society
- (l) Be able to recognise the need for and an ability to engage in continuing professional development
- (m) Possess an ability to use current techniques, skills and tools necessary for computing practice
- (n) Possess an ability to use current techniques, skills and tools necessary to ensure security of a computer network
- (o) Possess the ability to utilize statistics/probability, transform methods, discrete methods and applied differential equations in support of computer systems and networks.

### **BE (ECE) Programme**

At the end of the four-year degree programme the student should: -

- (a) Possess knowledge of application of circuit analysis and trouble shooting
- (b) Possess ability to assess and understand the requirements of a problem and have the capability to design simple circuits to meet those requirements
- (c) Possess ability to analyse, design and implement control systems, instrumentation systems, communications systems, and power systems
- (d) Possess a thorough understanding of analog and digital electronics, microcontrollers, and engineering standards to enable building, testing, operation and maintenance of electrical and electronics systems
- (e) Posses capability and skills necessary for application and installation of electrical and electronics systems
- (f) Possess skills related to operation and maintenance of electrical and electronic systems
- (g) Have a thorough understanding of manufacturing processes associated with electrical and electronics components, devices and systems

- (h) Possess the ability to apply management techniques to design, manufacture, operation and maintenance of electrical and electronics systems
- (i) Have the capability to apply knowledge of physics and chemistry to electrical and electronic circuits in a rigorous mathematical environment at or above the level of algebra and trigonometry
- (j) Possess the ability to utilize knowledge of statistics/probability, discrete mathematics and applied differential equations in support of electrical and electronics systems
- (k) Should be able to distinguish between conventional and contemporary Modulation schemes and develop a thorough understanding and application part of the same.
- (l) Have ability to simulate prototype design of a basic communication system and should be able to appreciate the role of different blocks of a Communication system thoroughly.

### **BE (CE) Programme**

At the end of the four-year degree programme the student should: -

- (a) Possess the ability to utilize principles, hardware, and software that are appropriate to produce drawings, reports, quantity estimates, and other documents related to civil engineering
- (b) Possess the ability to conduct standardized field and laboratory tests related to civil engineering
- (c) Possess the ability to utilise surveying methods appropriate for land measurements and for construction layout
- (d) Possess the ability to apply computational methods and elementary analytical techniques related to sub disciplines of civil engineering
- (e) Possess the ability to plan and prepare documents appropriate to design and construction
- (f) Be able to perform economic analyses and cost estimates related to design, construction, operations and maintenance of systems associated with civil engineering
- (g) Have the ability to select appropriate engineering materials and practices and implement construction related tasks
- (h) Possess the ability to perform standard analysis and design in different sub-disciplines of civil engineering

- (i) Possess a thorough understanding of techniques that are appropriate to administer and evaluate construction contracts, documents and codes
- (j) Possess ability to estimate costs, estimate quantities and evaluate materials for construction projects
- (k) Possess ability to apply principles of construction management, laws and ethics
- (l) Be able to apply project and construction management techniques
- (m) Possess thorough understanding of the capabilities, operation and maintenance of different types of construction machinery
- (n) Be conversant with and able to adopt safety procedures required to be adopted at a construction site

The learning outcomes are uploaded on the University ERP package. In addition, these are regularly promulgated through various media like the orientation programmes and meetings of the faculty with the students. Even the Programme Guides produced by the Departments highlight the learning outcomes.

### ***2.6.3 How are the university's teaching, learning and assessment strategies structured to facilitate the achievement of the intended learning outcomes?***

The curricula for various programme is developed based on the vision and mission of the University and also the learning outcomes. The learning outcomes and course objectives are linked. A matrix is prepared to check the linkages between the two. Further, the Graduate Attributes are cross checked against the Programme Educational Objectives. The assessment strategies for each course take into account different types of evaluation techniques and these are cross linked for each course to ensure objective assessment.

### ***2.6.4 How does the university collect and analyse data on student learning outcomes and use it to overcome the barriers to learning?***

The evaluation components for assessing learning outcomes are listed in advance and shared with students and the faculty. The data pertaining to the evaluation components is thereafter compiled and a detailed analysis is carried out to find out the barriers to learning. A mechanism has been developed to assess and evaluate the achievements of the Programmes Educational Objectives by utilizing various components of evaluation. Each course has a course coordinator who maintains a record of documents related to assessment of that course. He also prepares a Course Assessment Report. The Course

Outcomes document containing the learning outcomes of the course is maintained and linked to the students' achievements. The course outcomes represent the fundamental mechanism by which stability of the programme is ensured. It also helps in identifying and implementing needed changes at the end of the programme duration. The Course Assessment Plan describes how each course outcomes will be assessed quantitatively. The Course Assessment Plan also describes the success criteria for assessment of each outcome. The assessment tools typically consist of relevant portion of some combination of graded work, such as assignments, quiz tests, sessional tests and project reports etc. The Course Assessment Report is the long term record of all assessment related information for that programme and as such includes all the information from the Course Assessment Plan. Independent raters, appointed from within the faculty, carry out checks of the Course Assessment Report based on rubrics developed for the same. Any shortfalls in learning are highlighted and remedial measures for future are instituted.

***2.6.5 What are the new technologies deployed by the university in enhancing student learning and evaluation and how does it seek to meet fresh/ future challenges?***

The pedagogy has been re-designed to instill higher order learning skills in the students. Emphasis is laid on analysis, evaluation and creativity. Activities in the classrooms are designed to foster these. In addition, ICT based techniques are regularly used to assist the faculty and the students in teaching learning process. Experiments in the laboratories are designed in such a way to develop creative abilities and also to analyse and evaluate data. These form the foundation on which the faculty tries to build the outcomes based on project based learning. Student evaluation is based on number of techniques like evaluation of tutorial sheets and assignments, project evaluation, laboratory tests, oral tests in conjunction with projects and also other items like seminars and discussions.

The University plans to meet future challenges by encouraging students to resort to self learning, problem and inquiry based learning and by making them more inquisitive. Learning by curiosity could be another technique that could be adopted. Computer based testing could be another method to evaluate the learning of students.

### **CRITERION III: RESEARCH, CONSULTANCY AND EXTENSION**

#### **3.1 Promotion of Research**

**3.1.1 Does the university have a Research Committee to monitor and address issues related to research? If yes, what is its composition? Mention a few recommendations which have been implemented and their impact.**

The University has a Doctoral Research Committee that is assisted by the Departmental Research Committees (DRC) constituted for each department. These departmental committees facilitate and monitor research being carried out in the departments. The Departmental Research Committee (DRC) of each department consists of Dean R & D as Chairman and Head of concerned department, all Professors, one Associate/Assistant Professors by rotation, one external expert from institutes of national repute and one external subject expert as members of DRC. The research supervisor of the concerned candidate also forms part of the committee as and when any issue relating to his research student is discussed. Following DRCs has been constituted for the University:-

##### **Department of Computer Science and Engineering**

Chairman: Dr. Sudhir Mahajan – Dean R&D

Members:

1. Dr. Bhanu Kapoor
2. Dr. Shaily Jain
3. One by rotation amongst Associate/Assistant Professor
4. Research Supervisor

Experts:

1. Dr. Kanwaljit Singh, Director Computer Center, Pbi Univ, Patiala.
2. One Expert from NIT/IIT/State/Central University
3. One Expert from Relevant Research Area

##### **Department of Electronics and Communication Engineering**

Chairman: Dr. Sudhir Mahajan – Dean R&D

Members:

1. Dr. Rajnish Sharma
2. Dr. Archana Mantri
3. One by rotation amongst Associate/Assistant Professor
4. Research Supervisor

Experts:

1. Dr. S. S Pattnaik, Professor, NITTTR, Chandigarh.
2. One Expert from NIT/IIT/State/Central University
3. One Expert from Relevant Research Area



### **Department of Civil Engineering**

Chairman: Dr. Sudhir Mahajan – Dean R&D

Members:     1. Dr. Varinder S Kanwar  
                  2. Dr. Bushra Zaman  
                  3. One by rotation amongst Associate/Assistant Professor  
                  4. Research Supervisor

Experts:       1. Dr. Siby John, Professor, PEC University, Chandigarh.  
                  2. One Expert from NIT/IIT/State/Central University  
                  3. One Expert from Relevant Research Area

### **Department of Applied Sciences**

Chairman: Dr. Sudhir Mahajan – Dean R&D

Members:     1. Dr. Sushil Kumar  
                  2. Dr. Nirankar Singh  
                  3. Dr. Sita Ram  
                  4. Research Supervisor

Experts:       1. Dr. Ashwani Parashar, Professor, Deptt. of Applied Science, PEC University, Chandigarh.  
                  2. One Expert from NIT/IIT/State/Central University  
                  3. One Expert from Relevant Research Area

#### ***3.1.2 What is the policy of the university to promote research in its affiliated / constituent colleges?***

Not applicable

#### ***3.1.3 What are the proactive mechanisms adopted by the university to facilitate the smooth implementation of research schemes/ projects?***

The University takes adequate measures to implement research project starting from their preparation, submission, sanction, implementation and subsequent completion. To facilitate smooth implementation of this policy following measures are adopted:

- Providing seed money for submission of research project.
- Facilitating timely release of grants by funding agencies.
- Providing necessary infrastructure both in terms of space and equipments for project work.

- Adopting simple procedures related to sanctions / purchases to be made by the investigators.
- Providing autonomy to the principal investigator/coordinator for utilizing overhead charges sanctioned in the project.
- Regular meetings to monitor research project progress and to address issues related to delay in completion of project.
- Annual auditing of expenditure incurred during project period.
- Timely submission of grant utilization certificate (GUC) to the funding authorities on completion of research project.

Apart from the above the following are also considered before a proposal is submitted to the funding agencies:-

- Relevance of the research topic and its utility to the society
- Consideration of interdisciplinary approach.
- Collaborative work with other institutions of international and national repute.
- Care is taken to consider publishability of the research work, follow research ethics and avoid plagiarism.

### **3.1.4 How is interdisciplinary research promoted?**

***\*between/among different departments /schools of the university and***

***\*collaboration with national/international institutes / industries.***

The University encourages its research scholars to engage in interdisciplinary approach. However, as far as interdisciplinary research is concerned, a major break through is still awaited since the research activities have been started just recently. We are confident that in the years to come this aspect would get its due importance and would get implemented. For example areas for interdisciplinary research such as Bioinformatics algorithms, Analysis of microarray gene expression and protein sequence/structure data to help fuel physiological information discovery, Human computer interaction, Engineering Geomorphology and Geosciences have been identified. A major initiative has been undertaken by seeking research collaboration with international universities wherein ESTP, France and GCU, UK have agreed to associate our research scholars in their research projects.

The University has also joined a consortium - promoted by Anglia Ruskin University, UK under the aegis of British Council – of universities in South Asia. This initiative is known as South Asia Anglia Partnership (SAAP). The consortium members will extend support to each other in research activities and the University plans to make use of this facility for interdisciplinary research.

***3.1.5 Give details of workshops/ training programmes/ sensitization programmes conducted by the university to promote a research culture on campus.***

To promote research culture in the university and to motivate the students and faculty members, an effort has been made to conduct number of workshops/training programs in different departments of the University, namely:

<b>Sr.No.</b>	<b>Name of the Workshop/Training program</b>	<b>Organizing Department</b>
1.	Faculty Development Program on “Electronic Design” with DesignSpark PCB & DesignSpark Mechanical, January 8 <sup>th</sup> & 9 <sup>th</sup> , 2015	Electronics & Communication Engineering
2.	Workshop on “Big Data”, 16 <sup>th</sup> July 2014 to 21 <sup>st</sup> July 2014	Computer Science
3.	Seminar on Disaster Mitigation And Earthquakes was held on 24-25 April, 2014.	Civil Engineering
4.	International conference on Mathematics and Engineering Sciences-20 <sup>th</sup> March to 22 <sup>nd</sup> March 2014	Applied Sciences
5.	Workshop on ICT Based online Program on VLSI Design, 10 <sup>th</sup> -14 <sup>th</sup> March, 2014	Electronics & Communication Engineering
6.	Workshop on NxpLPCxpresso, 22 <sup>nd</sup> February, 2014	Electronics & Communication Engineering
7.	Workshop on Cyber Crime on 13-14 December, 2013.	Computer Science

8.	Workshop on Geo-Informatics In Civil Engineering on 16 November, 2013	Civil Engineering
9.	Workshop: ICT based on Robotics, 26th -30th August, 2013	Electronics & Communication Engineering
10.	Workshop on Primavera software in Aug 2013	Civil Engineering
11.	FDW on Numerical Methods using C, July 15-19, 2013.	Applied Sciences
12.	Workshop on “Complex Functions and Partial Differential Equations” 1st July, 2013 to 5th July, 2013	Applied Sciences
13.	FDW on complex Analysis and Partial Differential equations, July 1-5, 2013.	Applied Sciences
14.	Workshop on Design of Earth Quake Resistance Structures, 05 April 2013.	Civil Engineering
15.	Workshop on Design of tall buildings, 06 April 2013.	Civil Engineering
16.	Space India Workshop, 20th March, 2013.	Computer Science Engineering
17.	Workshop on Total Station, 5th Feb, 2013.	Civil Engineering
18.	Workshop on STAAD Pro, 28 Jan, 2013.	Civil Engineering
19.	National Workshop on “Parallel Programming using CUDA”, July 30- August 1, 2012.	Computer Science Engineering
20.	FDW “Graphs of functions and Inequalities”, July 29, 2012.	Applied Sciences
21.	Workshop on “Graphs” 29 July, 2012	Applied Sciences
22.	National Workshop on “ARM Architecture and Design”, July 4-5, 2012.	Computer Science Engineering
23.	FDW “Designing multiple choice questions in Higher mathematics”, June 25-29, 2012.	Applied Sciences

24.	IUCEE Workshop on Embedded LINUX on Beagle Board, 18th-20th June, 2012	Electronics & Communication Engineering
25.	National Workshop on VLSI Design Using Cadence Tools, 5th-8th June, 2012	Electronics & Communication Engineering
26.	Workshop on Ethical Hacking, 20th March 2012.	Computer Science Engineering
27.	Workshop on Digital Signal Processing, 9th-10th Feb, 2012	Electronics & Communication Engineering
28.	IUCEE workshop on globally relevant electrical and computer technology curriculum, Aug. 8-9, 2011.	Computer Science Engineering
29.	Mathematica: An Integrated Environment For Computer Simulation In Physics And Mathematics, July 28-30, 2011.	Applied Sciences
30.	National workshop on MATLAB: An Interactive environment for signal processing (NWOMSP-2011), 25th -26th July, 2011	Electronics & Communication Engineering
31.	Workshop on Project Based Learning, July 22, 2011.	Computer Science Engineering
32.	Advanced DBMS and its implementation using Oracle, June 15-16, 2011.	Computer Science Engineering
33.	Workshop on Matlab, July 24-25, 2010.	Applied Sciences
34.	14th VLSI Design and Test Symposium (VDAT-2010), July 7-9, 2010	Electronics & Communication Engineering
35.	IUCEE Workshop on Compiler Design using MATLAB, 28th June-2nd July, 2010.	Electronics & Communication Engineering

36.	Fundamental of Information Technology, June 25, 2010.	Computer Science Engineering
37.	Compiler Design using MATLAB by IUCEE, 21st June – 7th July, 2010.	Computer Science Engineering
38.	Recent Advances in Mathematics, Jan 31- Feb 01, 2009.	Applied Sciences

**3.1.6 How does the university facilitate researchers of eminence to visit the campus as adjunct professors? What is the impact of such efforts on the research activities of the university?**

The University has a policy to engage eminent scientists and persons as adjunct professors and guest speakers from India and abroad. These experts are selected from the academic institutes and industries in areas of their research expertise and needs of the departments. These Professors besides teaching postgraduate students also provide help in guiding and supervising the research in thrust areas. Having rich experience at their command they not only motivate students and faculty members to register for PhD but also guide young researchers to formulate research projects. The University also has a practice of inviting regularly eminent persons for specialized lectures on research topics of current interest. The association of eminent persons with the university has provided the necessary impetus to the research activities of the university which is evident from the numbers of research publications and the research projects initiated by the University in the short span of time since its establishment.

List of the eminent researchers/persons associated with university during the period 2011-2014:

1. Dr Bhanu Kapoor, Texas, USA
2. Dr Sumeet Dua, Louisiana, USA
3. Dr Prakash Singh from IIM, Lucknow
4. Prof Manu Kesawan, University of Texas, Dallas
5. Mr Anoop Ohri, Vice President, HSBC Bank
6. Prof Subodh from Administrative Staff College, Hyderabad
7. Mr Amit Sood, Quark India Ltd
8. Mr Amulya Saha, IBM
9. Mr Nanjappa Palekanda, Google
10. Mr Sarthak Kumar, Vibe Technologies
11. Mr Amit Cheeka, Cognizant Technologies

12. Mr Damandev Sood, IEEE
13. Mr Nirbhay Kant, HP Technologies
14. Dr. C P Ravikumar, Texas Instruments
15. Dr. Anshul Kumar, IIT Delhi
16. Mr. Jaswinder Ahuja, Cadence
17. Mr. Hasmukh Ranjan, Synopsys
18. Mr. Yatin Trivedi, Synopsys
19. Prof. Vishwani Agarwal, Auburn University
20. Mr. Aninda Roy, Intel
21. Mr. Sofi Zahoor, Quark
22. Mr. Amit Soni, Quark
23. Mr. Pradyuman Sharma, Pragati Softwares
24. Prof. Bill Mckeenman, Dartmouth College, USA
25. Dr. S.C. Bose, CEERI,Pilani
26. Mr. Anurup Mitra, ST Microelectronics
27. Mr. Karun Jain, National Instruments,
28. Mr. Ramesh Pudale, AutoDesk
29. Mr. Ashutosh J Bhatt, IBM
30. Mr. Saugat Sen, Cadence

The University dedicates one week, named as “Global Engineering Week”, every year wherein professors of eminence from international universities come and share their knowledge on the latest technologies used in the field of engineering with our faculty and students. This mechanism is helping almost all students, researchers and faculty of the University viz-a-viz only handful of students going abroad to benefit.

Details of recently held Global Engineering Week in the University are given in succeeding paragraphs.

## Global Engineering Week 2013 (March 30 to April 6, 2013)



Chitkara University organized Global Engineering Week from March 30 to April 6, 2013. This annual event was organized to promote internationalization and global awareness among students of Chitkara University, especially in the field of engineering. With the participation of several partner universities from countries such as Australia, China, Malaysia, Indonesia, France, Finland, and Scotland – it offered a unique opportunity for students of Chitkara University to discover different cultures and get precious information on studying and working in an international context.

During the global week, parallel workshops were conducted by distinguished professors from partner universities, on topics like Cloud Computing, Sustainable ICT, Mobile Computing, Data Mining, Embedded Systems, Sensor Networks, Climate Science, Digital Design, and many more.

The details of the participants and their topics:

1. Prof. Joseph MOUZNA from ESIGELEC, Rouen, France

**Topic: Mobile Computing - VANET (Vehicular Ad Hoc Network)**

2. Prof. Mike JOHNSTONE from Edith Cowan University, Perth, Australia

**Topic: Sensor Networks**



3. Prof. Teuku Aulia Geumpana from BINUS International Jakarta, Indonesia

**Topic: Cloud Computing**

4. Prof. Arja Ristola from Helsinki Metropolia, Helsinki, Finland

**Topic: Dimensioning Variable Speed Drive for Induction Motor Application**

5. Prof. Pentti Viluksela from Helsinki Metropolia, Helsinki, Finland

**Topic: Sustainable ICT**

6. Prof. Lenin Gopal from Curtin University, Sarawak Malaysia

**Topic: Introduction to Digital Design and Verification using FPGA Boards**

7. Prof. Gang Li from Deakin University, Melbourne, Australia

**Topic: Data Mining in the context of Business Intelligence**

### **Global Engineering Week 2014 (March 31 to April 4, 2014)**

Chitkara University organized the third Global Engineering Week from March 31 to April 4, 2014.

The details of the participants and their topics:

1. Prof. Alin Tissan from Anglia Ruskin University, UK

**Topic: Microelectronic Systems Design (VHDL & FPGA)**

2. Prof. Christophe Fournier from UM2, France

**Topic: Personal Selling In B2B**

3. Prof. Dana Sulistiyo Kusumo from Binus University, Indonesia

**Topic: Software Acquirer Involvement in Software Development**

4. Prof. Jeremy Pasquier from Sopra Group, France

**Topic: Linux Administration**

5. Prof. Jonatas Valenca from University of Coimbra, Portugal

**Topic: Pathology, Inspection and Diagnosis of Structures**

6. Prof. Mika Lindholm from Helsinki Metropolia, Finland

**Topic: Construction Planning**

7. Prof. Romain Rossi from ESIGELEC, France

**Topic: Introduction to Autonomous Robots**

8. Prof. Sanjay Kumar Shukla from ECU, Australia

**Topic: Soil Mechanics and Geotechnical Engineering**

9. Prof. Thierry Baills from Helsinki Metropolia, Finland

**Topic: RF Transceivers, Architectures**

10. Prof. Raji Sundararajan from Purdue University, USA

**Topic: Electronics and Communication Engineering**

11. Prof. Sonia Hamnane from Binus University, Indonesia

**Topic: Multimedia System**

12. Prof. Yunlian Zhang from Zhejiang University of Science and Technology, China

**Topic: Civil Engineering Materials**



***3.1.7 What percentage of the total budget is earmarked for research? Give details of heads of expenditure, financial allocation and actual utilization.***

The University was established in 2008 and being a self financing university it had to incur huge capital expenditure. The repayment of loans and interest thereon is a huge burden that leaves hardly any amount for allocation for research activities.

At present there is no separate allocation done under this head, however, need based research grant is provided to the researchers. The University provides the seed money for the researchers to carry out preliminary research in the form of research proposal grant. The potential researchers utilize this amount for collection of literature and writing the research proposals to obtain grants / funds from various funding agencies. Funds are also provided for attending national / international conferences / workshops / seminars / short term training courses to the researchers and students to enrich their knowledge which can be effectively utilized for their research.

***3.1.8 In its budget, does the university earmark fund for promoting research in its affiliated colleges? If yes, provide details.***

Not applicable

***3.1.9 Does the university encourage research by awarding Post Doctoral Fellowships/Research Associate ships? If yes, provide details like number of students registered, funding by the university and other sources.***

The University encourages its researchers to carry out research work. In this direction whosoever is pursuing doctoral level research from this University, is not charged semester fees. In addition the university also provides fellowships to students who are pursuing their Post Graduation in Computer Science & Engineering and Electronics & Communication Engineering. The University plans to award Post Doctoral Fellowship and more Research Associate ships in near future.

***3.1.10 What percentages of faculty have utilized the sabbatical leave for pursuit of higher research in premier institutions within the country and abroad? How does the university monitor the output of these scholars?***

About 5% of the faculty have been provided this facility for pursuing higher education. To name few:- Mr. S K Muthukumaran, Mr. Kuldeep Sharma, Ms. Ekta Gandotra, Ms. Uma Malik. They are pursuing higher studies at BITS, Hyderabad, Thapar University and PEC University of Technology.

***3.1.11 Provide details of national and international conferences organized by the university highlighting the names of eminent scientists/scholars who participated in these events.***

**Following National/International conferences were organized:**

<b>Sr. No</b>	<b>Conference Title</b>	<b>Number of participants</b>	<b>Eminent Participants</b>
1.	International Conference on Recent Trends in Nuclear Physics, November 19-21, 2012.	130	1. Dr. Avazbek Nasirov, Dubna, Russia. 2. David Jenkins, York, UK . 3. T. Wakasa, Higashi, Japan. 4. G.V. Rogachev, FL, USA. 5. D.Cortina-Gil, Spain. 6. C. Hartnack, Nantes France. 7. Dr AK Jain, IIT Roorkee, India 8. Dr. S Kailas, BARC, India. 9. Dr Radhy Shayam, SINP,India 10. V.K.B. Kota, PRL, India

2.	International Conference on Mathematics and Engineering Sciences-2014 (ICMES-2014), 20 <sup>th</sup> March, 2014 to 22 <sup>nd</sup> March, 2014.	200	<ol style="list-style-type: none"> <li>1. Prof. IBS Passi, PU, Chandigarh</li> <li>2. Dr. Dambaru Bhatta, Texas, USA</li> <li>3. Dr. Kankeyanathan Kannan, Jaffna, Sri Lanka</li> <li>4. Dr. Folorunso Ojo, Nigeria</li> <li>5. Dr. Motahari, Kerman, Iran</li> <li>6. Dr. A. M Sagir, Katsina, Nigeria</li> <li>7. Dr. Saratha Sathasivam, Penang, Malaysia</li> </ol>
3.	Advances in Infrastructure Development", October 11-12, 2012.	50	<ol style="list-style-type: none"> <li>1. Dr. Siby John, PEC, Chandigarh</li> <li>2. Brig V. S. Katarya</li> <li>3. Maj Gen Vinod Bhatt.</li> <li>4. Maj Gen A.K. Chaturvedi</li> </ol>
4.	National Conference on Sustainable Infrastructure Development (NCSID 2014) by Chitkara University HP and NITTTR Chandigarh 13-14 March 2014	100	<ol style="list-style-type: none"> <li>1. Dr. Achal Mittal</li> <li>2. Er. Pramod Bhandari</li> <li>3. Dr. A. K Gupta,</li> <li>4. Dr. B.N Basu,</li> <li>5. Dr. Naveen Kwatra,</li> <li>6. Dr. H. S. Sharma,</li> <li>7. Dr. Dipteeek Parmar</li> <li>8. Prof . A.K Duggal</li> <li>9. Dr. Hemant Sood</li> <li>10. Ms. Himmi Gupta</li> <li>11. Prof. P.K Singla</li> <li>12. Dr. Rakesh Wats</li> <li>13. Dr. Ponam Sayal</li> </ol>
5.	14 <sup>th</sup> VLSI Design and Test Symposium. (VDAT-2010) July 7 <sup>th</sup> -9 <sup>th</sup> , 2010	200	<ol style="list-style-type: none"> <li>1. Dr. C.P. Ravikumar, , VLSI, Texas Instruments India</li> <li>2. Dr. Bhanu Kapoor, Texas, USA</li> <li>3. Dr. N.S.Murty, Director ,NXP Semicondctor, Bangalore.</li> <li>4. Mr. Santanu Chattopadhyay, IIT Kharagpur</li> <li>5. Mr. Milind Phadtare, NXP,Bangalore.</li> </ol>

### 3.2 Resource Mobilization for Research

#### 3.2.1 What are the financial provisions made in the university budget for supporting students' research projects?

Need based financial assistance is provided in deserving cases. At present, due to financial stringency, the University has not been able to make any provisions for students' research projects. Students are encouraged to seek external support for projects. The university faculty provides all necessary help and guidance to students for their project work. Undergraduate and post graduate engineering final year students generally spend one semester in industry/institutes to work on sponsored projects for project work as part of degree programme. Limited funding is provided for students' projects selected for national/international competitions. Some of the important student's projects guided by the faculty members and supported by the university are appended below:-

#### Important Projects by students

S. No.	Name of Project	Name of the Students	National/International Participation
1.	Agricultural Project	Mr. Kush Dhawan, Mr. Sahil David, Mr. Avinash and Mr. Anirudh Duggal	4 <sup>th</sup> in Imagine Cup by Microsoft
2.	Mobile App for Chandigarh Administration.	Mr. Abhishek Sharma, Mr. Akhil Kumar Dharni, Mr. Sahil David and Mr. Sunit Rana	1 <sup>st</sup> in Code for Chandigarh
3.	Two Stage Water Rocket	Mr. Akhil Mittal, Mr. Ishan Arora, Mr. Anuj Poonia, Mr. Ankit Sharma and Mr. Hitain Puri	2nd Prize  BITS Pilani (APOGEE'13)
4.	Pick and place Robot	Mr. Sahil Verma and Mr. Rizwan Javed	2nd in a Robotics competition 2012, organized by (IETE) at Chandigarh
5.	Pick and Place Robot	Mr. Kartikey Manchanda	3rd place in the Robotron Competition in the technical fest, 2012 held at IIT Mumbai

6.	Path Finder Robot	Mr. Kartikey Manchanda and Mr. Karan Sharma	4th in ROBOTRYST competition, 2012 held at IIT Delhi
7.	Intelligent Car steering	Mr. Abhishek Sharma Mr. Navneet Arora Mr. Daksh Raj Chopra	Participating in TIIC- ADC 2015 Cleared 1st stage
8.	Firebird-5 V	Mr. Abhishek Sharma Mr. Navneet Arora Mr. Daksh Raj Chopra Mr. Himanshu Gupta	Cleared 1 <sup>st</sup> and 2 <sup>nd</sup> stage of e-Yantra Robotics Competition (eYRC-2014) at IIT- Mumbai
9.	Quad Copter with wireless surveillance and signal jammer	Mr. Munish Verma Mr. Ishita Sood	Participating in TIIC- ADC 2015  Cleared 1st stage
10.	Amplifier Design Using TDA2030	Mr. Nilesh Khanna	Consolation Prize In PCB Design Competition Organized By RS Components, Bangalore
11.	Intelligent Irrigation System	Mr. Nilesh Khanna Mr. Abhijit Dey Mr. Shubham Garg Mr. Saniya Choudhary Mr. Ranjan Mukherjee	Shortlisted for the second round at ADCOM-2014 by ACCS, Bangalore
12.	Wireless Smart E- Notice Board	Ms. Priyanka Mittal Ms. Swati Gupta Ms. Aarti Kanwar	Shortlisted for the second round at ADCOM-2014 by ACCS, Bangalore
13.	Robots that can see through walls using ARM Cortex-M0+	Mr. Mandeep Goel Mr. Nandish Goswami Mr. Mayank Maurya	Shortlisted for the second round at ADCOM-2014 by ACCS, Bangalore
14.	Automated Agricultural Irrigation System	Mr. Varun Sethi Mr. Shivam Sharma Mr. Shubham Garg Mr. Shubham Kumar Ms. Vini Mahajan Mr. Varun Pulani	Participated in TIIC- ADC 2014  Cleared 1st and 2nd stages

15.	A Quad-Copter with accelerometer, Gyroscope and wireless video transfer using XigBee and doing video processing on board.	Mr. Arindham Basu Mr. Aneesh Kapoor Mr. Ankur Malik Mr. Ashish Kumar Singh	Participated in TIIC-ADC 2014 Cleared 1st and 2nd stages
16.	Crime against women	Ms. Nishima	SAP Lumira
17.	Survey of Marital Status of different places	Ms. Bhavna Jain	SAP Lumira
18.	Survey of Disabled non workers by the type of the disability	Ms. Shiva	SAP Lumira
19.	NFL Players Ranking Survey	Mr. Sahil Joshi	SAP Lumira
20.	Android app on Crime against Women	Mr. Khushagar Gautam and Mr. Karamvir Grewal	Microsoft Imagine Cup
21.	Placement office automation,	Mr. Sammie Sood, Mr. Jatin Paul, Ms. Minal Mogla and Mr. Gursher Gill	Microsoft Imagine Cup
22.	Microfinance	Mr. Rajat Bhatnagar, Mr. Sahil Soni and Mr. Sahil Mahajan	Microsoft Imagine Cup
23.	One World vigilant online surveillance system	Mr. Naman Pathak and Mr. Oshiv Gharvi	Microsoft Imagine Cup
24.	Android Automation of Civil courts	Mr. Rishiv Farma, Mr. Rishiv Bhardwaj, Mr. Sachet Garg and Mr. Shivaal Narrag	Microsoft Imagine Cup
25.	Creation of a sniffer and a port scanner	Mr. Kashish walia	Microsoft Imagine Cup
26.	RFID Based employee attendance tracking system,	Mr. Madhur chopra, Mr. Kanav Malhotra, Ms. Manvi Tandon and Mr. Jasraj Singh Alluwalia	Microsoft Imagine Cup
27.	Emergency Vehicles Recognition System	Mr. Pardeep Sharma	Microsoft Imagine Cup
28.	Security Management for Bank's IT infrastructure	Ms. Amanpreet Kaur, Mr. Akshit Sharma, Mr. Akshdeep Thind and Mr. Anand Gupta	Microsoft Imagine Cup

29.	Water Quality Analysis and its impact on Health: A case study of Baddi Tehsil	Anuj Arora,Chahat , Sunil, Surinder Rana, Amitjot , Devinder Singh, Vasu Sharma, Priyanka Guleria, Tanveer Singh, Shivam aggarwal, Inderjeet Singh, Sagun Gupta, Arvind Bedi,Jyoti Kalia	A case study of Baddi Tehsil
30.	Ponds reclamation of kalu jhanda village	Anuj Arora,Chahat , Sunil, Surinder Rana, Amitjot , Devinder Singh, Vasu Sharma, Priyanka Guleria, Tanveer Singh, Shivam aggarwal, Inderjeet Singh, Sagun Gupta, Arvind Bedi,Jyoti Kalia	Water Management Scheme for Kalujhanda village
31.	Building Information Modelling Design (B.I.M)	Mr. Vinay Kumar, Nitish Kumar	AutoCAD 3-D design Challenge -2014
32.	Business Proposal For Construction Company In U.S	Rishav Sharma	M.B.A Academy at Harvard university Summer 2014 Construction Management Programme
33.	Generating Electricity From Speed brakers	Shivam aggarwal	Alternative Source Of Energy

***3.2.2 Has the university taken any special efforts to encourage its faculty to file for patents? If so, how many have been registered and accepted?***

The University is still in infancy stage, however, as a humble beginning, it has already established Incubation Centre to facilitate and encourage the faculty members to pursue innovative research/projects and file patents. The patenting process has started recently and few applications for patents have been filed or are in an advanced stage of being filed, details are as follows:-

- Alternative construction material made from electroplating industry sludge and a method to prepare the same

However, the university looks forward to apply for more patents in near future.



### 3.2.3 Provide the following details of ongoing research projects of faculty:

A. University awarded projects: Nil

B. Other agencies - national and international (specify):-

Sanctioned: 03 (National)

Submitted: 13 (National)

Some of the faculty members engaged in research work have made significant breakthroughs in certain area of their interest. Encouraged by the findings, these faculty members have formulated the following research proposals for funding from national agencies:-

Sr.No.	Name of the project	Name of the funding agency	Total grant received
1.	A Systematic Investigation of Fusion-Fission Reactions and Decay Properties of Compound Nucleus (Sanctioned)	Department of Science and Technology	Rs.6 Lacs
2.	Analytical Parametrization of Fusion Barriers and Cross Sections Using Various Microscopic / Macroscopic Approaches and Experimental Data as a Guideline (Sanctioned)	Department of Science and Technology	Rs.11.94 Lacs
3.	Study the effects of multiple ionization and nuclear spin in x-ray production cross sections of high-z elements by heavy ions (Sanctioned)	Department of Science and Technology	RS. 9.68 Lacs
4.	Assessment Of Seasonal Snow Cover Changes Using Proposed Change Vector Analysis (CVA) Based Change Detection Algorithm Over Topographically Corrected North Indian Himalayan (submitted)	Indian Space Research Organization, ISRO, Bangalore	RS. 23.23 Lacs
5.	R&D Support in Earth & Atmospheric Science(submitted)	Ministry of Earth Sciences, New Delhi.	RS. 48.25 Lacs
6.	Project under fast scheme: Center for new construction material research(submitted)	MHRD, New Delhi	RS. 80 Lacs

7.	Rural Women Technology Park at Gram Panchayat Kalujhanda, Block Dharampur, District Solan, Himachal Pradesh. (submitted)	Department of Science and Technology	RS. 89.59 Lacs
8.	Monitoring Of Ambient Air Quality In Barotiwala (Baddi), Himachal Pradesh: A Brick Kiln Industry Hub In NW, India (submitted)	Science and Engineering Research Board, Department of Science & Technology New Delhi	RS. 23 Lacs
9.	Inequalities between moments of a statistical distribution and their applications to algebra theory. (submitted)	Department of Science and Technology	RS. 5.75 Lacs
10.	Study and analysis of various security parameters in Software Development(submitted)	Department of Science and Technology	8 Lacs
11.	Development of Time And Energy-efficient Public Key Based Security Algorithms Applicable To Portable Mobile Devices(submitted)	Department of Science and Technology	4 Lacs
12.	Design & development of biomedical devices by using different technologies (embedded /android etc.) (submitted)	Department of Science and Technology	5 Lacs
13.	Development of fast digital crime forensics technique using digital footprints(submitted)	Department of Science and Technology	4 Lacs
14.	Development of new private key based parallel and energy efficient algorithm for mobile applications(submitted)	Department of Science and Technology	4 Lacs
15.	Design an heterogeneous MPSoC (Multiprocessor System on a chip) system with a new replacement policy and low energy consumption for specialized embedded system applications (submitted)	Department of Science and Technology	14.47 Lacs
16.	New generations of Amplifier-Antennas for future Wireless Communications in collaboration with Prof. Constant Niemann, ESIGELEC France	Department of Science and Technology	47.2 Lacs

**3.2.4 Does the university have any projects sponsored by the industry / corporate houses? If yes, give details such as the name of the project, funding agency and grants received.**

Presently none of the projects have been sponsored by the industry / corporate houses, however, industries have set up number of labs in the University like nVIDIA, one of the leading companies in the parallel computing space, has granted the status of “CUDA teaching Centre” to Chitkara University. Marquee companies such as ARM, Cadence and NXP Semiconductors are supporting us in terms of supplying state-of-the-art equipment / software for best hands-on classroom training. Infosys Campus Connect and Wipro 10X Mission have provided us an important framework for our engineering curriculum.

**3.2.5 How many departments of the university have been recognized for their research activities by national / international agencies (UGC-SAP, CAS; Department with Potential for Excellence; DST-FIST; DBT, ICSSR, ICHR, ICPR, etc.) and what is the quantum of assistance received? Mention any two significant outcomes or breakthroughs achieved by this recognition.**

Presently none

**3.2.6. List details of**

- a. Research projects completed and grants received during the last four years (funded by National/International agencies): List of Research Projects Completed:-

S.No.	Project Title	Funding Agency / Collaboration	Grant Received (Lacs)
1.	Investigations aimed at producing Diamond like Carbon (DLC) films with broad range of dielectric constant and extremely low stress values.	Department of Science and Technology, Government of India	RS. 10.92 Lacs

- b. Inter-institutional collaborative projects and grants received

- |     |                         |      |
|-----|-------------------------|------|
| i)  | All India collaboration | None |
| ii) | International           | None |

### **3.3 Research Facilities**

#### **3.3.1 *What efforts have been made by the university to improve its infrastructure requirements to facilitate research? What strategies have been evolved to meet the needs of researchers in emerging disciplines?***

The University has been able to convince some eminent MNCs to set up their labs within the campus. These labs provide good opportunities to the faculty to engage in research activities. The University encourages its faculty to create research facilities for the research projects in their specific domains through proposals submitted to different agencies. This helps in creating and improving the infrastructure requirements of research. The laboratories of the University and the Central Library of the University are well equipped and modernized to meet needs of researchers.

The University has been allocating separate budget for infrastructure development to facilitate research since its inception. These internal funds are utilized to provide basic facilities such as space, equipments, laboratories and other research related requirements. Following major facilities have been developed to provide congenial research atmosphere in the University:

- Well equipped laboratories in each department.
- 1 GB - Internet connectivity in the campus.
- State-of-the-art University Computer Centre.
- Desktops/Laptops to faculty members.
- Well equipped University Library having LIS (KOHA).
- Subscriptions to e-journals such as JGATE, IEEE and member of DELNET.

#### **3.3.2 *Does the university have an Information Resource Centre to cater to the needs of researchers? If yes, provide details of the facility.***

At present the library acts as the Information Resource Centre. Books and journals, e-resources such as JGATE (online journals), DELNET (online database), Shodhganga and IEEE (on line) are subscribed to cater to the requirements of the researchers. The library staff provides good bibliographic support to the researchers. However, in the near future a dedicated Information Resource Centre for research activities will be established.

**3.3.3 Does the university have a University Science Instrumentation Centre (USIC)? If yes, have the facilities been made available to research scholars? What is the funding allotted to USIC?**

Yes, at present this centre is looking after the maintenance of selected laboratory equipment and computer peripherals. Need based funds are allocated to this centre.

**3.3.4 Does the university provide residential facilities (with computer and internet facilities) for research scholars, post-doctoral fellows, research associates, summer fellows of various academies and visiting scientists (national/international)?**

The University provides residential facilities to scholars, faculty members and visiting faculty/scientists engaged in research. They are housed in the hostels and university guest house which are connected through LAN. The University Campus is Wi-Fi enabled and 24x7 internet facility is provided free of cost. Faculty members are also provided with individual desktops/laptops to facilitate research work. On-line library facilities being available can be accessed by the researchers round the clock.

**3.3.5 Does the university have a specialized research centre/ workstation on-campus and off-campus to address the special challenges of research programmes?**

The University endeavours to provide requisite facilities to the researchers. Some details are given below:-

**(i) Research Centre for Advances in Computer Science (RCACS)**

Research Centre in Advances in Computer Sciences (RCACS) comprises a group of people working together with an aim to lead the centre to the highest in research perspective. This research group deals with a variety of issues, concepts, methods and techniques associated with Computer Science. Research centre tackles difficult real-world problems that often have high impact on industry, commerce and the public. It involves a shared ethos of "computing in the world" in which fundamental advances in Computer Science are connected to knowledge and methods from other disciplines to enable deep collaborations with research users in diverse sectors. The research centre comprises of a number of research oriented people covering many sub-disciplines of Computer Science. Research undertaken covers a diverse range of interdisciplinary areas, informs our teaching and has strong links with industry. **Major Research Thrust Areas:**

- Security in wireless networks
- Memory customization in MPSoC
- Data mining technologies
- Bioinformatics algorithms.
- Analysis of microarray gene expression and protein sequence/structure data to help fuel physiological information discovery.
- Parallel Computing, Network Security, Web Application Development
- Machine Learning.
- Cloud computing
- Software engineering
- Human computer interaction

**(ii) Geo-informatics and Building Technology Research Centre (GBTRC)**

The Geoinformatics and Building Technology Research Centre (GBTRC) within the department of Civil Engineering is a Research Centre under the aegis of CURIN. The center focuses on state of the art engineering research and the key mission of the GBTRC is to conduct applied research in civil and environmental engineering. The major goal is to use the latest tools and techniques to come up with innovative research designs that can make life easier. In this perspective, research in advance engineering and technology, such as the use of Geographical Information System (GIS) and advanced remote sensing know-how, water resources research, building technology and new building material research in particular is of principal importance. The center provides an opportunity to pursue exploratory projects in diverse areas of engineering and brings together a team of dedicated researchers who push the limits to achieve the goals.

**Major Research Thrust Areas:**

- Remote sensing and GIS applications in Civil and Environmental Engineering
- Annual and seasonal change detection in crop patterns using satellite imagery
- Water Resources Engineering
- Geographical Information System (GIS)
- Remote Sensing
- Advance Surveying and Global Positioning System (GPS)
- Engineering Geomorphology and Geosciences
- Water Resource and Climatic Changes
- Disaster Management System

- Reclamation of polluted and receding ponds
- New construction material using industrial waste.
- Earthquake Engineering research
- Predicting ground water level and adulteration in ground water due to industrial waste using remote sensing and GIS technology.

**(iii) Research Centre for Physical and Mathematical Sciences (RCPMS)**

In order to provide necessary impetus to research in fundamental sciences, Research Centre for Physical and Mathematical Sciences (RCPMS) has been established. A dedicated team of researchers well versed with computational, simulations and modeling techniques have been engaged to focus on current research issues synchronous with the latest developments in the fields of Physics, Chemistry and Mathematics. Team members are pursuing both theoretical and application oriented research in diverse disciplines of nuclear, atomic and radiation Physics, atmospheric chemistry and also tackling problems of inequalities from Algebra and Statistics. Recent award of three research projects by the Department of Science and Technology, GOI, New Delhi to RCPMS is a testimony of great research efforts put in by the members.

**Major Research Thrust Areas:**

- Nuclear fission-fusion dynamics
- Drip-line nuclei studies and proton radioactivity
- Synthesis of super heavy elements and their decay studies
- Nuclear reactions and structures
- Analysis of fusion barriers and cross sections
- Electronic structure and energetic of impurities in metals and alloys
- Near-edge processes atomic processes
- Ion-atom interaction study
- Aerosol research
- Regional environmental impact assessment/ environmental quality management
- Urban and rural environmental studies
- Waste management
- Biomass Burning Impacts
- Theory of inequalities pure mathematics
- Reliability and cost analysis of industrial system
- Information theoretic measures its applications to data mining
- Chaotic behaviour in biological systems and controlling techniques

**3.3.6 Does the university have centres of national and international recognition/repute? Give a brief description of how these facilities are made use of by researchers from other laboratories.**

The University, since its inception, has been focusing on developing infrastructure facilities to promote research culture in the University. Research Centers have been established. The research work has gathered momentum as evident from research publications and funding for research projects from external agencies. Process has started to identify the promising area of research being carried out by the University to apply for Centre of Excellence in that field.

**3.4 Research Publications and Awards**

**3.4.1 Does the university publish any research journal(s)? If yes, indicate the composition of the editorial board, editorial policies and state whether it/they is/are listed in any international database.**

List of journals published by the university:

Sr.no.	Journal Title	Editorial Board	Editorial Policies
1	Journal of Nuclear Physics, Material Sciences, Radiation and Application	Patron: Dr. Ashok K Chitkara Editorial Advisor: Dr. Madhu Chitkara Chief Editor: Prof. (Dr.) Sudhir Mahajan Editor: Dr. Sushil Kumar Associate Editor: Dr. Pankaj Kumar	The journal aims at creating a plinth for Intelligentsia with the aim of creation and dissemination of knowledge related to Physics that is relevant to other domains in science and technology.
2.	Today's Ideas - Tomorrow's Technologies (JOTITT)	Patron: Dr. Ashok K Chitkara Editorial Advisor: Dr. Madhu Chitkara Editor-in-Chief: Prof. (Dr.) Bhanu Kapoor Associate-Chief-Editor: Prof. (Dr.) Archana Mantri Editor: Prof. (Dr.) Rajnish Sharma	This journal has been cogitated with the Vision 'To create a plinth for Intelligentsia with the aim of creation and dissemination of knowledge related to engineering that is relevant to other domains and facilities in advancements in science and technology'.



3.	Mathematical Journal of Interdisciplinary Sciences	Patron: Dr. Ashok K Chitkara Chief Editorial Advisor: Dr. Madhu Chitkara Editorial Advisor: Brig. (Dr.) R.S. Grewal Chief Editor: Prof. (Dr.) Sarva Jeet Singh Editor: Prof. (Dr.) Ashok Kumar Dr. Sita Ram	The journal aims at creating a platform for the academia and industry to ensure knowledge sharing related to Mathematical and Interdisciplinary Sciences.
4.	Journal of Chemistry, Environmental Sciences and its applications	Patron: Dr. Ashok K Chitkara Chief Editorial Advisor: Dr. Madhu Chitkara Editorial Advisor: Brig. (Dr.) R.S. Grewal Editor: Prof. (Dr.) Jyotsna Koushal Dr. Nirankar Singh	The vision of the journal is to add to the repository of knowledge pertaining to Chemistry and Environmental Sciences with the aim of creating awareness and well being on the planet earth.

### 3.4.2 Give details of publications by the faculty

- Number of papers published in peer reviewed journals (national /international): 119
- Monographs: Nil
- Chapters in Books: 07
- Books edited: 01
- Books with ISBN with details of publishers: 15
- Number listed in International Database (e.g. Web of Science, Scopus, Humanities International Complete, EBSCO host, etc.) : 50
- Citation Index – range: 1-57
- SNIP: Nil
- SJR : Nil
- Impact Factor – range: 0.5- 5.326
- h-index (Individual Max.) : 5

### 3.4.3 Give details of

Faculty serving on the editorial boards of national and international journals

S.No.	Faculty Name	Journal Name	Capacity
1	Prof. (Dr.) Rajnish Sharma	Journal On Today's Ideas - Tomorrow's Technologies	Editor
2	Prof. (Dr.) Sudhir Mahajan	Journal Of Nuclear Physics, Material Science, Radiation and Applications	Chief-Editor
3	Dr. Sushil Kumar	Journal Of Nuclear Physics, Material Science, Radiation and Applications	Editor
4	Dr. Ajay Sharma	International Journal of theoretical and applied sciences.	Member of Editorial Board
5	Dr. Ajay Sharma	Journal of quantitative spectroscopy and related phenomena (an Elsevier Publication).	Reviewer
6	Prof.(Dr.) Bushra Zaman	Journal On Today's Ideas - Tomorrow's Technologies	Member of Editorial Board
7	Prof. Pooja Arora	Journal On Today's Ideas - Tomorrow's Technologies	Member of Editorial Board
8	Prof. Sushil Kumar Bansal	Journal On Today's Ideas - Tomorrow's Technologies	Member of Editorial Board
9	Dr. C Prakasam	The Journal of Bengal Geographer	Member of Editorial Board

Faculty serving as members of steering committees of international conferences ecognized by reputed organizations / societies

### 3.4.4 Provide details of

- \* research awards received by the faculty and students
- \* national and international recognition received by the faculty from reputed professional bodies and agencies

S.No.	Faculty Name	Award/Recognition Received
1.	Dr Varinder S Kanwar	Paper titled 'Finite Element Modeling of Reinforced Concrete Corners Under Opening Bending Moment' (published in the Series 'A' Journal of IEI, Vol. 94, Issue 1) has been selected for the subject prize, by The Institution of Engineers (India),
2.	Dr. Ajay Sharma	"Best Poster Paper Award" for the research paper (RPP-37) entitled 'Coster-Kronig corrected experimental and theoretical alignment parameter for tungsten-a comparison', The National conference on advanced materials and Radiation Physics (AMRP-2009), , SLIET
3.	Dr. Ishwar Dutt	Junior Research Fellowship (JRF), Department of Atomic Energy (DAE), Govt. of India Project, Physics Department, Panjab University, Chandigarh from Jan. 2007- Feb. 2009
4.	Dr. Ishwar Dutt	Junior Research Fellowship (JRF) of University Grant Commission (UGC) (Meritorious Scheme), University Grant Commission (UGC), Govt. of India , New Delhi from Mar. 2009 - Jun. 2009.
5.	Dr. Ishwar Dutt	Open Junior Research Fellowship (CSIR-UGC-JRF/NET) of University Grant Commission, University Grant Commission (UGC), Govt. of India , New Delhi from July 2009 – Dec. 2010.
6.	Dr. Sunil Kumar	SRF of UGC sponsored scheme for meritorious students, University Grant Commission (UGC), Govt. of India , New Delhi from Feb.2011- July 2011.
7.	Dr. Sunil Kumar	JRF in UGC sponsored scheme for meritorious students, University Grant Commission (UGC), Govt. of India, New Delhi from 2009-2011.
8.	Dr. Sunil Kumar	Project Fellow in IUAC funded project in Department of Physics, Panjab University Chandigarh, IUAC, New Delhi from 2008-2009.

9.	Dr. Sunil Kumar	Project Fellow in DST funded project in Department of Physics, Panjab University Chandigarh, DST, New Delhi from 2006-2007.
10.	Dr Nirankar Singh	Junior research fellowship DST, India awarded (2007-2009)
11.	Dr Nirankar Singh	Senior research fellowship, DST, India from 2009-2010.
12.	Ms Kanika Soni	Best poster award in 2010 in Punjab Science Congress held at Panjab University, Chandigarh.
13.	Ms Anshu Sharma	“1st position in best paper presentation” for the research paper (RPP-37) entitled ‘ Proceedings’ of RAMEMS-2011: National Workshop on Advances in Micro-Electro-Mechanical Systems, March 07-09, 2011
14.	Dr. C Prakasm	DST – West Bengal Research Fellow ship for Ph.D.
15.	Dr. C Prakasm	DST PURSE – Fellow ship for Post- <i>Doctoral</i> Research

#### ***Students research awards:***

- Team SOCH (**Avinash, Anirudh Duggal, Kush Kumar Dhawan and Sushain Sharma**) students of CSE department made it to the top 7 teams of the country. They took part in Microsoft’s Imagine Cup competition 2011. After researching for a couple of months, the device that would automate growing plants was finalized as their Imagine Cup Project. Equipment to be finally developed was named as Prithvi’s Hellion.



In round1, team SOCH was shortlisted amongst top 150 teams all over the world and were given a mini computer (Ebox) worth 650 \$ by Microsoft. Team built the OS and applications for their device and submitted the video of the working prototype. The competition was between top 25 teams in India and they were shortlisted amongst the best 7 teams in India to participate in National Finals in Delhi and Gurgaon from 26th-28th April 2011.

- **Abhishek Sharma, Akhil Kumar Dharni, Sahil David, Sunit Rana** students of Batch 2010 CSE have won 1<sup>st</sup> Prize in Code for Chandigarh Competition held in year 2013. They have developed Mobile App for Chandigarh Administration.



**Team VRADARS (L-R)**

**Abhishek Sharma, Sunit Rana, Akhil Dharni, Sahil David**

Team VRADARS bagged the first prize in the App development competition ‘CODE FOR CHANDIGARH’ organized by ‘Department of Information Technology, Chandigarh Administration’. The app’s quality feature ‘I AM SAFE’ stands up and tells all the feminine gender that we are here for you. The girls’ users should feel safe and secure in the city. Whenever a crime happens with the women, she feels shy to go up to the police, reveal her identity and answer the questions. Just press an alert button and the location of the girl in danger is retrieved. This information can be shared with the police for speedy and safe trials. The App dynamically gives the Breaking News and details of the events happening in the city [Event Updates]. The team won a trophy along with a cash prize of Rs. 25,000.

- **Nishima** student of Batch 2013 presented application “Crime Against Women” in SAP Lumira event held at Bangalore by SAP India Pvt Ltd in 2014.



### **Chitkara University at SAP Techniversity event, Noida - Student bagged 3<sup>rd</sup> prize**

SAP hosted the third edition of its youth focused event – SAP Techniversity at Jaypee Institute of Information Technology in Noida on November 8. The day-long event had over 2000 students from colleges across India learning about the latest trends in technology. With Cloud as the theme, the event featured four tracks – Innovative Cloud, Brain Cloud, Cloud Nine, and the Power Cloud.

Around 200 students from Chitkara University participated in the event. Students heard from speakers such as Ochintya Sharma, Vice President, Software Operations, Samsung India; Rohan Dixit, Founder, BrainBot; Pradeep Desai, Head of Software Centre of Excellence India, GE Global Research; Arnab Goswami, Editor-in-Chief and News anchor of news channel Times Now, as well as former Indian cricketer, Ajay Jadeja, besides local and global speakers from SAP.

It is a matter of indeed great pride that the second year student Nishima Arora of Chitkara University bagged 3<sup>rd</sup> prize in the DEMO JAM competition held at the SAP event. From all over India 5 students were shortlisted and were asked to give presentation at the event. Students were asked to use System application product for representing graphical information of all the departments in an organization. Nishima covered “Crime against women in India” and was highly applauded.

- **Bhavan Jain** student of Batch 2013 presented application “Survey of Marital Status of different Places” in SAP Lumira event held at Bangalore by SAP India Pvt Ltd in 2014.
- **Shiva** student of Batch 2013 presented application “Survey of Disable non workers by the type of disability” in SAP Lumira event held at Bangalore by SAP India Pvt Ltd in 2014.
- **Sahil Joshi** student of Batch 2013 presented application “NFL Players ranking Survey” in SAP Lumira event held at Bangalore by SAP India Pvt Ltd in 2014.
- **Akshit Mahajan** has been invited to present his research paper “**Decision Support System for Disaster Management using Remote Sensing and GIS-A case study of Sikkim Earthquake, September 18, 2011**” in *Geomatrix’12*, an International Conference on Geospatial Technologies and Applications to be held from 26<sup>th</sup>-29<sup>th</sup> February, 2012 at Indian Institute of Technology, Bombay (**IIT-Bombay**).
- Research paper authored by **Akshit Mahajan**, entitled “*Automated Decision Support System to Identify and Apply Ground Water Recharge Solution*” has been selected for publication in *India Geospatial Forum 2012* held from 7-9 February, 2012 at **EPI Centre, Gurgaon (India)**.

- Shivam Aggarwal & Harmanjit Singh from Civil Engineering department participated in Punjab Engineering College's Annual Fest, 2014 which was held from 31<sup>st</sup> October 2014 to 3<sup>rd</sup> November 2014 where they represented our university. They participated in a team of two for the first event, **TECH PREZZ** which required them to present their own Civil Engineering innovation. They presented their idea of “**Earthships**” and they bagged the **First position** and a cash reward of Rs. 5000.



- Vinay Chadha and Nitish Sharma from Civil Engineering department participated in AutoDesk 3D Design Challenge 2014 on the topic “Architecture and the Building Information Modeling (BIM)” held at Amity University, Noida held on 18<sup>th</sup> November 2014. This competition is held annually at an International level and is powered by Autodesk. In the competition, Vinay Chadha and Nitish Sharma were among the top 11 teams out of 6000 qualifying teams in the North-East region. The Chitkara University team received a qualifying certificate in the Architecture and BIM model of “**Dreamhouse**” and also won a shopping card worth Rs.2000.





- Rishabh Sharma from Civil Engineering department had attended a summer M.B.A program at Harvard University from 20<sup>th</sup> June 2014 to 7<sup>th</sup> July 2014. The basic idea was **“How can you run a business in your respective field?”** Thousands of students attend this program every year where they learn the basics of management and gain an insight about various management strategies.



The international students were given a topic on **“How to initialize & plan a business with \$5000”**. Rishabh Sharma presented his business idea and prepared a business plan which received a lot of positive attention. He received a first prize among all the international students and was promised a scholarship of \$5000 if he wanted to implement his business idea in the US.

***3.4.5 Indicate the average number of successful M.Phil. and Ph.D. scholars guided per faculty during the last four years. Does the university participate in Shodhganga by depositing the Ph.D. theses with INFLIBNET for electronic dissemination through open access?***

The University started Ph.D programmes in the disciplines of Computer Science, Electronics & Communication Engineering, Civil Engineering and Applied Sciences in the year 2010. Four research scholars have been awarded Ph.D degree so far and eighteen scholars are pursuing research activities. Faculty members have been allotted two to four students for guiding Ph.D research in various disciplines. The University is participating in *Shodhganga* and is a member of INFILBNET and committed to submit the Ph.D thesis.



***3.4.6 What is the official policy of the university to check malpractices and plagiarism in research? Mention the number of plagiarism cases reported and action taken.***

Dean R&D who monitors and evaluates research activities of the University is responsible for checking malpractices and plagiarism of research projects / papers forwarded for external funding/publication. These are subjected to thorough scrutiny by subject experts and through anti-plagiarism software to check for malpractices and plagiarism. University being a member of INFILBNET is participating in Shodhganga which also provides facility to check for plagiarism, before the submission of ME/Ph.D thesis. No case of malpractices or plagiarism has been reported so far. Policy formulated to check malpractices and plagiarism in research is as follows:

**Ethical behaviour: general guidance**

- Ethical behaviour includes openness as the norm, including information about methodology and findings, except on occasions when the funder or sponsor of the research lays down conditions about dissemination to which the researcher and his/her institution give their assent in advance.
- The principal investigators have a key stake in maintaining ethical conduct in their own research and in that of staff and students in their charge, including discipline-specific expertise and judgement of what is ethically appropriate in the field concerned.
- The research undertaken must be lawful, must comply with national legislation, and should seek to comply with all relevant national and international Codes of ethical practice, and with the Human Rights Act.
- The dissemination of research findings must be transparent and open to peer review and public comment where applicable. The findings must be presented honestly and accurately, should avoid the withholding of any material information, and should wherever possible be made accessible to non-specialists.
- Agreement by staff to enter into confidentiality clauses in whole or in part should be given only where strictly necessary; for example when commercial, security or personal data are involved, should wherever possible be time-limited, and should not lead to damage to the careers or lives of research workers or research participants.

## **Research misconduct**

The University, while anticipating that all its members will act ethically, nevertheless has safeguards in place for use in the event of alleged or actual research misconduct or malpractice, and to prevent corrupt practices and professional misconduct.

Misconduct and malpractice may include but is not limited to the following:

### **(a) *Fabrication***

This may include the creation of (fictitious) data or other aspects of research, including documentation and participant consent.

### **(b) *Falsification***

This may include inappropriate manipulation and/or selection of data, imagery and/or consent.

### **(c) *Misrepresentation***

This may include:

- misrepresentation of data, including undisclosed suppression of findings or data, or knowingly or negligently presenting flawed interpretation of data;
- undisclosed duplication of publication, including undisclosed duplicate submission of publications;
- misrepresentation of interests, including failure to declare interests of either the researcher or the funders of the research;
- misrepresentation of qualifications or experience which is not held;
- misrepresentation of involvement, such as inappropriate claims to authorship and/or attribution of work, or the denial of the same to others.

### **(d) *Plagiarism***

This is the unacknowledged and deceitful use of someone else's work. The offense is not confined to literary work but extends to artistic, musical, mechanical and other forms of publication. The definition includes:

- collusion, where a piece of work is prepared by a group (e.g. a research group) with the intention or expectation that it will be represented as if it were the exclusive work of only some members of the group (e.g. a principal investigator, a junior researcher);
- commissioning of work by a member of staff that is not his or her own but representing it as if it were, e.g. written by another person, whether a colleague, or a student whose work is submitted to the member of staff, or a person who is not a member of the university;

- misappropriation of work, including copying or paraphrasing, by a member of staff from another source (literary, artistic, musical, mechanical, etc.), whether in unpublished or published form (including electronic sources) of another person, without appropriate acknowledgement or, where appropriate, approval;
- duplication of existing or almost identical work by the staff member that is already in the public domain and claiming it to have a measure of originality that justifies further publication. The offence of plagiarism does not occur under this category where due acknowledgement of previous publication is made when the work is first submitted to be considered for publication, and in the subsequent publication.

***(e) Failure to manage and/or preserve data and primary materials***

This may include failing to ensure that relevant primary data and research evidence are preserved and accessible to others for reasonable periods after the completion of the research. Such conditions should also be applied where ownership of the data rests with third parties, for instance where there is commercial sponsorship of research.

***(f) Breach of duty of care in carrying out responsibilities for:***

- humans;
- animals used in research; and
- the environment.

This may involve deliberately, recklessly or by gross negligence:

- disclosing improperly the identity of individuals or groups involved in research without their consent or other breach of confidentiality;
- placing those involved in research in danger, whether as researchers, subjects, participants or associated individuals, including reputational danger where that can be anticipated, without their consent and without appropriate safeguards even with their consent;
- not taking all reasonable care to ensure that the risks and dangers, the broad objective and the sponsors of research are known to participants, or their legal representatives, to ensure appropriate informed consent and that this is obtained explicitly and transparently;
- failing to observe legal and reasonable requirements or obligations of care for animal subjects of research;
- failing to observe legal and reasonable requirements or obligations of care for the protection of the environment;

- improper conduct in peer review of applications or publications, including gross misrepresentation of the content of material, inadequate disclosure of clearly limited competence, or abuse of the material provided in confidence for peer review.

For the avoidance of doubt misconduct in research includes acts of omission as well as acts of commission.

Complaints and Disclosures, in conjunction with the procedures give safeguards to employees of the University who make a complaint or disclosure, including in matters relating to research.

***3.4.7 Does the university promote interdisciplinary research? If yes, how many interdepartmental / interdisciplinary research projects have been undertaken and mention the number of departments involved in such endeavours?***

The University encourages and promotes interdisciplinary research through the research centres established. Faculty members from different department are participating in the interdisciplinary project for research work. Research work has been initiated in the following interdisciplinary areas:-

- Bioinformatics algorithms.
- Analysis of microarray gene expression and protein sequence/structure data to help fuel physiological information discovery.
- Human computer interaction
- Engineering Geomorphology and Geosciences

Following inter disciplinary research projects have been submitted for external funding.

S.No.	Name of the project	Name of the funding agency	Participating Departments	Total amount
1	Assessment Of Seasonal Snow Cover Changes Using Proposed Change Vector Analysis (CVA) Based Change Detection Algorithm Over Topographically Corrected North Indian Himalayan (submitted)	Indian Space Research Organization, ISRO, Bangalore	ECE CE	Rs. 23.23 Lacs

2	Rural Women Technology Park at Gram Panchayat Kalujhanda, Block Dharampur, District Solan, Himachal Pradesh. (submitted)	Department of Science and Technology, Government of India.	CE Applied Sciences	Rs. 89.59 Lacs
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The University has also joined a consortium - promoted by Anglia Ruskin University, UK under the aegis of British Council – of universities in South Asia. This initiative is known as South Asia Anglia Partnership (SAAP). The consortium members will extend support to each other in research activities and the University plans to make use of this facility for interdisciplinary research.

**3.4.8 *Has the university instituted any research awards? If yes, list the awards.***

Not as yet. However, seed money is provided to faculty members to prepare research proposals. In addition, monetary awards and mementos are given to faculty members who excel in research activities.

**3.4.9 *What are the incentives given to the faculty for receiving state, national and international recognition for research contributions?***

The faculty members are felicitated by awarding mementos, appreciation certificates and granting monetary benefits in shape of additional increments. The University also provides funds to faculty members for presenting their research findings at national and international forums.

## **3.5 Consultancy**

**3.5.1 *What is the official policy of the university for structured consultancy? List a few important consultancies undertaken by the university during the last four years.***

The University has recently initiated activities related to consultancy services. As a matter of policy the industries located in the near vicinity of the campus would be contacted and avenues for providing consultancy explored.

**3.5.2    *Does the university have a university-industry cell? If yes, what is its scope and range of activities?***

Eminent Industrialists interact with the faculty and students of the University on the issues of mutual interests. Industry Interface and Entrepreneurships Development Programmes are organized by the University from time to time. Industry experts are involved in the curriculum development. They are also invited as resource persons and evaluators for faculty and student programmes. Many of the industry's representatives are on the roll of University as practical / oral examiners.

**3.5.3    *What is the mode of publicizing the expertise of the university for consultancy services? Which are the departments from whom consultancy has been sought?***

Expertise of the University is publicized through University web-site and brochures circulated to the nearby industries and arranging workshops for university and industrial experts. The University also publicizes these facilities during national and international conferences. The University has a placement cell and training and placement officer forms a liaison with various companies / industries regularly.

**3.5.4    *How does the university utilize the expertise of its faculty with regard to consultancy services?***

The university makes every effort to encourage the faculty for utilization of all human resources, intellect and available facilities in the campus to promote liaison with industry / company so as to thicken the ties between the two in a very flexible manner by which the consultancy services gets a boost. The University also motivates the professionally qualified faculty to utilize their expertise for consultancy services with prior permission. This helps in promoting liaison with industry / company. In return, the students get an opportunity to visit these industries / companies, thus facilitating the placement process.

**3.5.5    *List the broad areas of consultancy services provided by the university and the revenue generated during the last four years.***

Ruchira Paper Mills, Nahan have assigned a project to recommend suitable techniques to utilize their waste material that contains abundant quantities of CaCO<sub>3</sub> as a construction material or for any other purposes. The cost incurred by the Department for providing consultancy services will be reimbursed by the Company.

Similarly, Colgate (Baddi) have paid an amount of Rs.10,000 for a project to recommend suitable techniques to utilize their waste material that contains abundant quantities of  $\text{CaCO}_3$  as a construction material or for any other purposes. Additional grants are also expected from them as the project proceeds further.

This is just a beginning and the University hopes to engage in providing consultancy services on a larger scale in future. Considering the fact that the University is in its stage of infancy a good beginning has been made.

### 3.6 *Extension Activities and Institutional Social Responsibility (ISR)*

#### 3.6.1 *How does the university sensitize its faculty and students on its Institutional Social Responsibilities? List the social outreach programmes which have created an impact on students' campus experience during the last four years.*

The University plays a proactive role in sensitizing its faculty and students on the Institutional Social Responsibilities. For this purpose, the various activities being carried out are as under:

- Adoption of near by villages by the University
- NSS Activities
- Identifying social evils in the community surrounding the university and educating the people on how to eradicate these evils.
- Organizing vocational programmes for the community so as to make them educated and employable.

#### **NSS Activities**

National Service Scheme, NSS unit of the University keeps on organizing various activities like blood donation, tree plantation, clothes and shoes distribution for the needy. It also organizes dental, eye and regular health check up camps for the villagers from surroundings areas. Young children from the nearby villagers are also encouraged for sports for which University provides sports equipments and playing ground facilities including conduct of exclusive sports events. Training as computer operators is provided to children from near by villages.

Institutional Social responsibility activities are conducted regularly by the some of the clubs of the University, photographs of some of the activities done by NSS and student's clubs are mentioned below;









Details of major activities undertaken during the last four years are appended at Annexure – 7.

### ***3.6.2 How does the university promote university-neighbourhood network and student engagement, contributing to the holistic development of students and sustained community development?***

University neighbourhood network and student engagement is promoted by providing computer education to children of nearby schools, organizing matches, debates, sketching competition etc for them. Several surveys are done in villages regarding literacy rate, health problem, increasing population etc. University has got a policy of employing local candidates. Following are some activities organized by university:-

- Blood Donation Campaign
- Blood Donation Camps
- Swach Bharat Abhiyan; cleanliness drive
- Clothes Distributions in slum areas
- Computer Education in University Campus
- Education to Slum Kids (Sankalp Project)

- Kids Olympiad at nearby school (Govt School, Nanakpur)
- Sports meet in the nearby school (Govt School, Nanakpur)
- Discussion on black marketing corruption Lokpal bill
- National Science Day Celebration
- Run for unity

### ***3.6.3 How does the university promote the participation of the students and faculty in extension activities including participation in NSS, NCC, YRC and other National/ International programmes?***

The University has one self financing NSS unit with a total strength of 100 volunteers allocated by the Ministry of Youth Affairs and Sports. The NSS unit is actively involved in community developmental activities and plays an important role in connecting the youth with the community. There is one Programme Officer (Faculty) associated with the NSS Unit. Visits are organized to local areas to sensitize the youth about the grassroots problems prevailing in the region and to find out solutions for the same. The students learn a lot by getting involved in the NSS activities, especially Effective Mass Communication, Understanding customs and management traits and organizing abilities. The support for all such activities is provided by the University.

One of the important activities of NSS is to organize, on frequent intervals, Blood Donation Camps in collaboration IGMCH, Shimla, PGI, Chandigarh, Red Cross Society, Himachal Pradesh, Govt. Medical College and Hospital (GMCH) Sector 32 Chandigarh.

Participation in such extension activities is encouraged through:

- By giving additional weightage during assessment of a course named as General Education Social Skills for NSS Volunteers
- By organizing motivational lectures

Students are motivated to join NSS and other clubs. Various activities conducted by NSS Unit, Chitkara University are as under:-

- AIDS Day celebration
- Diwali Celebrations with Slum Childrens
- Shramdaan
- Village Cleaning
- Trekking
- Poetry Competition
- Tree Plantation Drives

- Photography Exhibition
- Envirothon
- Health Checkup Camp
- Organizing street plays on issue of social evils like female foeticide, corruption etc.
- Celebration of NSS day with Slum children
- Seminar on “Low Carbon Lifestyle” by environment society of India
- Seminar on “e wastage by environment society of India”
- Talk by Sandeep Mittal (deputy director state aids control society chandigarh) on drugs injecting drug and its relation to HIV Aids and role of youth in combating it
- Stage show (skit) on annual cultural fest ALGORYTHM on social issues by slum children
- Peace Day Celebrations

Promotion of such extension activities is facilitated through Chalkpad, social networking sites, Notice Boards, University Magazine, Meetings etc.

***3.6.4 Give details of social surveys, research or extension work, if any, undertaken by the university to ensure social justice and empower the underprivileged and the most vulnerable sections of society?***

Many scholars move for field trips, outreach programs. They carry out extensive field work in the interior parts of the State. They sensitize people about gender bias, social justice and empowering the underprivileged and the most vulnerable sections of the society.

Some of the activities undertaken by the University for achieving the above objective are:

- Educating children of the labour engaged in construction activities at the university and surrounding areas.
- Donating clothing items for the underprivileged and the most vulnerable sections of society.
- Imparting free computer education to students of the school located in nearby areas, which has been adopted by the university. For this labs, transport and hospitality is also provided by the university.
- On 13 April 2011 a survey was conducted in the nearby adopted village on the issues like women and children literacy rate and women unemployment. In addition they were apprised of importance of the education and their rights like, Right to Information and Right to Education Act. Both formal and informal interaction were done with Mahila Mandal Samiti members to enhance education and employment standards of women and children.



**3.6.5 Does the university have a mechanism to track the students' involvement in various social movements / activities which promote citizenship roles?**

Yes, Chitkara University has a mechanism to track the students' involvement in various social movements / activities which promote citizenship roles. Students who are involved in such activities / social movements are suitably awarded by the University. Every achievement is recorded by the programme coordinator.

**3.6.6 Bearing in mind the objectives and expected outcomes of the extension activities organized by the university, how did they complement students' academic learning experience? Specify the values inculcated and skills learnt.**

Students learning is enriched with local and regional issues related to community welfare particularly for the livelihood. The expected outcomes of the extension activities are resource use, employment, health, education, etc.; of the indigenous rural life. The extension activities organized by the University help to shape the overall personality of our students by inculcating in them the following values and skills:

Values	Skills
Democratic spirit	Communication
Nationalism	IT
Secular outlook	Leadership
Concern for the poor and the downtrodden	Social
Respect for women	

**3.6.7 How does the university ensure the involvement of the community in its outreach activities and contribute to community development? Give details of the initiatives of the university which have encouraged community participation in its activities.**

The University ensures the involvement of the community in its outreach activities and contributes to community development. The University understands that the community is also an important stakeholder which facilitates the existence of various organizations including the universities. In turn, it contributes to the social and community services which are reflected in its activities like cultural programmes, health awareness programmes, blood donation programmes etc. The University has a State of Art auditorium and lecture halls, which are given to social organizations and community groups for various cultural and training programmes. The district administration also uses

this facility for arranging government sponsored social upliftment programmes like voting awareness campaigns, self defense classes for female, literacy drive etc. The University gears up its departments for programmes like - tree plantation, environmental consciousness, AIDS awareness, poster competition, Health Programmes, Legal awareness Programmes. The parents of the students are also invited to express their needs and give suggestions for a better and more effective participation of University in community development. The University facilitates the services of bank which are open for all.

***3.6.8 Give details of awards received by the institution for extension activities and/contributions to social/community development during the last four years.***

Accolade and appreciation from various government and non-government organizations are being received regularly which serves as a source of motivation and inspiration for all the faculty and students involved in such noble activities.

***3.7 Collaboration***

***3.7.1 How has the university's collaboration with other agencies impacted the visibility, identity and diversity of activities on campus? To what extent has the university benefitted academically and financially because of collaborations?***

**Local Bodies / Community:** The University is a member of Baddi, Barotiwala, Nalagarh Industry Association (BBNIA) and has adopted the nearby villages too. This Association helps in correct assessment of requirements of industries and rural areas.

***National Level:***

- Council of Scientific and Industrial Research (CSIR). This organization has provided a research supervisor for one of the Ph.D programmes.
- DRDO: TBRL, a research laboratory of DRDO, helps the University in organizing internships for its students and also in organizing Industry Oriented Hands on Training Programmes.
- Collaborated with NITTTR in organizing national conference on sustainable infrastructure development every year.
- Collaborated with FICCI. The University is a member of National Functional Knowledge Hub (NFKH) that helps in collaborating with different industries.

***International:***

- Collaboration with AISEC for student internship programs
- Collaborating with Indo US Collaboration for Engineering Education for faculty exchange and training programme.
- The University has also joined a consortium - promoted by Anglia Ruskin University, UK under the aegis of British Council – of universities in South Asia. This initiative is known as South Asia Anglia Partnership (SAAP). The consortium members will extend support to each other in research activities and the University plans to make use of this facility for interdisciplinary research. Chitkara University was assigned to host the first Knowledge Enterprise Partnership Project that entitled Employer Engagement in curriculum development. Workshop was conducted with the theme “Employer Engagement to Inform and Influence Curriculum Development”.

***Industry:***

- Collaboration with Infosys for Campus Connect Programme.
- WIPRO Technologies Ltd. has Conferred the status of “Trusted Academic partner” on our Institution
- Collaboration with MNCs like SAP, Cadence, nXP semiconductors, nVidia graphics etc.

***Service sector:***

- Collaborated with telecom sector giant BSNL for NKN connectivity.
- Collaborated with bank, for providing soft loans and other bank related services to faculty and students.

***Agriculture sector:***

- Collaborated with local farmers to promote use of vermicompost for organic farming.

***Administrative agencies:***

- Collaborated with administrative agencies like Election Commission, ESI department, EPF department, local police department and health department.

The above collaborations have significantly impacted the visibility, identity and diversity of activities on campus. This has been achieved through sharing of knowledge and expertise with the above collaborators. The benefits which have accrued cover both academic as well as financial support. The students and faculty had a good exposure to the technical advancements made by these collaborators. Also financial support was provided by a number of these collaborators for organizing National and International conferences and seminars.

### **3.7.2    *Mention specific examples of how these linkages promote***

***Curriculum development***

***Internship***

***On-the-job training***

***Faculty exchange and development***

***Research***

***Publication***

***Consultancy***

***Extension***

***Student placement***

***Any other (please specify)***

#### **Curriculum Development:**

The linkages and collaboration with reputed social academic and research organizations have helped the University in enriching its curriculum. Since the curriculum is integrated vertically and horizontally, it has become deeper and wider. The focus of the curriculum has shifted from the theoretical glory of the conceptual significance to the actual social relevance which is practical and practicable. It has helped the University in moving forward towards its vision of establishing the knowledge society.

#### **Internship:**

These linkages and collaboration bring identity acceptance recognition and visibility to the University. The interaction with the social groups enables the students to complete their project work on a more comprehensive, academic and interdisciplinary canvas. It also provides those opportunities to work with leading national and international professionals, scientists, academicians and industrialists.

#### **On-Job training:**

Summer training of the students in some commercial / industrial / scientific organization is essential part of the curriculum of certain programmes of the University which have been achieved through linkages with BBNIA. Such linkages of the University help the students a lot towards inculcating the habit of working and learning at the same time.

#### **Faculty exchange and development:**

The interaction of the University faculty with other social, academic, intellectual and commercial groups enables the faculty to get an exposure to real life practices that



improve their teaching aspects. The faculty of the University is benefited by such exposures as they grow in experience and stands acquainted with expectations of various social industrial and professional groups of the community at large.

**Research:**

Such linkages of the University enable to direct research endeavour of the University towards social needs and community expectations. In the discipline of social sciences such linkages are most significant and useful towards teaching and research. It also helps the University in identifying the areas of research relevant to the needs of the society.

**Publication:**

Such linkages extend the opportunities and facilities for publication of the work done by the faculty and researchers of the University. It is because of such linkages that various newspapers, magazines and research journals acknowledge the identity and the visibility of the faculty and students of the University.

**Consultancy:**

The exposure of the faculty and students through such linkages are likely to bring opportunities for consultancy in the near future.

**Extension:**

Extension activities make an important part of the academic climate of the University. Various faculty members and students are engaged in the various social activities beyond the area of their regular curriculum.

**Student Placement:**

Engagement of student in social activities helps them in developing their overall personality and inculcating a sense of responsibility and developing confidence among them. This pays dividends during the placement activities. The linkages with social, professional, industrial and intellectual groups help the University for the Placements of the students. Moreover, the identity and visibility of the University helps the students to get a job when they apply and face the interviews.

**3.7.3 Has the university signed any MoUs with institutions of national/international importance/other universities/ industries/corporate houses etc.? If yes, how have they enhanced the research and development activities of the university?**

<b>Sr. No</b>	<b>University/Institution's Name</b>	<b>Nature of Collaboration</b>	<b>Country</b>
1	Deakin University	Articulation Arrangements	Australia
2	Vancouver Island University	Articulation Arrangements	Canada
3	British Columbia Institute of Technology	Articulation Arrangements	Canada
4	Qilu university of Technology	Student and Faculty exchange	China
5	Helsinki Metropolia University of Applied Sciences	Student and Faculty exchange	Finland
6	EPITA	Articulation Arrangements	France
7	ISTIA -University of Angers	Internship Projects	France
8	ESIGELEC	Articulation Arrangements	France
9	University of applied sciences, Osnabrueck	Student and Faculty exchange	Germany
10	Duale Hochschule Baden Wurttemberg (DHBW)	Internship Projects	Germany
11	Binus University	Student and Faculty exchange	Indonesia
12	Kyung Hee University	Student and Faculty exchange	Korea
13	Korea University	Student and Faculty exchange	Korea
14	Chung Ang University	Student and Faculty exchange	Korea
15	Soongsil University	Student and Faculty exchange	Korea
16	Kookmin University	Student and Faculty exchange	Korea

17	Sookmyung Women's University	Student and Faculty exchange	Korea
18	Chosun University	Student and Faculty exchange	Korea
19	Universidad Autonoma Deestado De Hidalgo	Student and Faculty exchange	Mexico
20	University of Alicante	Student and Faculty exchange	Spain
21	Glasgow Caledonian University	Articulation Arrangements	UK
22	Anglia Ruskin University	Research Collaboration, Articulation Arrangements and Student and Faculty exchange	UK
23	Northern Illinois University	Student and Faculty exchange	USA
24	Northern Arizona University	Student and Faculty exchange	USA
25	Missouri University of Science & Technology	Articulation Arrangements	USA
26	Portland State University	Student and Faculty exchange	USA
27	ESTP, Paris	Research Collaboration	France
28	University of Ontorio Institute of Technology, Canada	Student and Faculty exchange	Canada
29	British Columbia Institute of Technology	Student and Faculty exchange	Canada

Collaborations with the above mentioned institutes / universities have helped the students in their academic activities and researchers in getting information / data related to their research work with ease and also new ideas for their research. These collaborations also facilitate the researchers in submitting joint research projects for getting the financial aids from the government.

### ***3.7.4 Have the university-industry interactions resulted in the establishment / creation of highly specialized laboratories / facilities?***

Yes, the University-Industry interaction has been very successful resulting in establishment of number of highly specialized laboratories. The details are as under:

- nVIDIA, one of the leading companies in the parallel computing space, has granted the status of “CUDA teaching Centre” to Chitkara University.
- Marquee companies such as ARM, Cadence and NXP Semiconductors are supporting us in terms of supplying state-of-the-art equipment for best hands-on classroom training.
- Infosys Campus Connect and Wipro 10X Mission have provided us an important framework for our engineering curriculum.

***Any other information regarding Research, Consultancy and Extension, which the university would like to include.***

#### **Chitkara University Innovation Incubator**

Chitkara University Innovation Incubator was established in the year 2013 with a sprawling 15,000 sq ft facility next to Rajiv Gandhi Information Technology Park, Chandigarh which is the prime destination for major blue chip companies such as Infosys, Tech Mahindra and Airtel.

Chitkara University is a place of original thinkers; nurturing and stimulating inquisitive minds to produce graduates with innovative ideas, perspective and approaches.

Chitkara University Innovation Incubator helps students’ to turn their novice business ideas into reality. Student ventures with scalable, commercial potential are given access to high-tech, collaborative office space, paired with industry mentors, subject matter experts, and community corporate partners to develop scalable business plans, and market-testable products and services.

This Innovation Hub is a one-stop shop for know-how. Entrepreneurs across Chitkara University can access seed capital opportunities, one-on-one mentoring, pro-bono support services, feedback from entrepreneurial experts, and capacity-building workshops covering everything from legal liability to effective marketing to entrepreneurial finance.

It is a community, a nexus point where innovators at Chitkara University can meet, interact with other innovators, and learn from peers, all of whom are driven to create lasting positive change. That community includes students, faculty, staff and alumni across any discipline.

**Some of the companies which have been established through the aegis of Chitkara University Innovation Incubator are:**

- Trideal (Provides inexpensive three party online deals for variety of things in tricity)
- Yellow cursor (Company developing content for e-learning courses)
- Chalkpad (Company providing ERP solutions to Educational Institutions)
- MWP (Mobile Web Pixels (MWP)IT Solutions provides mobile development in iphone, android and blackberry as addition to applications development in PHP, .Net and ASP)



## ***CRITERION IV: INFRASTRUCTURE AND LEARNING RESOURCES***

### ***4.1 Physical Facilities***

#### ***4.1.1 How does the university plan and ensure adequate availability of physical infrastructure and ensure its optimal utilization?***

At the time of its inception the University had prepared a perspective plan for overall development of the University. Accordingly, a master plan for the infrastructure was prepared and construction activities have been taken up. In line with the existing and futuristic requirements of various programmes as well as the guidelines and regulations from the regulatory authorities, the physical facilities are planned and designed with scope for future expansion. The Board of Management plans and ensures adequate availability of necessary infrastructure based on the projection / requirement raised by different departments. This Board assesses the proposals regarding the demands and requirements made by various departments of the University. It also looks into the master plan of the University and develops a periodic plan to ensure adequate physical infrastructure for the administration academics and teachers/employees. The Board takes into account the cash flow and funds made available through the University's own resources. This ensures optimal utilization of available funds in developing adequate physical infrastructure.



Seminar Hall



Conference Hall



A Typical Classroom





Some Laboratories





Students' Caffè



Guest House



Hall of Fame

***4.1.2 Does the university have a policy for the creation and enhancement of infrastructure in order to promote a good teaching-learning environment? If yes, mention a few recent initiatives.***

Yes, the Perspective Plan of the University has provisions for the creation and enhancement of infrastructure in order to promote a good teaching-learning environment. For implementing this policy, the existing infrastructure is regularly reviewed and monitored so as to make the teaching learning environment more student friendly and effective. Some of the prominent recent initiatives are as under:

- Creation of CAD Lab for Civil Engg.
- Creation of CCNA Labs for Computer Science and Engg.
- Nvidia lab for Computer Science and Engg.
- Creation of NXP Lab for Electronics and Communication Engg.
- Providing of Wi-Fi facilities with enhanced configuration and bandwidth for the students and faculty throughout the campus including the Hostels.
- Up Gradation and Modernization of Library and Reading room facilities including online Journals and Books.
- Creation of Indoor and Outdoor stadia for sports activities.
- Establishment of Research Labs and Centres
- Installation of modern and state of the art instruments in the different labs.
- Creation of Incubation Center
- Establishment of separate language labs
- State of the art seminar / conference halls
- Establishment of modern food court
- Setting up of laundry facility with latest mechanized machinery
- Setting up of high tech surveillance on the campus through CCTV cameras
- Setting up of a paper recycling plant on the campus
- Setting up Vermi-compost plant of the campus
- Conservation of electricity by use of solar based systems

***4.1.3 How does the university create a conducive physical ambience for the faculty in terms of adequate research laboratories, computing facilities and allied services?***

The university follows a proactive and encouraging approach for nurturing the faculty to improve their skills and knowledge by providing up-to-date and modern facilities in the

different laboratories and workshops. The library and the reading room facilities are also constantly and continuously reviewed and upgraded to meet the requirements for the students, faculty and research scholars. Power backup facilities, internet facility through Wi-Fi, LAN, furniture and fittings, efficient computers creates a conducive physical ambience. The centralized computer centre, computer labs and other laboratories of the University are used by the faculty members as and when they require.

***4.1.4 Has the university provided all departments with facilities like office room, common room and separate rest rooms for women students and staff?***

Yes, the university has provided students and staff with facilities like office room, common room and separate rest rooms for women students and staff. All departments have been provided with well furnished Air conditioned faculty rooms with attached toilets, dedicated pantry with coffee/tea dispensers. In addition separate furnished rest rooms for women students & staff in Kalpana, Teresa and Gargi Hostel & Guest House, which are in close vicinity have been earmarked.

The University also has a cafeteria and facility / service centre where the students of the campus can enjoy refreshments. The university also provides facilities of banking, photocopying, stationary and ATM etc. Separate girls-common room has been provided for interaction among girls students. All the departments have separate wash rooms for female students and staff.



#### ***4.1.5 How does the university ensure that the infrastructure facilities are disabled-friendly?***

The University has, at the moment no disabled students. However, following infrastructure facilities which are disabled friendly either exist or are contemplated:-

- Ramp for wheel chairs for class rooms on ground floor and Dining Hall exist.
- Lift facility with lift operator in the academic block and hostels to facilitate access to class rooms, laboratories, library and reading rooms, hostels etc.
- Toilets being suitably modified for disabled
- Arrangement for easy entry & exits for wheel chairs in class room, auditorium exists.
- Classes for disabled students as and when required will be planned on Ground Floor.
- Special arrangements for parking of buses to facilitate boarding and alighting.
- Separate table earmarked in Dining Hall.
- Although buildings and departments of the University have an easy and direct access for the disabled persons, the security guards are posted at the main gate of the University and each and every building/departments to provide help and information to physically disabled persons.

#### ***4.1.6 How does the university cater to the requirements of residential students? Give details of***

- ***Capacity of the hostels and occupancy (to be given separately for men and women)***

CAPACITY OF HOSTELS AND OCCUPANCY		
Hostels	Capacity	Occupancy
<b>Boys</b>		
Aryabhatta	636	617
Bose	329	326
Chanakya	27	23
Total	992	966

<b>Girls</b>		
Gargi	98	78
Teresa	92	86
Kalpana	216	192
Sarojini	142	76
Total	548	432
Grand Total	1540	1398

- **Recreational facilities in Hostels:** Requisite facilities have been provided for recreation of resident students which include outdoor sports facilities for Cricket, football, Volley Ball, Basket Ball, Lawn Tennis etc., indoor sports facilities for Table Tennis, Badminton, Pool and Snooker, Carrom and Chess Board. The University also boasts of state of art Gymnasium with high tech and modern equipments on the campus. In addition, number of activities are regularly planned and conducted exclusively for hostellers to explore their potential, like Collage Making, Kabaddi, Sketching, Arm Wrestling, Carrom, Rangoli, 60 Seconds, Flipside, Pour Out, Presidential Suite, Tug of War, Corel Designing Workshop, Imagine-Create-Explore, Chess Competition, Karva Chauth Night for Girls, Yes+ Workshop, Girls Cricket and regular exposure on Yoga and Meditation is given.

Maintenance of infrastructure facility, services and equipment is undertaken by dedicated teams in the hostel, details of which are given below:-

### **Services**

#### **1. Housekeeping:**

- Safai karamcharies both male and female are detailed
- In addition, housekeeping services for Aryabhatta & Bose hostels have been outsourced.
- Housekeeping material is provided to all safai karamcharis in sufficient quantity to ensure high standard of hygiene and sanitation.
- Dedicated supervisors for, hostels and Students' Mess are earmarked to monitor and maintain check list that services provided are to the entire satisfaction of the hostellers.
- Proper record of daily cleaning of hostel rooms duly signed by students and wardens is maintained.
- Separate dedicated teams for cleaning & washing of utensils for day and night shift.

## **2. Transport for Hostellers:**

Two cars, and two buses are stationed in the campus to meet urgent requirement, if any, of the hostellers. Students are also provided with transport facility for outing on weekends and pick and drop from railway station / bus stand during holidays / vacations.

## **3. Dispensary:**

Dispensary to cater for immediate medical aid with fully equipped ambulance is available round the clock. Two doctors (one male & one female) are available during working hours from 9 AM to 4.30 PM and one doctor is available round the clock. Over the counter medicine are made available to students. Cases referred by the doctors are taken to the nearby Government / Private Hospitals duly escorted by the faculty / administrative staff of the University. In addition, one light vehicle is made available to the students to collect the medicines prescribed by the Doctor from the chemist shop.

## **4. Students Support Services:**

- A user friendly ERP package
- Well stocked library and reading room
- Services of faculty mentors and student counsellor
- Facilities like students mess, canteen, cafeteria, food court & grill point exists on the campus.
- Each hostel is provided with soft drinks, beverages stored in visi cooler.
- In addition tea/coffee dispenser and ready to eat snacks for hostellers are available at night in all the hostels.
- Mess facility caters for healthy, homely and hygienic food for the students as per menu approved by Mess committee which comprises of hostel wardens, 5-10 students from each hostel and head cook. Mess committee meetings are chaired by Dean Administration & co-chaired by Dean Students Welfare. A suggestion book is available in all Dining Halls where in students enter their suggestion, which are discussed during Mess meetings and action taken is conveyed. In addition there is canteen & grill point to provide delicious preparation on order like, Tandoori chicken, veg platter, Non veg platter, veg/ Non veg thali, dosa, chowmein, stuffed prantha, chana bhatura & so on. In addition the University food court popularly referred as Rest-O-U cater the need for ready to eat stuff.

- State of the art laundry machines are available to provide all weather laundry services for all hostellers. A staff of 20-25 men are employed who provide door to door services to all the hostellers thrice in a week. Students are at liberty to give any number of clothes including woollens. Student is compensated for any damage / loss of cloth by Laundry.
- Water heating systems based on solar power and electricity are installed in each hostel.
- State of the art beauty salon for hostellers is also catered for.

## **5. Security:**

Well trained 28 security guards, headed by retired Army Junior Commissioned Officers, comprising of ex army and a few trained in Police Academy are available. All entry / exist points of the hostels are manned 24 hours. Latest web based cameras are also installed at all suitable locations to cater for round the clock surveillance. In addition perimeter patrolling is undertaken at night. Surprise checks by security supervisor and security officer are in place.

## **6. Maintenance:**

There are dedicated teams comprising of trade men to maintain the infrastructure services and equipment available on the campus. Elaborate system of receiving complaints, rectification and feedback exists for maintenance of assets. Any major work of maintenance is executed by outsourcing or through contract services. Daily, weekly & monthly maintenance schedule is kept for Generators & other machinery.

## **7. Arboriculture:**

There is a team of Arboriculture with dedicated gardeners, who are there to take care of existing lawns, flower beds, hedges, trees and shrubs in and around the hostels. The team is reinforced during weather suitable for planting. They are also undertaking vermiculture for providing organic manure.

## **8. Fire Fighting:**

Whole campus including hostels are certified by the State Fire Department. A centralized underground water storage tank with power supply backup is connected to all buildings to undertake the task of fire fighting. A state of art fire fighting system to include following is in place:-

- Smoke detector.
- Water pipe line with booster pump connected to all hostels



- Fire extinguishers in all buildings at each floor prominently displayed.
- Emergency exit properly marked in case of fire.
- Mock up fire fighting practice is undertaken on regular basis under the supervision of qualified fire fighting trainers.
- Staff is adequately trained on use of fire fighting equipment and giving first aid.

#### **9. Insurance:**

All assets of university have been insured. All hostellers are covered by Group Insurance scheme which caters for both death cases & injuries as result of accidents

#### **10. Broad band connectivity /Wi-Fi.**

University has provided round the clock Wi-Fi (1 Gbps) facilities in all hostels through fiber optics. Access points (Routers) have been suitably installed on all floors to ensure connectivity in all rooms.



Sample Hostel Room





Dispensary

***4.1.7 Does the university offer medical facilities for its students and teaching and non-teaching staff living on campus?***

Yes, there is a full time medical officer residing on the campus. Also there is an ambulance available round the clock to shift serious cases to the nearby Hospital at Pinjore, Kalka, Baddi, Panchkula, PGI, Chandigarh etc. The University dispensary has a well equipped and fully functional medical room. The services of doctors are provided not only to the teaching and non-teaching staff and students of the campus of the University but also to the general public on required basis.

***4.1.8 What special facilities are available on campus to promote students' interest in sports and cultural events/activities?***

The following special facilities are available on the campus to promote students' interest in sports and cultural events/activities:

- Outdoor stadia for Cricket, Football, Athletics (Track & Field events).
- Indoor Stadia for Badminton (2 Courts), Gymnasium, Table Tennis, Pool and Snooker Table etc.
- Basketball, lawn tennis and volleyball courts.
- Kabaddi and Kho-Kho grounds.
- Two open auditorium for cultural events.

- Training in sports and games for all types of competitions. Regular coaching by expert trainers for the University teams in addition to the services of faculty physical education.
- The University regularly holds inter-university sports competitions in various disciplines. Students are also encouraged to take part in sports competitions organized by other universities.
- Chitkara University students organize their own Cricket League on the lines of IPL.











## 4.2 *Library as a Learning Resource*

**4.2.1** *Does the library have an Advisory Committee? Specify the composition of the committee. What significant initiatives have been taken by the committee to render the library student/user friendly?*

Yes, the University Library has an Advisory Committee headed by a Chairman, members from each department, student representative and librarian. The Advisory Committee takes important decisions regarding enriching library learning resources and services. The committee meeting is held twice in an Academic Year i.e. one in each semester before the commencement of an academic semester. Various issues related to library development

are discussed and actions recommended. On the recommendations of the Advisory Committee following initiatives have been successfully introduced in the Library;

- **Digital Section:** to access Internet and online learning resources.
- **Periodical Section:** to access latest newspapers, magazines and journals.
- **Online Catalogue:** to search library holdings and other materials.
- **Free Wi-fi availability:** to provide access to library resource.
- **Online Journals and E-books:** made available to students on demand.
- **Reference books and audio visual material:** made available to students.

#### **4.2.2     *Provide details of the following:***

- \* Total area of the library (in Sq. Mts.): 1200 Sq. Mts.
- \* Total seating capacity: 300 Users at a time
- \* Working hours (on working days, on holidays, before examination, during examination, during vacation) :  
9:00 am to 9:00 pm – Weekdays  
9:00am to 5:00pm - Holidays & Vacations
- \* Layout of the library (individual reading carrels, lounge area for browsing and relaxed reading, IT zone for accessing e-resources)

University library is spread over four floors. Floor wise layout is given below;

##### **First floor houses;**

- Spacious reading hall which is kept open 24 \* 7.
- Cabin exclusively for research scholars with desktops is being provided for accessing e-resources.

##### **Second floor houses;**

- Spacious reading hall with seating capacity of 50 users.
- Reference section.
- Circulation cum information service counter.
- Librarian cabin
- Store for technical work and maintenance of library resources.
- One PC exclusively for accessing OPAC.

### **Third floor houses;**

- Reference and periodical information service counter.
- Periodical section for Newspapers, Magazines and Journals.
- Digital Section with hi-tech computer systems and printing facility for students.
- New arrival and display Stand
- Chitkara University Publications.
- LED TV for digital learning.
- Store for back volumes of magazines, journals and old newspapers.
- A Digital Section with hi-tech Computer systems to access online journals (IEEE, J-gate & EBSCO) and other databases.

### **Fourth floor houses;**

- Circulation cum information service counter.
- Book stacks holding collection on ongoing programmes related and General books.
- \* Clear and prominent display of floor plan; adequate sign boards; fire alarm; and mode of access to collection.

The floor plan is displayed in the library showing different sections of library such as Reference Section, Digital Section, Periodical Section, Reference Desk etc. There is Open Access System for accessing library collection through internet. Fire alarm is also installed in library. Wash-rooms are available at each floor.



#### 4.2.3 Give details of the library holdings:

- a) Print (books, back volumes and thesis): **30,140 Books and 4 Ph.D. Theses**
- b) Average number of books added during the last three years:  
**3500 each year (Total 10,457 books)**
- c) Non Print (Microfiche, AV): **760 CDs & DVDs**
- d) Electronic (e-books, e-journals):

The library subscribes;

- 3000+ E-journals from EBSCO Databases
- 650 E-journals from J gate (with more than 5000 open access journals).
- IEEE ALL- SOCIETY PERIODICALS PACKAGE (ASPP) 161 JOURNALS  
PLUS BACKFILE TO 2005 (R.P.) 2014 – 2015
- 250 e-books (In-house collection).
- e) Special collections (e.g. text books, reference books, standards, patents)  
Special collection available in library includes;
  - Directories
  - Yearbooks
  - World atlas
  - Encyclopedias
  - Dictionaries
  - Book of records
  - World facts book
  - General reading books like novels, personality development, IQ test etc.

#### 4.2.4 What tools does the library deploy to provide access to the collection?

- \* OPAC: **Yes**
- \* Electronic Resource Management package for e-journals: **No**
- \* Federated searching tools to search articles in multiple databases: **No**
- \* Library Website: **Yes**  
(<http://library.chitkarauniversity.edu.in/>)
- \* In-house/remote access to e-publications: **Yes for members only**



**4.2.5 To what extent is ICT deployed in the library? Give details with regard to**

- \* Library automation: **Yes (KOHA: Integrated Library System being used)**
- \* Total number of computers for public access: **10**
- \* Total numbers of printers for public access: **1**
- \* Internet band width speed: **1 Gbps**
- \* Institutional Repository: **Yes**  
**(<http://dspace.chitkarauniversity.edu.in/jspui/>)**
- \* Content management system for e-learning: **No**
- \* Participation in resource sharing networks/consortia (like INFLIBNET):  
**Library is connected with DELNET databases for resources sharing and networking.**

**4.2.6 Provide details (per month) with regard to**

- \* Average number of walk-ins: 5000
- \* Average number of books issued/returned: 3000
- \* Ratio of library books to students enrolled: 5:1
- \* Average number of books added during the last four years: 15000
- \* Average number of login to OPAC: 100 per month
- \* Average number of login to e-resources: 30 per month
- \* Average number of e-resources downloaded/printed: 30 per month
- \* Number of IT (Information Technology) literacy trainings organized:  
**National Workshop on KOHA: Integrated Library System was organized on 27-28 June, 2012 at University campus.**

**4.2.7 Give details of specialized services provided by the library with regard to**

- \* Manuscripts: No
- \* Reference: Yes
- \* Reprography: Yes
- \* Inter-library Loan Service: Yes

- \* Information Deployment and Notification: Yes
- \* OPACS: Yes
- \* Internet Access: Yes
- \* Downloads: Yes
- \* Printouts: Yes
- \* Reading list/ Bibliography compilation: Yes
- \* In-house/remote access to e-resources: Yes
- \* User Orientation: Yes
- \* Assistance in searching Databases: Yes
- \* INFLIBNET/IUC facilities: Yes

**4.2.8 Provide details of the annual library budget and the amount spent for purchasing new books and journals.**

Details of Amount spent on E-Resources for the last three years

Sr. No	Year	Delnet (Rs.)	Jgate (Rs.)	Other E-journals database (Ebsco / IEEE)	Total amount (Rs)
1	2012-13	11500.00	67416.00	376200.00	455116.00
2	2013-14	11500.00	67416.00	228587.00	307503.00
3	2014-15	11500.00	67416.00	389025.00	467941.00
			<b>Total Amount</b>	<b>918098.00</b>	<b>1230560.00</b>

Details of Amount spent on Books for the last three years

Sr.No	Year	No. of Books	Total amount (Rs)
1	2012-13	2041	622125.00
2	2013-14	3276	947000.00
3	2014-15	5140	1828220.00
	<b>Total</b>	<b>10457</b>	<b>3397345.00</b>

**Details of Amount spent on print periodicals for the last three years**

<b>Sr. No</b>	<b>Year</b>	<b>No. of Periodicals</b>	<b>Total amount (Rs)</b>
1	2012-13	84	32561.00
2	2013-14	95	42651.00
3	2014-15	95	84455.00
		<b>Total Amount</b>	<b>159667.00</b>

**4.2.9 What initiatives has the university taken to make the library a ‘happening place’ on campus?**

- New arrival, news clippings, advertisement of various programs of students’ interest are regularly displayed in the library.
- Online Public Access Catalogue (OPAC) is available 24 x 7 to access information regarding library collection and to use other informational resources.
- Free online courses and lectures from reputed institutions like MIT (USA) and Amrita University etc. have been downloaded and made available in the University library for the benefit of faculty and the students.
- The University Library subscribes three online journal packages. One package is subscribed through EBSCO which covers 3000+ electronic journals covering various fields of engineering and technology. The second package is subscribed through Informatics, Bangalore, which has given access to 650 paid and more than 5000 open access electronic journals. The third package is subscribed through IEEE which covers 161 e-journals alongwith archive access to IEEE journals from 2005.
- The library subscribes more than 95 periodicals including magazines, journals, newspapers, newsletters etc. for students and faculty.
- Learning resources are made available in library for students to work on subject related projects.
- Library has collection of general reading books to develop mental skills and personality of the students.
- Library is kept open late in the evening and during holidays for users.
- Library offers E-books available free of cost on web to supplement text books to the users.

***4.2.10 What are the strategies used by the library to collect feedback from its users?***

***How is the feedback analysed and used for the improvement of the library services?***

Feedback is collected through Suggestion Box kept in library and also through personal interaction with students and faculty members. The feedback thus received from users is analyzed and placed before the Library Advisory Committee for consideration and further recommendation. Feedback and new ideas are also received through University ERP.

***4.2.11 List the efforts made towards the infrastructural development of the library in the last four years.***

- First Year: Computer systems for digital section, student's belongings rack, book trolley, study tables & chairs were purchased and library automation was done using Koha (Integrated Library System). Online journals were subscribed. Central air-conditioning and WiFi systems for the entire library building were installed
- Second Year: New book racks, periodicals display stand, additional study tables & chairs and new books were purchased for the library.
- Third Year: A new digital section with four computer systems was created at second floor of library, Library networking service (DELNET) and additional online journals were subscribed. Some new print magazines and journals were added in the periodical section of the library.
- Fourth Year: Additional furniture items were added in library. Fully furnished new reading room has been added. CCTV cameras have been installed on all floors of the library buildings. Additional books, journals and newspapers etc have been added as usual in the past years.

### **4.3 IT Infrastructure**

#### **4.3.1 Does the university have a comprehensive IT policy with regard to**

- **IT Service Management:**

The University has an elaborate and comprehensive policy to bring about revolutionary changes in knowledge management in the University and administrative departments. It has established a full-fledged Computer Centre for this purpose. This is an in-house mechanism for servicing the IT infrastructure in the most cost effective manner. A webmail service is being provided to all the on campus faculty members and the administrative staff. The University Science Instrumentation Centre (USIC) also provides effective repair and maintenance service for IT hardware and software.

- **Information Security:**

A backup system is maintained for the sensitive databases such as finance and examination by using portable hard disks. University has also opted for storage of data on cloud. Access to the University ERP is provided to bonafide users with restricted access and on need to know / operational responsibility basis. Question papers are typed in the office of Controller of Examinations using stand-alone computers to prevent leakage of information. Similarly no USB devices or CDs or any other portable memory devices and mobile phones are allowed to be carried to the office of the Controller of Examinations.

- **Network Security:**

Network Security appliances have been deployed within the framework of IT security policies. Firewall with Intrusion Prevention System has been installed for network security.

- **Risk Management:**

The virtualization implemented in the blade server setup helps in mitigating the risk due to failure. Regular backups are also being taken.

- **Software Asset Management:**

For most of the softwares, the licenses are managed through their respective licensing servers. However, there are some software for which the licensing is managed manually.

- **Open Source Resources:**

University has a policy to promote Free Open Source Software (FOSS) wherever possible. The DNS and Oracle servers have Linux- the Free Open Source Operating System. Also Extensive use of Open Source Softwares is encouraged for use of generic, academic and research purposes.

- ***Green Computing:***

To ascertain Green Computing in the university in a small way, university procures products from reputed vendors who have taken initiatives for recycling of their products, energy efficiency and to reduce carbon footprint. Proper care has been taken to dispose the old electronic goods. University disposes the unserviceable IT related items to the vendors approved by State Pollution Control Board.

#### 4.3.2 Give details of the university's computing facilities i.e., hardware and software.

- ***Number of systems with individual configurations : 789***

Sr. No.	Make	Configuration	Nos.
1	Dell	PC: C2D 2.40 GHz Processor, RAM 2 GB, HDD 150 GB	234
2	HCL	PC: C2D 2.93 GHz Processor, RAM 2 GB, HDD 160 GB	125
3	HCL	PC: C2D 3.06 GHz Processor, RAM 2 GB, HDD 320 GB	130
4	ACER	PC: i3 3.30 GHz Processor, RAM 4 GB, HDD 500 GB	100
5	ACER	PC: i5 2.70GHz Processor, RAM 4 GB, HDD 500 GB	200
<b>Total</b>			<b>789</b>

- ***Computer-student ratio***

In addition to every student having his/her own laptop, which implies 1:1 ratio, University also maintains computer student ratio of 1:4

- ***Dedicated computing facilities: 710***

- ***LAN facility***

Total Nos. of computers connected on LAN in the labs: 710

- ***Proprietary software***

Sr. no	Software
1	MATLAB
2	Lab View

3	Oracle
4	SQL Server
5	Corel Draw Graphic Suite
6	CDSG X6 EN-3 Seats User Paper License Corel Draw
7	Microsoft Campus Agreement
8	Microsoft IT Academy
9	Adobe Photoshop
10	STAADPro+STAAD Foundation
11	Microstation+MX+Water GEMS+Sewer GEMS
12	BECN LEAP Bridge Enterprises
13	Primavera
14	AutoCAD Architecture 2015
15	AutoCAD Civil 3D 2015
16	AutoCAD Map 3D 2015
17	AutoCAD MEP 2015
18	AutoCAD Plant 3D 2015
19	AutoCAD Raster Design 2015
20	Inventor Professional 2015
21	Navisworks Manage 2015
22	Revit 2015
23	Robot Structural Analysis Professional 2015
24	Showcase 2015
25	Autodesk Simulation CFD 2015
26	AutoCAD Utility Design 2015
27	AutoCAD Structural Detailing 2015
28	3ds Max Design 2015
29	Mudbox 2015
30	Alias Design 2015
31	AutoCAD Mechanical 2015
32	Inventor Professional 2015
33	Showcase 2015

- 34 Autodesk Simulation CFD 2015
- 35 Simulation Mechanical 2015
- 36 Simulation Moldflow Adviser Ultimate 2015
- 37 Vault Basic 2015
- 38 Mathematica version 9
- 39 Arc View GIS

- ***Number of nodes/ computers with internet facility***

<b>In Labs</b>	<b>Admin</b>	<b>Total</b>
670	79	749

- ***Any other (please specify)***

**Chitkara University is the first state private university of Himachal Pradesh which is covered under NKN connectivity.** Under this Scheme a guaranteed bandwidth of 1 Gbps has been made available to us so that there is a seamless transfer of data among collaborating institutes. Further details of the same are given below in the Para 4.3.9.

#### ***4.3.3 What are the institutional plans and strategies for deploying and upgrading the IT infrastructure and associated facilities?***

There is a special technical committee comprising Dean (R & D), Incharge Computer Centre, Head Department of Computer Science and Head Department of Electronics to plan, coordinate and updation of IT infrastructure facilities in the University. In order to accomplish the task experts were co-opted in the special technical committee. A committee on ICT policy is working for deploying and upgrading the IT infrastructure and associated facilities at the University campus.

#### ***4.3.4 Give details on access to on-line teaching and learning resources and other knowledge and information database/packages provided to the staff and students for quality teaching, learning and research.***

All the faculty members have been provided with computing facilities to aid them in academic and research activities. All classrooms and seminar halls have been provided with projectors as an aid to teaching process. Numerous generic and specialized software packages to name a few Arc View GIS, MATLAB, Cadence, LABVIEW, STAAD Pro etc. have been provided in addition to the detailed list of the software's which can be seen at Para 4.3.2 above to fulfill the requirement of the curriculum and research purposes.



***4.3.5 What are the new technologies deployed by the university in enhancing student learning and evaluation during the last four years and how do they meet new / future challenges?***

- ERP package hosts an effective LMS that ensures better teacher learner interaction and also optimal utilization of the resources available in the University
- Class rooms are equipped with LCD projectors along with multimedia facilities.
- Labs are modernized and upgraded to keep pace with the latest technologies. Help of industries has also been taken in this regard.
- Latest IT techniques available in evaluation process have been adopted.
- Implementation of Smart Class Room project.
- Faculty and administrative staff of the University have been provided with Webmail service.
- Revised version of University website with advanced features and updated information about the University is available
- Online student's feedback system is in place and working effectively.
- Online information regarding placement activities available to the students from Placement Cell in real time is available.
- The University has its own ERP portal which helps it in becoming paperless university.

***4.3.6 What are the IT facilities available to individual teachers for effective teaching and quality research?***

Following IT facilities are made available by the University:

- LMS through the ERP package
- Fully Wi-Fi campus
- Laptop/desktop along with internet connectivity
- University webmail ID has been provided to every faculty member for Research Gate registration
- Computerized book circulation facility with smart identity card
- E-access to library resources on 24x7 basis
- Academic Resource Centre
- The University has its own ERP portal which can be accessed by any faculty/administrative staff.

***4.3.7 Give details of ICT-enabled classrooms/learning spaces available within the university? How are they utilized for enhancing the quality of teaching and learning?***

Various departments of the University are equipped with ICT enabled class rooms/learning spaces.

Details are provided in the departmental profiles. The class rooms equipped with various modern audio-visual training aids facilitate the students and the faculty members to render their presentation more effectively.

***4.3.8 How are the faculty assisted in preparing computer- aided teaching-learning materials? What are the facilities available in the university for such initiatives?***

Facilities available and provided by the university for assisting faculty in preparing computer- aided teaching-learning materials are enumerated below;

- LMS embedded University ERP package
- Computers
- Softwares
- Technical expertise
- Access to e-library
- Round the clock internet facility through LAN and WiFi medium
- Webinars from the national and international faculties
- Regular faculty development programmes are conducted

***4.3.9 How are the computers and their accessories maintained?***

University ensures three year comprehensive warranty for every newly purchased computers, laptops, servers and UPS. The University has in house mechanism to maintain and repair computers, laptops, servers and UPS by the technicians of the Computer Centre. The University undertakes the maintenance through the University Science Instrumentation Centre (USIC) which provides effective repair and maintenance service for IT hardware and software.

***4.3.10 Does the university avail of the National Knowledge Network connectivity? If so, what are the services availed of?***

Yes, the University has the National Knowledge Network Connectivity. The National Knowledge Network is a multi-gigabit network for providing a unified high speed network backbone for all knowledge related institutions in the country with low latency (small delay time).

Chitkara University is the first state private university of Himachal Pradesh which is covered under NKN connectivity. Under this Scheme a bandwidth of 1 Gbps has been made available to us so that there is a seamless transfer of data among collaborating institutes. NKN has enabled students and researchers to connect with the faculty of the country's best Institutes like IITs, IISC etc. Connectivity cost for the NKN project was Rs. 2 Crore. 85% of this amount was paid by the MHRD (Ministry of Human Resource Development) and the remaining 15% is being paid by the university annually in instalments. LAN cost under this project was Rs. 3413007/- for which also 75% of grant (Rs. 2559756/-) was given by MHRD (Government of India) and the remaining 25% (Rs. 853251/-) has been paid by the university.

***4.3.11 Does the university avail of web resources such as Wikipedia, dictionary and other education enhancing resources? What are its policies in this regard?***

Since the web resources are openly available, individual faculty and the departments use these resources for the academic purpose. A committee headed by Dean R & D has been appointed to lay down the IT policies for the University.

***4.3.12 Provide details on the provision made in the annual budget for the update, deployment and maintenance of computers in the university.***

Sr.	Items	Before 2011-12	2011-12	2012-13	2013-14	2014-15	Total in Rs.	Remarks
1	Servers	229944	NIL	NIL	NIL	99,975	329919	
2	Computers	9582500	2771600	2465000	5068000	NIL	19887100	
3	Printers	441688	NIL	49560	19299	20000	530547	
4	Laptop	1306250	NIL	NIL	NIL	1260000	2566250	
5	Network Material	5519467	81955	1014268	568553	103592	7287835	
6	UPS	1540000	577500	NIL	294000	NIL	2411500	
7	Projectors	1566512	384,000	196,376	NIL	NIL	2146888	
8	Software	3358506	270,963	2926906	5677128	3661926	15895429	
9	Services	1227648	87830	202350	150700	128275	1796803	
10	Internet Lease Line	1556403	1356819	1833828	1981882	1683638	8412570	
11	Antivirus	21587	NIL	324000	NIL	NIL	345587	3 Yrs Subscription
12	NKN Project	NIL	NIL	853251	NIL	NIL	853251	
	<b>Grand Total</b>						<b>62,463,679</b>	

#### ***4.3.13 What plans have been envisioned for the gradual transfer of teaching and learning from closed university information network to open environment?***

The University is aware of the modern ways of teaching and learning activity. The teaching learning activity is bound to come out of the class room tradition of teaching to open environment through information technology and information networking. The University uses E-learning resources and IT technology for that purpose. The University plans to use e-learning portal as the resource for this purpose. This will be available free of cost to the learners through internet. This will provide open environment to the learners within and outside the University. The University also sends its students to different organizations, markets, rural services etc., to expose them to and learn from the open environment. Various industrialist, executives, professionals, social workers and academicians are invited to the University to deliver lectures on various topics in their respective fields of study. This makes the University free from the drawbacks and limitations of the class room teaching traditions.

#### ***4.4 Maintenance of Campus Facilities***

##### ***4.4.1 Does the university have an estate office / designated officer for overseeing the maintenance of buildings, class-rooms and laboratories? If yes, mention a few campus specific initiatives undertaken to improve the physical ambience.***

Yes. Some of the specific initiatives undertaken to improve the physical ambience are listed below:-

- Creation and maintenance of beautiful lawns, flower beds, and plantation all over the campus to keep it clean and green.
- Creation and up keep of fountains at various points on the campus.
- Creation and maintenance of *Amphitheatre* on the campus.
- Maintenance of various Outdoor and Indoor sports stadia.
- Provision of multimedia and audio-visual facilities in the class rooms and auditoriums.
- Maintenance and up keep of all the equipments and instruments in the Laboratories and workshops.
- All the wash rooms are regularly disinfected and kept clean.

#### ***4.4.2 How are the infrastructure facilities, services and equipments maintained? Give details.***

The maintenance of infrastructure facilities, services and equipments is carried out by our own maintenance staff on a regular basis.

***Any other information regarding Infrastructure and Learning Resources which the university would like to include.***

- The university has got its own fleet of New Buses for transportation of students and faculty members from and to Baddi, Kalka, Nalagarh, Pinjore, Panchkula, Chandigarh, Mohali and Zirakpur. In addition, for senior faculty air conditioned cars and light motor vehicles are provided.
- In addition the university has excellent facilities of providing wholesome meals and snacks to the students and faculty in a well maintained cafeteria.
- For providing clean and pure drinking water, water coolers equipped with aqua guard facility are available all over the campus.
- There is a full fledged branch of UCO bank along with ATM facility on the campus.
- There is a tuck shop looking after needs of students and faculty for stationary items, computer prints and photocopying etc.
- The university is equipped with providing round the clock power all over the campus with the help of our own diesel generator sets.
- Solar energy is made use of by providing solar water heaters and solar street lights in all the hostels.
- University management system using chalkpad technologies is available through which all important notices, attendance records, academic records and lecture notes and presentations are communicated to the students and their parents/guardians.



## ***CRITERION V: STUDENT SUPPORT AND PROGRESSION***

### ***5.1 Student Mentoring and Support***

#### ***5.1.1 Does the university have a system for student support and mentoring? If yes, what are its structural and functional characteristics?***

The University has an effective system to support and mentor its students through bodies like the Students Mentorship Cell (SMC), Placement Cell, Language Labs, Department of Physical Education, Student Counsellor and Dean Students Welfare. The schemes meant for the welfare of the students are implemented under the supervision of the Dean Students' Welfare. The various departments particularly the departments running professional courses, arrange educational tours, summer internships, winter projects, and training programmes in various Indian industries, Indian and Foreign Universities, Government Organizations, Central and State Public Sector undertakings, Defense Organizations etc. The University has well equipped lecture theatres, state of the art auditoriums, seminar halls where various student activities like cultural programmes, quizzes, debates, alumni meets and the orientation programmes for the fresher and their parents and guardians are organized. The university makes necessary arrangements for railway concessions for its students under the supervision of the Dean Students Welfare for visiting their homes and attending various seminars and conferences at the National and International level and also in participating various academic and sports activities of the University. Gold Medals are awarded to the meritorious students in the convocation of the University. The Students Welfare Fund is utilized in various welfare activities for the students of the University. The University also provides medical facility to the students through in house doctor and ambulance which are available 24 x 7. Medical emergencies and discipline aspects are taken care of by the Dean Student Welfare. The wardens of the boys' and girls' hostels take care of the problems of the hostlers of the University. For an overall development of the personality of its students, the University organizes various cultural and literary meets, sports game, and adventure events of local, regional and national importance. Every year the University organizes Interuniversity Festivals, Athletic Meets, Chess Championships, Basketball Competitions, Cricket and Badminton

Competitions. Various camps and courses are organized at various places by the NSS unit of the University.

The University provides residential accommodations to its officers, teachers and staff on need basis. The Hostels of the University can accommodate 1000 boys and 400 girls in the campus of the University.

The University has a strong mentorship cell. The functioning of the Student's Mentorship Cell is given in the succeeding paragraphs.

### **Standard Operating Procedure for a Mentor**

1. Mentorship cell allocates students to the respective mentors atleast 7 days before the start of regular class work for a semester. Mentors are allocated sub-section wise. Each sub-section carries strength of 25-30. Faculty members are assigned mentees for their respective sections whom they teach.
2. In these 5-7 days of time frame before the start of class work, mentors take the records of the senior students from the faculty members who have been earlier the mentors of the same students. Additional information about all students is available on the ERP application itself.
3. Mentor holds the first meeting with his/her mentees as soon as the semester starts. In that meeting, he/she
  - Displays a lighter side of his/her personality so as to win student's confidence.
  - Insists upon the need of a close bonding between students and mentor.
  - Encourages them to participate in various co-curricular activities for their overall personality development.
  - Encourages them to do well in their academics
  - Insists upon the fact that in case of any absence from the University for more than 3 Consecutive Days, students should immediately inform him/her and also submit the necessary documents justifying that period of absenteeism.
  - Mentor takes care while accepting any kind of medical certificate from a student.
  - Shares his/her contact no. And email address etc., so that students can approach them in case of any kind of emergency.
4. During the semester,
  - Mentor keeps a close eye on the academic performance of his / her mentees in terms of attendance and performance in various evaluation components.

- In case of observance of long period of absence (more than one week) of a student, attempts are made to gather information from his fellow students. In case of their inability to provide the desired information, a telephone call is made to the parents of students to know the whereabouts of student and also inform the HOD.
  - In case of involvement of any student in any undesirable activity, mentors counsel the student and also inform the parents, if required.
  - Mentors apprised the students about the rules and regulations of the University and insist upon the mentees to be in proper uniform and not to use mobile phones in the university campus.
  - Mentors conduct regular mentor meetings and prepare minutes of meeting for their records.
5. Mentor are available to attend to the situations as and when his / her mentee needs him / her for anything like providing counseling or even attending calls from parents at times. Also, mentors are expected to maintain the minutes of meeting in case of any interaction/communication with parents in the prescribed performa.
  6. Mentors are expected to be sympathetic towards the students who are not able to perform well due to any reasons. Mentors are expected to keep the record of regular assessment for the students who are not performing well.
  7. Mentors are expected to be a well informed person about the complete behaviour of his/her all mentees during the semester.
  8. Mentors are expected to be in complete picture as and when his/her mentee wins any kind of laurels at University level or at outside platforms.
  9. At least 7-10 days before the finish of the semester, the mentors prepare recommendations for the possible grant of attendance benefits to the maximum possible i.e. 10% for those students whose attendance has fallen below 75% and hovers in the range between 65 – 74.99%.
  10. Mentors submit their recommendations to SMC by last day of the semester teaching and keep his record absolutely ready for any kind of query at any time.

#### **Standard Operating procedure for Mentorship Cell**

1. Mentorship Cell allocates list of Mentees to respective Faculty members at least 7 -10 days before the start of semester.



List is issued in the below format and sent to Office of Vice Chancellor, Office of Registrar, Office of Dean (Administration), Office of Chief Warden, Reception and Office of Dean (Academics) for records. Same is uploaded on ERP application as well.

<b>Sr. no.</b>	<b>Name of student</b>	<b>ID no.</b>	<b>Name of mentor</b>	<b>Contact details in terms of email address and mobile no.</b>
1				

2. Facilitates good handshake of old and new mentors for the same set of students. For that, a list is generated in the format as below –

<b>Sr. no.</b>	<b>Section no.</b>	<b>Batch</b>	<b>Name of old mentor with contact no.</b>	<b>Name of new mentor with contact no. and seating place</b>
1				

3. Students Mentor keeps itself completely updated during the semester with the cases of students who
- Have been missing classes on regular basis. For this SMC should call for information from mentors on regular basis atleast every month in the following format.
  - Mentors maintain data of student with C.G.P.A <6, and they regularly counsel them to improve their performance.

Student ID	Student Name	CGPA	Course code:						Course code:						Course code:					
			Course Title:						Course Title:						Course Title:					
			Att. Till (week)			S	S	S	Att. Till (week)			S	S	S	Att. Till (week)			S	S	S
			3rd	8th	13th	T	T	T	3rd	8th	13th	T	T	T	3rd	8th	13th	T	T	T

4. Mentor conducts officially monthly meeting and causal meeting can be conducted many times in a semester. Students Mentorship Cell (SMC) gathers information from the mentors about the issues or suggestions of the students.

Date	Time	Venue	Topic of Conversation	Type of Information you provided	Any Feedback from Mentee	Remarks / Any Solution from Mentor

5. In case of any conversation with parents, record of communication with parents are maintained by mentors itself and also updated in ERP system for the reference.

Sr. no	Student id	Student name	Date	Type of communication (telephonic / personal) (in personal meeting mention venue)	Name and relation of the person with whom communication was done	Topic of conversation	Outcome of conversation	Any suggestions from the parents	Sign	Remarks

6. During Sessional test 1, SMC circulates the list of students whose attendance has fallen below 75%. Mentors are told to take undertakings from such students duly signed by their parents in the following format.

Undertaking by students with attendance less than 75%

7.

- A. I ..... ID no. .... am aware of that, my attendance in atleast one of the courses, I am currently pursuing in this ongoing semester has fallen below minimum threshold of 75 %.
- B. I understand very well that, I need to ensure a minimum attendance of 75 % in all the courses so as to be allowed to appear in the end semester examination scheduled to start from -----.
- C. I am fully committed to fulfill this minimum attendance condition to make proper pace with the university academic system, for which I have been counseled regularly by my Teacher Mentor Dr. / Mr. Ms/ .....
- D. I assure you to fulfill this condition of minimum attendance in this semester by being more regular in classes from now onwards.
- E. In case my attendance in any of the courses is less than threshold (75%), then I ought to be detained from appearing in end semester examination in that course.
- F. In case I am allowed to appear provisionally in the lab examination and later my attendance is found to be less than 75 %, University will be having full right to cancel my that exam.

Name and signature  
of student with ID no.

Name and signature  
of parent/guardian with contact no.

6. Towards the end of the semester, SMC asks for the recommendations of the mentors for those students whose attendance has finally fallen below 75 % in the following format –

Sr. no.	Name of student	Id no.	Recommending for (what % of grant of attendance) Write number corresponding to % of grant of attendance, else mention NO, if you don't want to recommend the student.	Reasons for recommendation (Write very briefly) Be ready for the inspection of the documents (proofs / certificates) supplied to you by the student justifying his /her absence
1				
2				

SMC compiles the complete list within one day of Last teaching day for the semester (LTDS).

8. On the second and third day of LTDS, Coordinator SMC checks each and every case by himself/herself and calls for the original document from the respective mentor (wherever required).
9. Accordingly, he/she further adds his recommendations and on fourth day of the LTDS, he/she submits the same to office of Dean (Academics).
10. SMC keeps the records of all the documents in a presentable order for all the students for further checking by Office of Dean (Academics) and Office of Vice Chancellor.

#### ***5.1.2 Apart from classroom interaction, what are the provisions available for academic mentoring?***

Departments organize industrial visits. The students participate in conferences, workshops and seminars organized by the departments and at other places. Departments observe the World Environment Day, National Science Day, Ozone Depletion Day, Earth Day and Plantation Activity. The students have online access to the teachers for resolving their problems. In addition to these, each programme has a Course Coordinator, who is the focal point of interaction with the students of the assigned Programme. The Course Coordinators role is to oversee and monitor the students' academic progression, attendance and provide timely feedback. Student Mentors constantly communicate with the parents with regard to the students' academic progress, if required. Weak students are

also identified by the Course Coordinators. For such students, extra classes are organized. The concerned department is also entrusted with the task of the overall personality development of the students. Special care along with the Career Services Team is taken for such students to make them industry ready professionals. Based on the recommendations of the Internal Quality Assurance Cell, special remedial classes are organized and those students who exhibit behaviors, which are not conducive to the academic environment, Student Counselor take them under their charge. Motivational lectures are regularly held for these students.

***5.1.3 Does the university have any personal enhancement and development schemes such as career counselling, soft skill development, career-path-identification, and orientation to well-being for its students? Give details of such schemes.***

Yes. The University has following schemes for personal enhancement and development:

**• Career and Counseling Cell:**

The Cell is a source centre of information, guidance and counseling with internet facility. It supports the students in the development of soft skills and communication ability to challenge the rigors of competitive tests and on job training and tries to promote social values and capacity to think independently for carrying out social responsibilities.

**• Centre for Communication Development:**

This centre conducts courses like Comprehensive Industrial and Business English Communication Skills, Spoken English and Fitness Training. These have proved very useful for enhancement of personal development of the students.

***5.1.4 Does the university provide assistance to students for obtaining educational loans from banks and other financial institutions?***

The University provides assistance to its students for obtaining educational loans from the Banks. The branch of a Nationalized Bank is in the campus of the University, which provides educational loans to the students pursuing various programmes on campus of the University. The applications of the students seeking educational loans are recommended by the University, mentioning the fees structure of the course and loan is sanctioned to the students accordingly by the concerned bank. The following financial aids are also available to the students of the University:

- (a) National/State Scholarships
- (b) State Scholarship to OBCs, SC/ST and other minority students.

- (c) Fee re-imbursement by the department of social welfare of the State Government to certain categories of students on the basis of annual income of their parents/guardians.
- (d) The state research scholarships
- (e) Junior/Senior research fellowships.
- (f) Fee concession as per the norms of the University

1.	Merit Scholarships in each semester. Student standing First in each Batch and programme	Full semester fee waived
2.	Financial assistance to siblings	10% waiver in tuition fee
3.	Financial assistance in deserving cases	Need based

***5.1.5 Does the university publish its updated prospectus and handbook annually? If yes, what are the main issues / activities / information included / provided to students through these documents? Is there a provision for online access?***

Yes. Prospectus, hand book and programme guides are published and updated annually. In addition, requisite information is also uploaded on the University ERP package. These contain profile of the University and facilities available to the students, information about the hostel facilities, academic and support services, admission rules and procedures, course structures and syllabi evaluation regulations, academic calendar, international collaborations etc. The prospectus of the university is made available on the university website also.

***5.1.6 Specify the type and number of university scholarships / freeships given to the students during the last four years. Was financial aid given to them on time? Give details (in a tabular form) for the following categories: UG/PG/M.Phil/Ph.D./***

All students of the University are covered under group insurance scheme premium for which is paid by the University. Under this scheme fee of the students continues to be paid in case of death of the earning member of the family. In addition University grants scholarship to the meritorious student in each programme every year. Additional incentive in form of fee concession is also given to the students whose siblings are also pursuing their study in the University. There is also a procedure to grant fee concession to the needy students. Chitkara University has awarded the Scholarship to the following UG students in the Academic year 2009-10, 2010-11, 2011-12, 2012-13, 2013-14:-

**Academic year 2009-10**

<b>Student ID</b>	<b>Name</b>	<b>Programme</b>	<b>Amount of Scholarship</b>
B080010417	Nidhi Arora	BE (CSE)	Tuition fee for one semester of 2008-09 Batch
B080010332	Kshitij Jindal	BE (CSE)	Tuition fee for one semester of 2008-09 Batch
L080010015	Kavish Manjkhola	BE(CSE)	Tuition fee for one semester of 2008-09 Batch

**Academic Year 2010-11**

<b>2008 Batch</b>				
<b>Student ID</b>	<b>Name</b>	<b>Programme</b>	<b>CGPA</b>	<b>Amount of Scholarship</b>
B080010332	Kshitij Jindal	BE (CSE)	9.64	Tuition fee for one semester of 2008-09 Batch
L080010015	Kavish Manjkhola	BE(CSE)	9.32	Tuition fee for one semester of 2008-09 Batch
<b>2009 Batch</b>				
B090030018	Balwant Thakur	BE(CE)	9.64	Tuition fee for one semester of 2009-10 Batch
I090010007	Surbhi Mittal	BE(CSE)	9.32	Tuition fee for one semester of 2009-10 Batch
I096020003	Akshdeepika	BE(ECE)	8.68	Tuition fee for one semester of 2009-10 Batch

**Academic year 2011-12**

<b>2008 Batch</b>				
<b>Student ID</b>	<b>Name</b>	<b>Programme</b>	<b>CGPA</b>	<b>Amount of Scholarship</b>
B080010332	Kshitij Jindal	BE (CSE)	9.72	Tuition fee for one semester of 2008-09 Batch
<b>2009 Batch</b>				
B090010607	Surbhi Mittal	BE(CSE)	9.32	Tuition fee for one semester of 2009-10 Batch

B090020602	Akshdeepika	BE(ECE)	8.95	Tuition fee for one semester of 2009-10 Batch
B090030018	Balwant Thakur	BE(CE)	8.82	Tuition fee for one semester of 2009-10 Batch
I099020035	Shipra Parul Bhadwal	IBE(ECE)	8.72	Tuition fee for one semester of 2009-10 Batch
<b>2010 Batch</b>				
B100010053	Anupam Bahl	BE(CSE)	9.62	Tuition fee for one semester of 2010-11 Batch
B100020300	Ridhima Jain	BE(ECE)	9.47	Tuition fee for one semester of 2010-11 Batch
B100020414	Vishal Gupta	BE(ECE)	9.47	Tuition fee for one semester of 2010-11 Batch
I109010026	Presh Munjal	IBE(CSE)	8.3	Tuition fee for one semester of 2010-11 Batch
M100300023	Surinder Singh	MCA	8.72	Tuition fee for one semester of 2010-11 Batch

### Academic year 2012-13

<b>2009 Batch</b>				
Student ID	Name	Programme	CGPA	Amount of Scholarship
B090010607	Surbhi Mittal	BE(CSE)	9.27	Tuition fee for one semester of 2009-10 Batch
B090020602	Akshdeepika	BE(ECE)	9.24	Tuition fee for one semester of 2009-10 Batch
B090030018	Balwant Thakur	BE(CE)	9.25	Tuition fee for one semester of 2009-10 Batch
I099020035	Shipra Parul Bhadwal	IBE(ECE)	8.65	Tuition fee for one semester of 2009-10 Batch
<b>2010 Batch</b>				
B100010077	Ayush Sharma	BE(CSE)	9.48	Tuition fee for one semester of 2010-11 Batch
B100020069	Anirudh	BE(ECE)	9.3	Tuition fee for one semester of 2010-11 Batch



B100030026	Anuj Sharma	BE(CE)	8.88	Tuition fee for one semester of 2010-11 Batch
I109010007	Hardik Jain	IBE(CSE)	8.02	Tuition fee for one semester of 2010-11 Batch
<b>2011 Batch</b>				
B110010333	Shivani Goyal	BE(CSE)	8.03	Tuition fee for one semester of 2011-12 Batch
B110020092	Diksha Sharma	BE(ECE)	8.33	Tuition fee for one semester of 2011-12 Batch
B110030007	Akshay Garg	BE(CE)	7.94	Tuition fee for one semester of 2011-12 Batch

#### Academic year 2013-14

Student ID	Name	Programme	CGPA	Amount of Scholarship
<b>2011 Batch</b>				
B110010191	Madhur chopra	BE(CSE)	8.89	Tuition fee for one semester of 2011 batch
B110020240	Rajat Bhatnagar	BE(ECE)	8.77	Tuition fee for one semester of 2011 batch
B110030067	Mohil Manchanda	BE(CE)	8.87	Tuition fee for one semester of 2011 batch
<b>2012 Batch</b>				
B120010400	Sukanya Agarwal	BE(CSE)	8.49	Tuition fee for one semester of 2012 batch
B120020255	Shivangi	BE(ECE)	9.03	Tuition fee for one semester of 2012 batch
B120030130	Vikrant Raina	BE(CE)	8.84	Tuition fee for one semester of 2012 batch
<b>2013 Batch</b>				
B130010036	Udit Sharma	BE(CSE)	8.38	Tuition fee for one semester of 2013 batch
B130020094	Abhijit K Dey	BE(ECE)	8.56	Tuition fee for one semester of 2013 batch
B130030063	Kamalpreet Singh	BE(CE)	9	Tuition fee for one semester of 2013 batch

**Details of students, who received the fee concession due to family financial problem.**

B120020039	Aneet Sohal	BE(ECE)	Transportation fee exempted
B130020042	Anika Jain	BE(ECE)	Transportation fee exempted
B110020261	Robin Anand	BE(ECE)	50% Semester fee exempted

**Fee Concession to the following students whose siblings (real brother/sister) are studying in the University.**

I099020003	Abhishek Shori	IBE(ECE)	10% concession of semester academic fee
B110010072	Archana Atri	BE(CSE)	10% concession of semester academic fee
B110010099	Deepika	BE(CSE)	10% concession of semester academic fee
B110010220	Neha rani	BE(CSE)	10% concession of semester academic fee
B110010336	Shiwani	BE(CSE)	10% concession of semester academic fee
B110030092	Sachin Kumar	BE(CE)	10% concession of semester academic fee
B110020233	Pushkar Singh	BE(ECE)	10% concession of semester academic fee
B110020022	Aditi Choudhary	BE(ECE)	10% concession of semester academic fee
B120010057	Anjali	BE(CSE)	10% concession of semester academic fee
B120010111	Danish Malhotra	BE(CSE)	10% concession of semester academic fee
B120010156	Gursimran Singh Kohli	BE(CSE)	10% concession of semester academic fee
B120010313	Rahul Puri	BE(CSE)	10% concession of semester academic fee
B120020049	Ankita Sen	BE(ECE)	10% concession of semester academic fee
B120020179	Pankaj Pundir	BE(ECE)	10% concession of semester academic fee
B130010055	Sudhir	BE(CSE)	10% concession of semester academic fee
B130010114	Shreya Taneja	BE(CSE)	10% concession of semester academic fee
B130010366	Shambhavi Jha	BE(CSE)	10% concession of semester academic fee
B130030024	Vishal Singh Thakur	BE(CE)	10% concession of semester academic fee
1411981237	Sumit Thakur	BE(CSE)	10% concession of semester academic fee
1411981293	Kanav Mahajan	BE(CSE)	10% concession of semester academic fee

**5.1.7 What percentage of students receive financial assistance from state government, central government and other national agencies (Kishore Vaigyanik Protsahan Yojana (KVPY), SN Bose Fellow, etc.)?**

List of students who have been benefited from the above schemes is enclosed at **Annexure - 8**

**5.1.8 Does the university have an International Student Cell to attract foreign students and cater to their needs?**

Yes, the University has an International Student Cell to attract foreign students for pursuing their education and to cater their needs. The Charter of the University lays down collaborating with other universities and sharing knowledge and resources with universities and academic communities throughout the world as one of the objectives.

**5.1.9 What types of support services are available for**

**\* Overseas students**

One senior faculty heads the international student cell and looks after the affairs of foreign students and their welfare in the university. The support services given by the University to overseas students are as under:

- (i) Single window admission service
- (ii) International students cell office to address their need
- (iii) Special accommodation / transport to international students
- (iv) Induction courses, if required
- (v) Dedicated faculty earmarked as mentor for each international student

**\* Physically challenged / differently-abled students**

Though, at present there is no student under this category, however, the University caters for meeting all the facilities and incentives required for the physically challenged / differently able students, which are given below.

- The University strictly follows their reservations in matters relating to their admission in different courses of the University.
- Ramp facilities / lifts have been provided in the central library, lecture theatres, hostels and class rooms for access of the physically challenged students.
- The administrative block and central evaluation building is equipped with lift facilities for them.

- The University also pays special attention to their problems and their needs and queries are promptly attended.
- The University has also the provisions of providing a writer to physically challenged students to enable them to appear in the examination.
- The University has also provisions of providing extra time to the visually challenged students since they dictate the answer of the questions to writers allowed to them by the University.
- Medical facilities are also made available to them in the dispensary of the University. Health camps are also organized for counseling the physically challenged students.

***\* SC/ST, OBC and economically weaker sections***

The University also has fully functional Equal Opportunity Cell (EOC) to take care of the issues relating to the SC/ST, OBC, Physically challenged and Women students. The cell has mandate "Equitable access to quality higher education is an essential pre-requisite for realizing the constitutional promise of equality of opportunity.

***\* Students participating in various competitions/conferences in India and abroad***

The students are encouraged to participate in various competitions/conferences in India and abroad by providing them with all guidance and necessary financial support. In the recent past the University has sponsored its students to attend / participate completions like SAP, Inter University sports / cultural events etc. Department of Physical Education organizes Youth Festivals, Athletics Competitions, Chess Competitions and Cultural Programmes every year. The University encourages arts competitions and organizes art exhibitions and promotes cultural activities, folk dances, etc.

***\* Health centre, health insurance etc.***

The university has a fully equipped dispensary manned by two qualified doctors and ambulance available round the clock. All the students and staff of the university are covered under group insurance scheme in addition to the ESI facility which is available to the eligible employees.

***\* Skill development (spoken English, computer literacy, etc.)***

The skill development of the students regarding spoken English, Computer Literacy, knowledge of foreign languages and their overall personality development is taken care of by the University. The language lab of the University equipped the students with improved spoken skills and polished personality trades towards their employability.

***\* Performance enhancement for slow learners***

Special training programme organised for the development of special skills of the slow learner students. Due emphasis is laid on the development of interdisciplinary skills such as finance, communication skills, logical reasoning etc.

***\* Exposure of students to other institutions of higher learning/ corporates/business houses, etc.***

University regularly invites eminent speakers from other institutions of higher learning / corporate / business houses in order to give them the exposure about their respective institution / fields. In addition to this, visits to various reputed industrial houses / higher learning institutions are the regular feature of their curriculum.

***\* Publication of student magazines***

- University regularly publishes its magazine wherein students take keen interest in writing technical as well as non technical articles.

***5.1.10 Does the university provide guidance and/or conduct coaching classes for students appearing for Civil Services, Defence Services, NET/SET and any other competitive examinations? If yes, what is the outcome?***

Yes

There is a separate cell, namely; Career Counseling and Placement Cell. The Career Counseling Cell helps the students to prepare for various competitive examinations, Counseling etc. It not only provides necessary training but facilitate in their placement also.

***5.1.11 Mention the policies of the university for enhancing student participation in sports and extracurricular activities through strategies / schemes such as***

- \* Additional academic support and academic flexibility in examinations***
- \* Special dietary requirements, sports uniform and materials***
- \* any other (please specify)***

**Additional academic support and academic flexibility in examinations:**

The students who participate in sports and extracurricular activities are given special guidance by the faculty. Their lab, internal and regular examinations, if missed due to participation in sports or extra- curricular activities, are adjusted accordingly.

**Special dietary requirements, sports uniform and materials:**

Students selected for participation in various tournaments and other co-curricular activities are paid TA/DA as per rules. Sports kit is provided to all the participants by the University. Sports materials are provided through the sports section for the students on the campus.

**Any other (please specify) -**

The University encourages the students to participate in various extra-curricular activities like, industrial tours, excursion, bird watching activities, celebration of all important Days like Independence day, Statehood day, etc. Sports related coaching / training camps are organized through the sport section in the campus for which, expert trainers and coaches are invited.

***5.1.12 Does the university have an institutionalized mechanism for students' placement?***

***What are the services provided to help students identify job opportunities, prepare themselves for interview, and develop entrepreneurship skills?***

Yes. The University has a mechanism for the student's placement which works under the Central Placement Officer. There are departmental placement officers working under the Central Placement Officer. The guidance for following services is provided to the students for their job opportunities:

- (a) Preparation of resume
- (b) Preparation for campus interviews
- (c) Workshops for communication skills/ interview techniques
- (d) Workshops on career guidance
- (e) Interaction with alumni
- (f) Summer training

***5.1.13 Give the number of students selected during campus interviews by different employers (list the employers and the number of companies who visited the campus during the last four years).***

No. of students selected during campus interviews by different employers are

Batch 2008-12 - 527

Batch 2009 – 13 - 368

Batch 2010 -14 - 429

***List of main companies visited the campus in last four years***

No. of students selected during campus interviews by different employers are

Batch 2008-12	-	527
Batch 2009 – 13	-	368
Batch 2010 -14	-	429

***List of main companies visited the campus in last four years***

- AAYUJA TECHNOLOGIES
- AFCONS
- AMAZON
- AMDOCS
- AMERICAN TELECOM TOWER
- AON HEWITT
- ARICENT
- BEBO TECHNOLOGIES
- BITWISE GLOBAL
- CALSOFT
- CEBS, NOIDA
- CHALKPAD TECHNOLOGIES
- CITRIX SYSTEMS
- COGNIZANT
- CONCIERGE COMMUNICATIONS
- CS SOFT SOLUTIONS
- DATA PATTERNS
- DATA64
- DELL
- DRDO
- EASTERN SOFTWARE SYSTEMS
- EMERSON
- ERA GROUP
- EVALUESERVE
- EVEREST INDUSTRIES
- FISERV
- GLOBALMINDS
- GODREJ
- GRAIL RESEARCH

- GRAPECITY
- GREEN LEAF IT SOLUTIONS
- HADRON SOLUTIONS
- HCL COMNET
- HCL INFOSYSTEMS
- HCL TECH
- HEADSTRONG
- HEXAWARE TECHNOLOGIES
- HITACHI CONSULTING
- IGATE PATNI
- INFOSYS
- INFOTECH ENTERPRISES
- INFRASOFT TECHNOLOGIES
- IREO
- JK TECHNOSOFT
- KEC – RPG
- KEWILL
- L&T ECC
- L&T IES
- MILAGROW
- MPHASIS
- NAGARRO
- NEWGEN
- NIIT AON
- NUCLEUS SOFTWARE
- OATI
- ORACLE
- ORANGE
- PANASONIC
- PATNI COMPUTERS
- PERSISTENT SYSTEMS
- SAGACIOUS
- SAMSUNG
- SOBHA DEVELOPERS



- SOFTENGER
- SPACE GROUP
- STARTUP FARMS
- STERIA
- STERLING & WILSON
- SYNERGY TECHNOLOGY SERVICES
- SYSCOM
- TATA CONSULTING ENGINEERS
- TECH MAHINDRA
- TECHBLUE SOFTWARE
- THE 3C COMPANY
- TRIGENT SOFTWARE
- TT CONSULTANTS
- UNISYS
- UST GLOBAL
- UTRADE SOLUTIONS
- VAULTUP TECHNOLOGIES
- VIRTUSA
- VODAFONE
- WIPRO
- WIZIQ.COM
- XCHANGING
- ZENSAR TECHNOLOGIES
- ZYCUS

List of the students placed in last three years are enclosed at Annexure - 9

***5.1.14 Does the university have a registered Alumni Association? If yes, what are its activities and contributions to the development of the university?***

We have an alumni association known as Chitkara Alumni Network (CAN) which is not registered at present. However, to keep our alumni engaged and to remain in touch with them, following activities are undertaken

1. **Broking Introduction:** Sensitizing the alumni about Chitkara Alumni Network at Farwell, Convocation and with Welcome Mailer.

2. **Future Alumni:** Inculcating in the students the meaning of Alumni. We start the process with the fourth Semester students.
3. **Career Advice:** Alumni come to the University for Career Advice. Their visit is always very useful for the on campus student. Details can be seen at the supporting links: <http://www.chitkarauniversity.edu.in/news/chitkara-alumni-comes-back-alma-mater-interacting-present-students/>
4. **Expert Advice and Guidance:** There are opportunities where students are get expert advice and guidance from alumni at different occasions. Details can be seen at the supporting links: <http://www.chitkarauniversity.edu.in/news/alumni-talks-students-cuhp/>
5. **Financial support:** Yes, financial support is provided to our alumni through Chitkara Centre for Entrepreneurial Development (CCED).
6. **Guest Lecture:** Alumni come back to the university to deliver guest lectures. Details can be seen at the supporting links:  
<http://www.chitkarauniversity.edu.in/news/alumni-share-valuable-experience-students/>  
<https://www.facebook.com/ChitkaraAlumniNetwork/photos/pb.219079884878249.-2207520000.1417679273./489813417804893/?type=3&theater>
7. **Placements:** The alumni place Job opening notifications for students on Chitkara alumni facebook page.
8. **Internship:** Opportunities are provided to students to work with alumni through the Incubators as summer training or Internship.
9. **Talent Sharing:** It is done with our alumni through social networks e.g. Shivya Pathania, alumni of Chitkara was in the lead role of daily Soap name “HUMSAFARS” on Sony Channel.

#### **Regular/Weekly Activities done through various social media**

1. **Economic Times News:** To keep alumni updated on the job market scenario.
2. **University Updates:** Activities happening at the University are updated on the facebook page for the Alumni, so they feel connected.
3. **Entrepreneur Update:** Motivating alumni to become entrepreneurs. We have think tank process in which the alumni come with the idea of starting an enterprise. The funding for the same is done by the University.

4. **Weekend Fun/Joke and Quiz:** Some Fun activities for alumni to keep the Weekend fun. Over and above all these activities we do following activities as well.

- **Birthday Mailer**
- **Festive Greetings**
- **Important Information is sent through Mailers and Social Media.**
- **Sharing of Annual Newsletter**
- **Alumni Meet:** Chandigarh Chapter and Delhi Chapter are functioning.
- **Alumni Success Story: Alumni success stories being shared, some of them can be seen at the following links**

<http://www.chitkarauniversity.edu.in/news/alumni-talks-students-cuhp/>

<http://www.chitkarauniversity.edu.in/news/chitkara-alumni-comes-back-alma-mater-interacting-present-students/>

<http://www.chitkarauniversity.edu.in/news/alumni-share-valuable-experience-students/>

- **Active Social Media Groups:**
- **Help Students to get their Transcripts, Degree and Photographs and Recommendations**
- **Alumni Achievement Awards: Some of these can be accessed through the link**

<http://www.chitkarauniversity.edu.in/can/chitkara-alumni-achievement-award/>

**5.1.15. Does the university have a student grievance redressal cell? Give details of the nature of grievances reported. How were they redressed?**

Yes, the University has constituted a Grievance Redressal Committee (GRC) to address the complaints of the students. The committee comprise of following members:

Ombudsman: Dr. Sudhir Mahajan

Members of GRC:

1. Prof. L. D. Garg, Faculty –Civil Engineering
2. Dr Shaily Jain, Faculty –CSE
3. Ms. Lipika Gupta, Faculty –ECE
4. Vaibhav Rakheja, Student
5. Shauraya Munjal, Student
6. Gaurika Nagpal, Student

The committee formed deals with the complaints regarding:

- Irregularities in admission
- Harrasment and victimization of students
- Delay in conducting examination or declaring results
- Breach in reservation policy
- Unfair examination evaluation practice

***5.1.16 Does the university promote a gender-sensitive environment by (i) conducting gender related programmes (ii) establishing cell and mechanism to deal with issues related to sexual harassment? Give details.***

The University promotes a gender sensitive environment by organizing gender related programmes in the University regularly. The IQAC also conducts gender sensitization programmes for the students of the University. The University has also established a Women Grievance Redressal Cell especially for female students to take care of the gender sensitive issues.

The University has reconstituted the committee to ensure the security and protection of the women students and faculty of the University.

The Committee comprises of the following members:

<b><u>Hostels:</u></b>	<b><u>Academic blocks:</u></b>	<b><u>Transport:</u></b>
Ms. Vandana Thakur- Chairperson <ul style="list-style-type: none"><li>• Ms. Rupali</li><li>• Dr. Lalit Mohan</li><li>• Dr. Swapna Thomas (third party)</li></ul>	Ms. Lipika Gupta - Chairperson <ul style="list-style-type: none"><li>• Dr. Shaily Jain.</li><li>• Dr. Nirankar Singh</li><li>• Dr. Swapna Thomas (third party)</li></ul>	Ms. Sapna Saxena- Chairperson <ul style="list-style-type: none"><li>• Ms. Neha Aggarwal</li><li>• Mr. Ripu Daman Singh</li><li>• Dr. Swapna Thomas (third party)</li></ul>

The Committees deal with:

- Addressing the complaints regarding any misbehavior with women.
- Implementation of security procedures and policies for women.
- Providing helpline Nos. and email IDs for women.
- Assisting the complainants and providing them with suitable solution and corrective actions.
- Providing emotional support and counseling to the victims of sexual harassment.

- To respect confidentiality of the complainant.
- Investigating the cases and recommending action against offenders.
- Counseling services for the students.
- Conducting seminars on women safety.
- Conducting seminars on health education specifically directed towards girl students
- Organizing special classes for self defense of the women.
- Showing short films addressing such problems and rights of the women.
- Formation of student clubs focused on preventing sexual harassment and other related issues.
- Appointment of Coordinators in the University buses to keep a check on the discipline in the buses, along with the policy to drop only male student or faculty on the last stop.
- Providing information through banners and notices by displaying them in the campus and buses about the contact details of the members of Women Safety Committee and helpline numbers / email IDs.

***5.1.17 Is there an anti-ragging committee? How many instances, if any, have been reported during the last four years and what action has been taken in these cases?***

Yes. Anti- ragging committee is formed as per the UGC guidelines. The students at the entry level sign an affidavit and submit to the University about non-involvement in ragging activities. The University has appointed the following committees for prevention of ragging on the campus.

1. Anti-Ragging Committee and Squads for Boys' and Girls' Hostels
2. Anti-ragging Monitoring Cell for the University Campus
3. Anti-Ragging Committee and Squads in University buses

No ragging cases have been reported during the last four years.

***5.1.18 How does the university elicit the cooperation of all its stakeholders to ensure the overall development of its students?***

This is accomplished through periodical meetings and brain storming sessions involving all the stakeholders in order to promote the interest of the students.

***5.1.19 How does the university ensure the participation of women students in intra- and inter-institutional sports competitions and cultural activities? Provide details of sports and cultural activities where such efforts were made.***

The University ensures the participation of girl students in intra- and inter - institutional sports competitions and cultural activities in the following manner:-

1. By organizing youth festivals in which women students take part in dance, drama, singing, painting and other cultural activities.
2. By organizing sports events especially for women students.
3. Facilitating participation by outstanding women performers at state and national level competitions.
4. They are encouraged to be member of student's clubs functioning in the University and hostel committee.

Notable achievements of some of our girl students are as follows:-

- Ms. Nishima Arora secured third rank in SAP Lumira Contest held at New Delhi.



- Ms. Gaurika Nagpal was honoured with J P Gupta Memorial Award by Sadhna Organisation, Solan for outstanding social work.
- Ms. Shivya Pathania was selected as Ms. Shimla and is now having a lead role in TV serial “Humsafars” aired on Sony TV.



- Ms Chandni Sharma, won Indian princess winner 2014. Ms. Chandni Sharma was selected as Ms. Inter Continental 2014 in an international beauty pageant held in Bangkok.



- Ms. Nikita Kumar was selected as Ms. Chandigarh in a beauty pageant.



- Ms. Prachi Sharma participated in Femina Ms Diva 2014 contest and was awarded the title of Ms Campus Princes. In addition, she has appeared in many music videos.



## 5.2 Student Progression

**5.2.1 What is the student strength of the university for the current academic year?  
Analyse the Programme-wise data and provide the trends for the last four years.**

Student strength in current academic year – 2800

<b>Student Progression</b>	<b>% in Academic year 2012-13</b>	<b>% in Academic year 2013-14</b>
<b>UG to PG*</b>	<b>4%</b>	<b>5%</b>
<b>Employed</b>		
<b>Campus selection</b>	<b>80%</b>	<b>85%</b>
<b>Other than campus recruitment</b>	<b>5%</b>	<b>6%</b>

**5.2.2 What is the programme-wise completion rate during the time span stipulated by the university?**

About 90% students completed their degree in the stipulated time span.

### **Students Registered and Degrees Issued record for passout batches**

<b>Sr. No.</b>	<b>Batch</b>	<b>Stream</b>	<b>No. of Students Registered</b>	<b>Degrees Issued</b>	<b>Stu. I ,E &amp; F Grade</b>
1	Batch 2008	CSE	755	751	4
2	Batch 2009	CSE	286	278	8
		ECE	386	373	13
		CE	85	76	9
3	Batch 2010	CSE	329	312	17
		ECE	373	357	16
		CE	120	100	20

**5.2.3 What is the number and percentage of students who appeared/ qualified in examinations like UGC-CSIR-NET, UGC-NET, SLET, ATE / CAT / GRE / TOFEL / GMAT / Central / State services, Defense, Civil Services, etc.?**

About 10% students qualified in the above examinations. Details are given in the departmental reports.



**5.2.4 Provide category-wise details regarding the number of Ph.D./ D.Litt./D.Sc. theses submitted/ accepted/ resubmitted/ rejected in the last four years.**

In last four years only four Ph.D. theses were submitted in the University

Name of Faculty	New Idea Generated
Ms. Tanu Sharma	Development of Efficient Algorithms for Biofeedback Signal Processing using Embedded System.
Ms. Disha Handa	Parallel Algorithms for Symmetric Key Infrastructure based Security Techniques
Ms. Sapna Saxena	Parallel Algorithms for Public Key Infrastructure based Security Techniques
Ms. Neha Kishore	Parallel Hashing Algorithms for Security & Forensic Techniques.

**5.3 Student Participation and Activities**

**5.3.1 List the range of sports, cultural and extracurricular activities available to students. Furnish the programme calendar and provide details of students' participation.**

The University conducts large number of sports, cultural and co-curricular activities for the students. Please refer to the academic calendar given at Para 2.3.1.

**Sports**

Badminton, Basket Ball, Volleyball, Lawn Tennis, Football, Cricket, Table Tennis, Billiard and Pool, Gymnasium, Kho-Kho, Athletics both track and field events are available to students.

**Cultural**

Algohythm (Cultural Fest), Techelone (Technical Fest), Fresher party, Folk dance, Farewell parties, Indian and Western music competitions, Fashion shows, Dramatics, Plays etc. are organised for the students.

**Co-curricular**

Debates, declamations, poetry etc. are organised for the students.

**5.3.2 Give details of the achievements of students in co-curricular, extracurricular and cultural activities at different levels: University / State / Zonal / National / International, etc. during the last four years.**

**Achievements of Students of Computer Science and Engineering:**

- The University conducts competitions in association with reputed industries to inculcate the desired skills in the students. In that direction the following competitions are regularly held:-
  - C-Champ: It has been held in collaboration with SAP Technologies and UST Global. The aim is to make students proficient in coding languages. The problem is given by the industry and the students work on it in small teams against time. Their solutions are evaluated by the experts from industry. The results for the last two years are as follows:

**Academic Year 2013-14**

Sr.No.	Names of Team Members	Prize Money
1.	Gopal Parmar Chuchra Manik	Rs.7500.00
2.	Mukul Wadhwa Eldy Sharma	Rs.10000.00

**Academic Year 2014-15**

Sr.no	Names of Team Members	Prize Money
1	Kartik Gautam Smriti Guleria	Rs.15000.00
2	Anshul Anand Kanav Malhotra	Rs.10000.00



- Analog Design Competition held in association with nXP Semiconductors. The aim of the competition is to hone the skills of the students in hard core electronics. The result of the competition held in 2014 is as follows:
  1. Varun Sethi
  2. Chanda Thakur
- The University endeavours to develop a spirit of entrepreneurship amongst its students. Gadgets developed based on a project, entitled “Smart Lights”, that had been successfully completed by our students were put for sale at Big Bazaar, Chandigarh. It evoked lot of interest amongst the public. Students were able to sell about 20 pieces of the items.



- Vaibhav Rakheja, a student of 2012 Batch of BE (CSE) has been selected as Google Student Ambassador. Only 75 students are selected by Google from the whole country.
- Team SOCH (**Avinash, Anirudh Duggal, Kush Kumar Dhawan and Sushain Sharma**) students of CSE department made it to the top 7 teams of the country. They took part in Microsoft's Imagine Cup competition 2011. After researching for a couple of months, the device that would automate growing plants was finalized as their Imagine Cup Project. Equipment to be finally developed was named as Prithvi's Hellion.



In round 1, team SOCH was shortlisted amongst top 150 teams all over the world and were given a mini computer (Ebox) worth 650\$ by Microsoft. Team built the OS and applications for their device and submitted the video of the working prototype. The competition was between top 25 teams in India and they were shortlisted amongst the best 7 teams in India to participate in National Finals in Delhi and Gurgaon from 26th-28th April 2011.

- **Abhishek Sharma, Akhil Kumar Dharni, Sahil David, Sunit Rana** students of CSE have won 1<sup>st</sup> Prize in Code for Chandigarh Competition held in year 2013s. They have developed Mobile App for Chandigarh Administration.



**Team VRADARS (L-R)**

**Abhishek Sharma, Sunit Rana, Akhil Dharni, Sahil David**

Team VRADARS bagged the first prize in the App development competition ‘CODE FOR CHANDIGARH’ organized by ‘Department of Information Technology, Chandigarh Administration’. The app’s quality feature ‘I AM SAFE’ stands up and tells all the feminine gender that we are here for you. The girls’ users should feel safe and secure in the city. Whenever a crime happens with the women, she feels shy to go up to the police, reveal her identity and answer the questions. Just press an alert button and the location of the girl in danger is retrieved. This information can be shared with the police for speedy and safe trials. The App dynamically gives the Breaking News and details of the events happening in the city [Event Updates]. The team won a trophy along with a cash prize of Rs. 25,000.

- **Nishima** student of Batch 2013 presented application “Crime Against Women” in SAP Lumira event held at Bangalore by SAP India Pvt Ltd in 2014.





### **Chitkara University at SAP Techniversity event, Noida - Student bagged 3<sup>rd</sup> prize**

SAP hosted the third edition of its youth focused event – SAP Techniversity at Jaypee Institute of Information Technology in Noida on November 8. The day-long event had over 2000 students from colleges across India learning about the latest trends in technology. With Cloud as the theme, the event featured four tracks – Innovative Cloud, Brain Cloud, Cloud Nine, and the Power Cloud.

Around 200 students from Chitkara University participated in the event. Students heard from speakers such as Ochintya Sharma, Vice President, Software Operations, Samsung India; Rohan Dixit, Founder, BrainBot; Pradeep Desai, Head of Software Centre of Excellence India, GE Global Research; Arnab Goswami, Editor-in-Chief and News anchor of news channel Times Now, as well as former Indian cricketer, Ajay Jadeja, besides local and global speakers from SAP.

It is a matter of indeed great pride that Nishima Arora of Chitkara University bagged 3<sup>rd</sup> prize in the DEMO JAM competition held at the SAP event. From all over India 5 students were shortlisted and were asked to give presentation at the event. Students were asked to use System application product for representing graphical information of all the departments in an organization. Nishima covered “Crime against women in India” and was highly applauded.

- **Shiva** student of Batch 2013 presented application “Disable non workers by the type of disability” in SAP Lumira event held at Bangalore by SAP India Pvt Ltd in 2014.
- **Sahil Joshi** student of Batch 2013 presented application “NFL Players ranking Survey” in SAP Lumira event held at Bangalore by SAP India Pvt Ltd in 2014.
- **Akshit Mahajan** has been invited to present his research paper “**Decision Support System for Disaster Management using Remote Sensing and GIS-A case study of Sikkim Earthquake, September 18, 2011**” in *Geomatrix’12*, an International Conference on Geospatial Technologies and Applications to be held from 26<sup>th</sup>-29<sup>th</sup> February, 2012 at Indian Institute of Technology, Bombay (**IIT-Bombay**).
- Research paper authored by **Akshit Mahajan**, entitled “*Automated Decision Support System to Identify and Apply Ground Water Recharge Solution*” has been selected for publication in *India Geospatial Forum 2012* held from 7-9 February, 2012 at **Epi Centre, Gurgaon (India)**.
- **Kirandeep Kaur Sidhu**, final year Student from CSE branch has won Gold medal in State level TT championship held at Bhiwani and Participated in Nationals Held in Chennai in 2013.

- **Priyanka Shekhri**, second year Student from CSE branch (along with her team) won 2<sup>nd</sup> prize in Pratibimbh'12 in footloose competition in Chitkara University, Punjab campus and in Dance Competition organized by Mass Communication Department of Punjab University.
- **Nikita Kumar(centre)**, has participated and won a lot of prizes in various fasion shows and dance competitions. She is the title holder for Miss. Punjaban, 2010, Miss. Chandigarh 2010 and Miss. North India Supermodel, 2011. Her other achievements are:



- Ist in PEC fest duet dance competition
- Mobsters (fashion show) winner in IIT Delhi, 2011
- 2<sup>nd</sup> prize at Pratibimbh in Footloose competition, 2011
- 2<sup>nd</sup> prize at Pratibimbh in Fashion show, 2010
- 2<sup>nd</sup> prize in duet dance at Algorythm, 2011
- 2<sup>nd</sup> prize in duet dance, 2011 held at Rayat and Bahra college.
- 2<sup>nd</sup> prize in group dance competiotion held at Punjab University (Soch), 2011.

#### **Achievements of Students of Civil Engineering:**

- Civil engineering third year students of Chitkara University, are doing the following two mini research projects.

**1<sup>st</sup> Project Title: Water Quality Analysis and its impact on Health: A case study of Baddi Tehsil.**

**Project Scope:** The students collected surface and subsurface water samples from different geo-locations in Baddi Tehsil. The quality of water is tested in CU state-of-the-art environmental engineering lab. The chemical analysis and heavy metal testing of water is performed and the quality of water is assessed through these lab studies. Using the geo-locations of the sample and its corresponding chemical characteristics, different thematic layers will be created in ArcGIS and correlated

with human health data. The results will be presented in the form of spatial maps of the study area.



## **2<sup>nd</sup> Project Title: Ponds reclamation of Village Kalu Jhanda, Distt Solan H.P**

### **Project Scope:**



### **Achievements of Students of Electronics and Communication Engineering:**

1. **Megha Bajaj (Batch 2010)** secured 99.54 percentile in CAT-2013 and pursuing MBA from IIM Rohtak.
2. **Abhinav Loomba, Inderveer Singh, Rahul Miglani, Praanshul Chowdhary (Batch 2011)** secured First Position in Call of Duty4 event by winning every knockout round in respective 3 days in LEXICON, The literary fest of Chandigarh College of Engineering & Technology, Sector -26, Chandigarh.
3. **Varun Sethi, Shivam Sharma, Shubham Garg, Shubham Kumar, Vini Mahajan, Arindham Basu and Aneesh Kapoor, Ankur Malik, Ashish Kumar Singh (Batch 2011)** cleared Phase 1 and 2 in the Texas Instruments Design Contest TIIC-IADC-2014.



4. **Shivya Pathania (centre) (Batch 2009)** is the title holder for Miss Shimla 2013 and Miss Beautiful Smile. She also won the RJ hunt at 104.8 FM and awarded with the title Miss Oye. Shivya Pathania is playing the Lead actress role in Humsafars, the daily television show at Sony T.V. channel.



5. **Nikita Kumar (Batch 2009)** won the title DSOI May Queen 2013 1st Runner up.



6. **Akhil Mittal, Ishan Arora, Anuj Poonia, Ankit Sharma and Hitain Puri (Batch 2011)** participated in Annual Tech fest BITS Pilani (APOGEE'13) in Water Rocketry and won 2nd Prize. They made a two stage water Rocket.
7. **Kartikey Manchanda , Karan Sharma ,Sandeep Parihar ,Parminder Singh (Batch 2009)** won 1st prize in Circuitrix at Chitkara Rajpura, 2012
8. **Mayank Maurya, Ishita Kapoor, Mandeep Goel, Milit Mitra, Shivam Sharma, Lavish Bansal, Pardeep Baatu, Mohit Arora (Batch 2011)** participated in IIT, Roorkee in satellite design workshop & secured a Merit position.
9. **Kartikey Manchanda, Himani Guleria, Parul Bhutani, Ankita Malhotra, Pooja, Nupur, Karan Sharma (Batch 2009)** won 1st prize in satellite designing by NASA, IIT Delhi, 2012

10. **Kartikey Manchanda (Batch 2009)** a brilliant student got various merit positions. His achievements are listed below:
  - Won 3rd Prize in Robotron ,IIT Bombay,2011
  - Won 2nd Prize with Karan Sharma in Robotryst ,IIT DELHI 2012
  - Won Certification by Cypress Semiconductor in PSOC Development, IIT Bombay, 2013
11. **Nilesh Khanna (Batch 2013)** won Consolation Prize In PCB Design Competition Organized By RS Components, Bangalore.
12. **Nilesh Khanna**, Abhijit Dey, Shubham Garg, Saniya Choudhary, Ranjan Mukherjee (**Batch 2013**); Priyanka Mittal, Swati Gupta, **Aarti Kanwar (Batch 2012)**; **Mandeep Goel**, Nandish Goswami, Mayank Maurya (**Batch 2011**) represented Chitkara University for the second round at ADCOM-2014 by ACCS, Bangalore
13. **Abhishek Sharma, Navneet Arora, Daksh Raj Chopra and Munish Verma, Ishita Sood (Batch 2012)** cleared Phase 1 in the Texas Instruments Design Contest TIIC-IADC-2015.
14. **Abhishek Sharma, Navneet Arora, Daksh Raj Chopra, Himanshu Gupta (batch 2012)** Cleared 1<sup>st</sup> and 2<sup>nd</sup> stage of e-Yantra Robotics Competition (eYRC-2014) at IIT-Mumbai.

### Achievements in Sports

Sr. No	Event	Team	Position	Date	Venue
1	Ist All India Gatka Tournament	Gatka Team	1 Silver, 3 Bronze	January, 2012	Punjabi University, Patiala
2	Table - Tennis Inter University	Table Tennis	Winner	April, 2012	Shoolini University
3	Inter university sports meet	Badminton, TT	Participation	November, 2012	IIT Roorkee
4	Inter University Sports Meet	Volleyball	Runner Up	February, 2013	IIT Delhi
5	BITS Open Sports Meet	Volleyball	Runner Up	September, 2013	BITS Pilani
6	Parakram	Volleyball	Winner	November, 2013	Jaypee University
7	Table - Tennis Inter University	Table Tennis	Winner	November, 2013	INDUS University
8	2nd All India Gatka Tournament	Gatka Team	Participation	January, 2014	Punjabi University, Patiala
9	Inter university sports meet	Volleyball	Runner Up	Februray, 2014	IIT Delhi
10	DESPORTIVOS'15	Basketball, Volleyball	Participation	March, 2014	LNMIIT Jaipur
10	SAMAR'14	Basketball	Winner	May, 2014	IIT Roorkee
11	Raan-neeti	Badminton	Winner	September, 2014	IIT Mandi
12	District Championship	Basketball	Winner	November, 2014	Nalagarh
13	North India Inter University	Football	Participation	November, 2014	Panjab University

### ***5.3.3 Does the university conduct special drives / campaigns for students to promote heritage consciousness?***

Yes. The University has published a book dealing with National Heritage of India. Not only are the students and faculty made conscious about heritage background but efforts are made also to take them around a few heritage destinations in the nearby locations. For this purpose, the book on heritage, “Spectacular India” is also made available to the students. Tours are conducted for students and staff to visit historical places with the aim to enhance the student’s awareness and realization of our glorious heritage. Important days like Independence Day, Republic Day, Himachal Day, Teachers’ Day etc. organized every year to promote heritage consciousness among the students.

### ***5.3.4 How does the university involve and encourage its students to publish materials like catalogues, wall magazines, college magazine, and other material? List the major publications/ materials brought out by the students during the last four academic sessions.***

The University provides all the support in term of guidance and finance for the publication of student’s magazines. Chitkara University encourages its students to publish materials in the form of magazines, catalogues, journals etc. In 2011, the university published the annual magazine “Crest Air”. However, to increase participation it shifted to a monthly e-magazine “Ignited Minds”. The magazine included write-ups in English, Hindi & Punjabi. The concept of e-magazine was inspired from the universities vision to make the university paper free university.

In the same session, annual issue of 200 pages was also published. Apart from magazines, the university encourages its students to publish journals on general or on research topics. These journals are available in Library. The university also encourages indirect publications by motivating its students to join campus reporter programs by various newspapers. Mr Abhay Mallick is first campus reporter for Dainik Bhaskar newspaper.

Further, the university students frequently publish catalogues on promotional books for events like MUN, Techfest, CU Clubs etc. The ESL department encourages its students to explore their creativity online by publishing blogs. Many students at Chitkara University have their own blogs. Blog like [www.lifepallets.blogspot.com](http://www.lifepallets.blogspot.com) is by one of the university students.

University has set up an Editorial Board whose different committees cover various events taking place in the university and surrounding areas. Editorial Board is managed by the

students and guided by the faculty. The board publishes monthly and annual magazine in which talent of students can be seen. Sketches, Poems, Pictures, Arts, Designs, Write-ups etc are published which are prepared by our students. To make all this easy, different committees of Editorial Board have been made which are as under:-

- Article Writing
- Report Writing
- Creative Writing
- Design and Arts
- Promotions and Marketing
- Photography

Chitkara University Reporter page on Facebook provides latest news and activities taking place in university and nearby. Students have been appointed as Campus Ambassador for covering various events and activities and they have access to post the same on Facebook page.

Students are encouraged to interact with authorities regarding their suggestions, complaints and reports with the help of Chalkpad, Facebook, Twitter, Emails etc.

***5.3.5 Does the university have a Student Council or any other similar body? Give details on its constitution, activities and funding.***

No

***5.3.6 Give details of various academic and administrative bodies that have student representatives on them. Also provide details of their activities.***

The details of the various academic and administrative bodies, which have the student representatives are as under:-

- Anti ragging committee.
- Mess committee.
- Hostel committee.
- Library committee.
- Clubs under each program.
- Sports committee.
- Co-curricular and extra-curricular activities committee.

- Magazine editorial board.
- Placement committee.

In addition to above number of students clubs / committees are there. The details of these clubs / committees are given below:

### **Hostel Committee**

The Hostel Committee organizes various events for the hostel inmates to break the boredom and bring some zest to hostel life by organizing dance competitions, singing competitions, fashion Shows and DJ Nite, Hostel Night etc.

**STACCATOS.** This club includes all the dancing areas which handle the respective events being held in the university and moreover it also organizes workshops to make students more confident in learning and performing dance on the stage.

**3CTech.** This club organizes and handles all the technical events and workshops in the university. It is maintained by computer science students.

**CUTC.** CU-Theaters and Creativity, this club organizes all the events like plays, skits etc to be performed on stage or street shows and even this includes

**Mystics.** The club deals with core electronic activities.

**Civengs.** The club is maintained by civil engineering students.

**SUFY.** The club organizes all the activities like debates, declamations, GDs. Etc.

**EUPHONY.** The club grooms and organizes all singing activities.

**CU ARCS.** It's a sports club which takes care of all sports activities.

**ARBIT.** It takes care of all social activities organized in University.

## ***CRITERION VI: GOVERNANCE, LEADERSHIP AND MANAGEMENT***

### ***1.1 Institutional Vision and Leadership***

#### ***6.1.1 State the vision and the mission of the university.***

##### **VISION**

To contribute in building a knowledge society through innovation and academic excellence

##### **MISSION**

To be amongst the top 10 private universities in the country by the year 2020.

##### **VALUES**

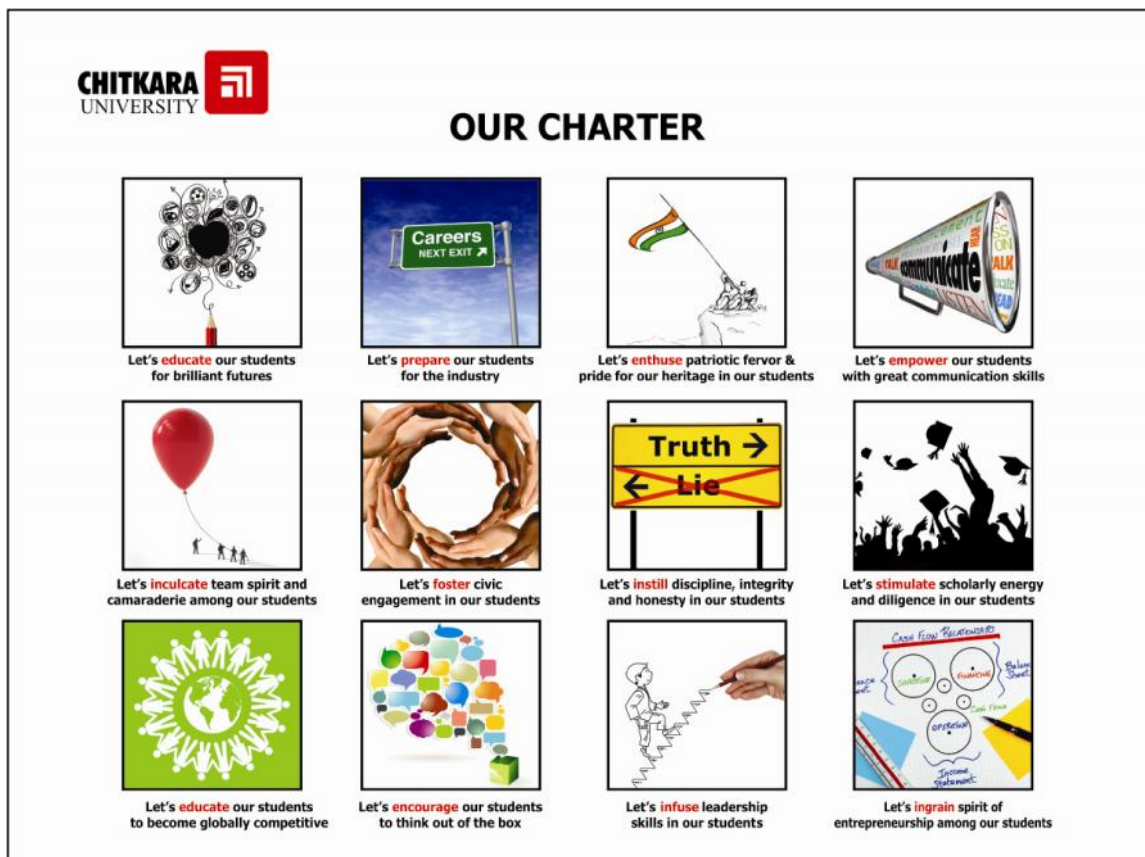
Chitkara University has defined certain values for those who are directly or indirectly involved in the working of the University.

**The values pertaining to the Mission of Chitkara University are as follows:**

- **Care** – For us, welfare of our students and employees is our top priority.
- **Supportive**-We are supportive. We go an extra mile to support our stakeholders i.e. students, faculty member, parents, government and industry.
- **Academic Excellence and Learning** – We value excellence in learning by adopting suitable pedagogy and ensuring that our faculty remains intouch with the latest in the field. We also ensure that our students are able to compete at global level.
- **Quality** – We hold a strong commitment to high standards in all aspects of our educational activities, learning outcomes and support services. We seek to continuously strengthen the overall effectiveness of our operations.
- **Faith** – We treasure our ethos and our charter.
- **Integrity** – We conduct our operations and make our public representations in an ethical manner. We practice honesty and objectivity in dealing with our stakeholders.
- **Diversity** – We embrace and promote diversity in our policies and practices to prepare our learners to live and work successfully in an increasingly diverse society. We strive to create a learning environment by welcoming teachers, learners and staff who bring diverse ideas, values and backgrounds and beliefs to the learning and work environment.

- **Leadership** – We seek to develop responsible leaders committed to a common goal.
- **Freedom of Inquiry and Expression** – We support the rights of our people to freely inquire and express their opinions and suggestions. We involve and encourage an open exchange of ideas and seek inputs from one and all who wish to participate in the learning process of teaching.
- **Communication** – We believe in open, honest, respectful and timely communication at all levels.
- **Accountability** – We are accountable to all the stakeholders and the general public for fulfilling our mission in an appropriate manner by openly assessing the operations and by inviting external evaluators by public agencies.
- **Innovation** – We provide imaginative and effective solutions to our challenges and innovative ways to fulfill our mission.
- **Collaboration** – We seek and nurture partnerships with educational institutions in India & abroad, research establishments, industry and the communities, to have an effective learning environment.
- **Access to Underprivileged** – We aim to promote social mobility by creating opportunities for the underprivileged, to gain access to our educational system. Hence, we hold a strong commitment to the inalienable right to their pursuit of happiness.
- **Time Management** – We aim to train our people to manage time effectively so that the right time is allocated to the right activities and specific time slots to activities as per their importance.
- **Social and Cultural Sensitivity** – We value and respect diversity and hence, we are committed to function effectively in various cultures. Our aim is to make our workforce sensitive to cultural differences.

## CHARTER OF THE UNIVERSITY



**6.1.2 Does the mission statement define the institution's distinctive Characteristics in terms of addressing the needs of the society, the students it seeks to serve, the institution's tradition and value orientations, its vision for the future, etc.?**

The mission of the University is to ensure that the University is ranked among the top 10 private universities in the country by the Year 2020. The ranking will involve achieving excellence in academics and ensuring that the students passing out from the University possess requisite traits, qualities, skills and capabilities. In addition, the students would be groomed in such a way that they contribute to more inclusive, sustainable and prosperous society. The University hopes that by adopting this approach it would be able to contribute in building a knowledge society by virtue of the intellectual capital produced by it.

**6.1.3 How is the leadership involved**

**\* in ensuring the organization's management system development, implementation and continuous improvement?**

The University follows a structured approach through its statutory bodies for efficient governance and to ensure continuous improvement. We follow a top down approach. The



Chancellor takes personal interest in this direction. He holds regular sessions with the faculty and the students (Chancellor's Day – Approximately 10 to 11 in a semester) with the aim of developing character traits in the attendees and to highlight the importance of adopting ethical approach. These sessions motivate faculty and students to become good citizens and to imbibe the virtues of diversity. The session – lasting one full day - is held in the form of lectures, discussions, presentations and active participation of students and faculty. The faculty, thereafter, tries to inculcate the lessons learnt in their teaching and also in the process of knowledge sharing during their classes and also during the faculty development programs.

In addition, faculty members are given opportunities to be members of various statutory bodies like Boards of Studies and Academic Council. They are also groomed by making them members of different committees that help in the governance of the University.

**\* *in interacting with its stakeholders?***

Interaction with stakeholders is held at different levels. Almost all faculty members interact with students, parents and the alumni while performing their duties as teacher mentors and members of different committees. Faculty members also interact with the industry regularly during industry visits, supervision of projects and also during the visits by industry representatives as guest speakers to the University. Discussions generally veer around to the latest developments in different fields, assess the requirements of the industry, modification and development of the curriculum and to borrow the good practices from the industry. Thus, the faculty – including the Deans, HODs and junior faculty members – benefit from interaction with the students, parents, alumni and the industry representatives. The lessons learnt and other good practices are incorporated into the processes being followed by the University at different levels. Apart from broadening the horizon of the faculty, it also exposes the leadership at all levels to the outside world and helps them in acquiring skills like decision making, delegation of responsibilities, planning process, plan implementation techniques, team work and the nuances of knowledge management.

**\* *in reinforcing a culture of excellence?***

The vision of the University is to achieve excellence in all fields. Accordingly, processes have been laid down for different activities and these are monitored regularly to ensure excellence in all facets of our operations – in academics, co-curricular activities and also

in administration. Good practices are borrowed from different organizations to continuously seek improvement in all operations. Another related aspect is the endeavour to achieve excellence at different levels i.e. personal and organizational. Regular debriefing sessions are held after each event to list out lessons learnt so that the mistakes committed in the past are not repeated and improvements become key features of our operations.

***\* in identifying organizational needs and striving to fulfill them?***

Regular discussions are held at departmental level upwards to identify the organizational needs. Various committees have been formed. Faculty members, students and the administrative staff take active part in the meetings of these committees. Brain storming sessions are held to arrive at different options available to implement plans. This is an ongoing process and has paid dividends in helping the University achieve excellence despite its young age.

***6.1.4 Were any of the top leadership positions of the university vacant for more than a year? If so, state the reasons.***

None

***6.1.5 Does the university ensure that all positions in its various statutory bodies are filled and meetings conducted regularly?***

Yes, the meetings of various statutory bodies like the Governing Body, Board of Management, Academic Council, Finance Committee and Boards of Studies are conducted regularly and all positions in various statutory bodies are filled promptly.

***6.1.6 Does the university promote a culture of participative management? If yes, indicate the levels of participative management.***

All decisions of the University starting from the department upward are carried out in a democratic manner involving all stakeholders at each stage. The task is accomplished primarily through a committee system which ensures representation of all sections of the University community. At the Departmental level the Board of Studies comprises faculties and experts. Similarly, in the highest academic decision making body, namely, the Academic Council, all sections of the University community are adequately represented.

Further, the University has grievance redressal mechanism for all sections of the University. Thus, all the top management of the University acts more as facilitators and work as a team to achieve the laid down objectives and goals.

**6.1.7 Give details of the academic and administrative leadership provided by the university to its affiliated colleges and the support and encouragement given to them to become autonomous.**

Not applicable

**6.1.8 Have any provisions been incorporated / introduced in the University Act and Statutes to provide for conferment of degrees by autonomous colleges?**

Not applicable

**6.1.9 How does the university groom leadership at various levels? Give details.**

Faculty members at different levels are incorporated as members of different committees. In addition, they are assigned duties that demand decision making skills and organizational capabilities to complete the tasks. These committees deal with different aspects like academic affairs, administration and student mentoring. Thus the faculty members and staff get ample opportunities to hone their leadership traits. Senior faculty members and staff are invariably available to guide the junior faculty and staff and act as mentors.

**6.1.10 Has the university evolved a knowledge management strategy? If yes, give details.**

Yes, the University has evolved a knowledge management strategy incorporating different aspects of knowledge acquisition, knowledge dissemination and knowledge creation. Faculty members as well as students are encouraged to enhance their skills by subscribing to MOOCS, engaging in reading and publishing articles and also to assess and apply the knowledge acquired through learning-by-doing process. Active learning is the main plank of the pedagogy adopted in the University. Faculty members and students share knowledge thus acquired by engaging in discussions, chat forums, seminars, workshops and demonstrations. Even different competitions held in the University facilitate knowledge sharing and help in developing a knowledge community. Despite its young age

the University realizes that a university is a place where ideas germinate and grow. Thus, due emphasis is laid on research activities that help in knowledge creation. Right from the beginning efforts are made to develop creativity amongst the faculty and the students. Project based learning approach is a step in that direction. Learning by curiosity is emphasized. Different events like national/international seminars and workshops provide good inputs to the participants and help in their research activities.

#### ***6.1.11 How the following values are reflected the functioning of the university?***

##### ***➤ Contributing to national development***

The working philosophy of the University is to produce employable graduates. The University is aware of the existing environment in the country and at the global level. There is a need to produce problem solvers and knowledge creators rather than just process managers. The curricula for various programmes have been designed to meet this requirement. In addition, emphasis is laid on developing skills and understandings in the students to shape them as ethical and responsible citizens.

Due emphasis is also laid on institutional social responsibilities by adopting villages and communities around the campus.

A large knowledge oriented and educated manpower from the university serves the nation. Students of the University are contributing significantly in number of Govt. / Semi Government / Private Organizations in the country as administrators, intellectuals, scientists and in the armed forces.

##### ***➤ Fostering global competencies among students***

The University realizes that educational institutions play a vital role in producing intellectual capital in a shrinking globe dominated by knowledge economy. In addition, the students, apart from having requisite knowledge, have to possess skills to operate in a global environment. Accordingly, the curriculum has been so designed that the students are suitably equipped with adequate knowledge and skills. MOUs have been signed with different foreign universities to give the required exposure to students. Guest speakers, NRIs – serving in universities abroad – and other professors are invited to share their knowledge with our students and faculty and also to guide them. Use of ICT is encouraged to provide access to resources available abroad. Faculty and student exchange programmes with foreign universities go a long way in fostering global competencies among our students.

➤ ***Inculcating a sound value system among students***

Based on its vision and mission the University has identified certain values like caring and supportive attitude, academic excellence, life long learning, integrity, respect and sensitivity towards diversity, freedom of inquiry and expression, honest and respectful communication, empathy and social and cultural sensitivity that must be imbibed in our students. The curricula have been designed to foster these values. The students are sensitized towards these values through various co-curricular activities like participation in NSS activities, other social ventures, cultural events conducted in the campus and outside and so on. Any one indulging in unethical practices is suitably dealt with. Those who excel in activities that promote the professed values are rewarded.

➤ ***Promoting use of technology***

The University has provided a state-of-the-art campus with latest gadgetery and other resources. In addition use of ICT is incorporated in our pedagogical techniques. Adoption of a functional ERP package has also driven home the importance of use of technology amongst our stakeholders. The learning-by-doing approach also helps the students in appreciating the value of technology in the modern environment. Thus, our students have in various competitions held within the campus and in other elite institutions. Even the industry has recognized the caliber of our students and their propensity to use technology.

➤ ***Quest for excellence***

The hallmark of our operations is the quest for excellence. It is emphasized in all aspects like teaching-learning, administration and also in human relations. Students are provided with infrastructure that reflects this ethos. Teaching has also been moulded accordingly. Even minor aspects like dressing for day to day working is taken care of by making students wear uniforms which are neat, clean and bring a sense of pride and camaraderie amongst them.

## **6.2 Strategy Development and Deployment**

### **6.2.1 Does the university have a perspective plan for development? If yes, what aspects are considered in the development of policies and strategies?**

#### **; Vision and mission**

Yes, the University has a perspective plan. Infact, the perspective plan has been closely developed based on the vision of the University. The mission outlines the path that the university adopts to realize its vision. Existing environment, other terms of reference, interests of the stakeholders and the financial help of the University have been other factors that were taken into the account by working out the perspective plan.

#### **; Teaching and learning**

Teaching and learning have been oriented based on the perspective plan. In fact, the program offerings have been arrived at based on the same. It was felt that initially the University should strive to establish a sound footing by offering a bouquet of limited number of programmes. But, simultaneously it should pay attention to internationalization of its operations so that the students passing out from the University are able to take up their assigned role in the society and are able to work in a globalized environment. The number of programme offerings should be increased only after the University has been able to establish its brand value. Aspects related to knowledge creation should be incorporated in a gradual manner. Similarly multi disciplinary programmes could be introduced in a phased manner.

Some of the highlights related to teaching and learning are:-

Ñ Thematic goal of teaching and learning is to promote excellence in teaching with a focused curriculum and development approach in order to foster closer connections between academics and the field experiences. Emphasis is laid on promoting excellence in teaching and curricular aspects by empowering the students with a fine blend of generalist and a super-specialist in the prevailing era of knowledge.

Ñ Following core strategies are adopted to achieve the thematic goal concerning teaching, learning and curricular aspects:-

- Facilitate career development in varied areas of fundamental sciences and technology.

- Develop campus-based learning through high-quality interactive teaching resources.
- Emerge as knowledge hub at international level by offering world-class learning programmes.
- Initiate a need-based curriculum to infuse best skills among students.
- Ensure timely upgrading of curriculum and relating the same to the needs of industry and society.
- Ensure the participation of students, teachers, scientists and non-teaching staff in sharing the task of social responsibility.
- Facilitate work-integrated learning by assimilating theory and practice.
- Increasing international relations by the way of MoUs with overseas institutes of higher learning.
- Include online components in various programmes gradually.
- Encourage multidisciplinary, interfaculty teaching programmes.
- Develop successful recruitment and retention strategies that will conform to our vision and mission.
- Ensure holistic personality development of the student through counseling and guidance, in-house and outside training programmes as per our charter.
- Conduct effective counseling of the students for their well being in professional, community, social, and personal lives.
- Attract superior and multifaceted faculty for ensuring teaching excellence.
- Create scholarship funds to cover meritorious students.
- Work with the government and NGOs to support the social, economic and cultural development of the state and nation.
- Promote industry partnerships for imparting hands on training and experiential training.
- Increase the number of students and faculties getting national and international awards.
- Create brand value at national and international levels for outstanding students with demonstrable career success.

; ***Research and development***

The perspective plan visualizes that research is a capital intensive and academically rigorous activity and needs a deliberate effort for its successful pursuit. Thus, it has

been introduced gradually. The thematic goal of the University in research and development is to create an outstanding band of passionate researchers by enduring a culture of innovation, creative and critical thinking through scholarly pursuits to attain the solution of problems in all domains of human endeavor through alliances with the funding agencies, government and non-government organizations.

Following core strategies will be adopted to achieve thematic goals concerning the research, consultancy and extension:-

- Recruiting the faculty with high research credentials.
- Involving researchers with highest distinction and potential through the adjunct faculty scheme.
- Attracting students with research aptitude through entrance examination.
- Promoting inter-disciplinary/multi-disciplinary research as well as industry oriented research by developing research skills of students and faculty on a broad spectrum of topics.
- Promoting applied research that is strongly linked to practical use thereby addressing the societal needs.
- Setting up nationally and internationally acclaimed research centers.
- Associating faculty members in collaboration with foreign universities to cultivate the research culture.
- Encouraging the faculty members to file patents.
- Making faculty research output (publications, reports, theses, books) accessible through the University as well as other national websites like “Shodhganga”.
- Encouraging, acknowledging and rewarding research and interdisciplinary work and also ensuring accountability.
- Identifying the faculty members whose research performance is well below expectations and offering them proper support.

; ***Community engagement***

The vision of the University is to help in contribution towards a knowledge society. That could be achieved only through a very proactive community engagement both locally as well as through the industry. Thus the perspective plan has been designed keeping the above aspects in mind. All the curricular and co-curricular activities have been designed accordingly. Some aspects that need highlighting are:-



- Serve the community through voluntary work for the development of strong personal value systems infused in the students for the benefit of local society.
- Ensure the participation of students, teachers and non-teaching staff in sharing the task of social responsibility in its entirety and inclusiveness for the development of the Schedule Castes/Schedule Tribes, backward classes and other weaker sections of society.
- Inculcate requisite skills among the youth not only in the adjoining areas but in remote areas also.
- Collaborate with various NGOs to support the cultural, societal, economical and spiritual development of the area.
- Lay special emphasis on education and training that enables workers and entrepreneurs to adapt to changing technologies, economic conditions and strengthening vocational studies.
- Introduced vocational and continuing education gradually in phased manner by the use of innovative methods of teaching and learning which include interactive technologies and inductive methods for coordination between working experience and training.
- Emphasize specially the annihilation of gender discrimination and improving women's access to technologies that facilitates their occupational and domestic work, encourage self-support, generate income and enable them to move out of stereotyped, low-paying jobs.
- Impart broad basic education, especially literacy enhancement, and promote general education to improve learning skills and facilitate horizontal as well as vertical occupational mobility by promoting the active participation of youth and adult learners in the design of literacy campaigns, education and training programmes.
- Provide intellectual and technological support through Incubators.

; ***Human resource planning and development***

The University has set a thematic goal in respect of human resource planning and development so as to deliver an excellent, most comprehensive and professional service to our students for their overall development. In support of the above, we propose to achieve the following goals:-

- To increase the enrolment of girl students.

- Construct in a year or two a separate hostel for girls joining the ‘*Earn and Learn*’ scheme.
- To set a hostel exclusively for research scholars.
- To enrol students in the advanced areas of research with societal significance.
- Network and appeal the potential alumni to contribute towards the endowment awards and mentorship programmes for the current students.
- To promote the concept of lifelong learning.

; ***Industry interaction***

In view of the social and economic development the University is planning to pursue the following goals:

- Active interaction with industry for training of students and also to make the curriculum industry relevant.
- In time, taking up industry out-sourced projects.
- Formation of incubation centre.
- Formation of the research centres.
- Research to benefit local industry
- Sufficient representations of the industrial entrepreneurs in the University bodies and committees.
- Organization of the short term industry oriented training programmes
- Inviting representatives from the industry for interaction with the students.

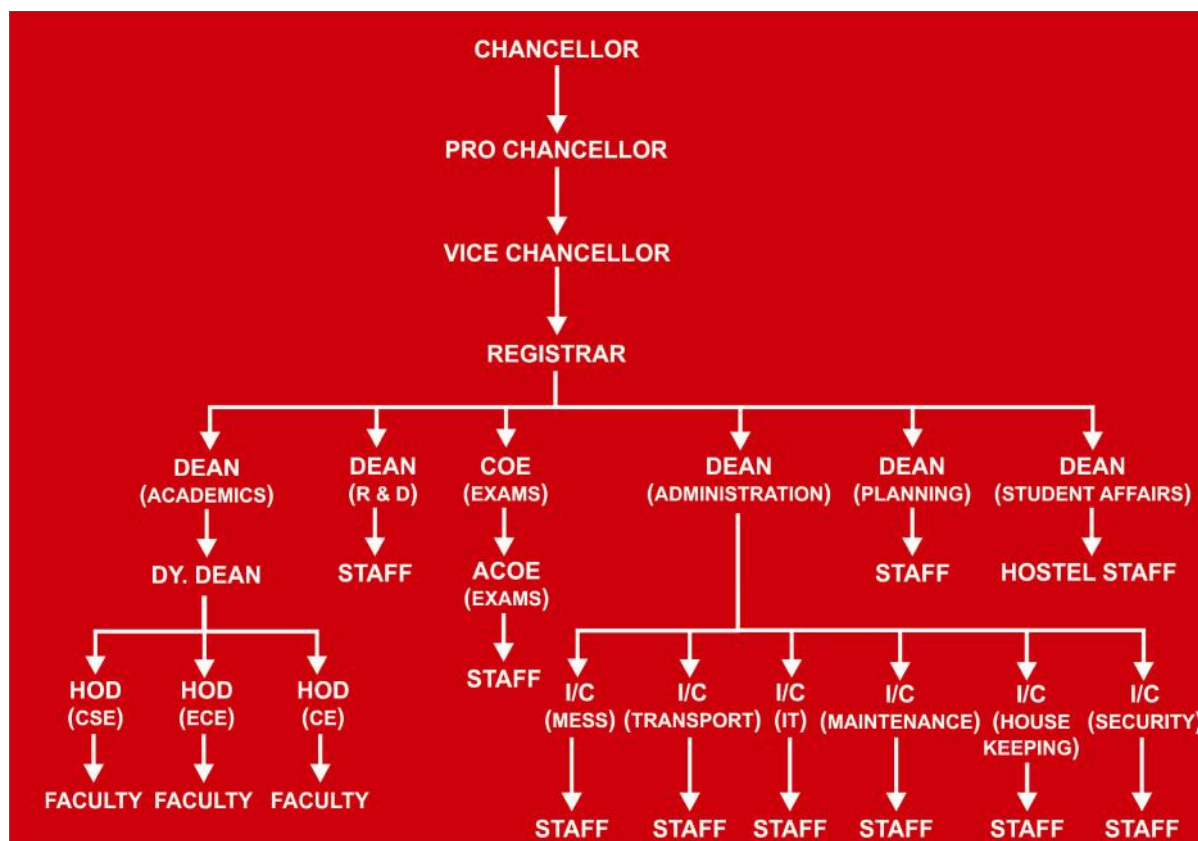
; ***Internationalisation***

The University has realized that in a globalized environment it is of utmost importance that its curricula are internationally relevant. Accordingly, this aspect was given its due importance by the Boards of Studies and the Academic Council. An office of Academic Support Services has been established with a senior faculty members and dedicated staff. MOUs have been signed with numerous foreign universities for articulation arrangements and different types of student and faculty exchange programmes. Gradually, it is proposed to raise the internationalization efforts to research activities.

Following measures are proposed to be taken in due course:-

- Build an international students’ hostel.
- Conduct admissions and other examinations for the international students.
- Increase the enrolment of international students.

**6.2.2 Describe the university's internal organizational structure and decision making processes and their effectiveness.**



As far as decision making process and their effectiveness are concerned, delegation of responsibility and authority has been done so that each head of his/her area is able to make a decision in consultation with his/her colleagues. Wherever necessary, advice is obtained from the next senior level before finalizing the decision. This method has proved to be very effective for decision making and its implementation.

**6.2.3 Does the university have a formal policy to ensure quality? How is it designed, driven, deployed and reviewed?**

We hold a strong commitment to high standards in all aspects of our educational activities, learning outcomes and support services. We seek to continuously strengthen the overall effectiveness of our operations.

Chitkara University has been in the forefront in adopting the best practices related to the quality issues. We view Quality in 360 perspective instead of just components. We follow and implement the best practise in Management, Leadership, Training and Academic activities in our University.

Quality can only be possible if it is identified, processed and practiced consistently in the long term. Quality Enhancement and Quality Sustenance are the two important activities for the Continuous Quality Improvement Process and in this regard in August 2012, an Internal Quality Assurance Cell had been established.

The IQAC has now become the integral part of institutional quality enhancement process. The main purpose of the IQAC is to generate good practices, ideas, planning, implementing and measuring the outcome of academic and administrative performance of the institution.

Every year we set our targets in specific activity under IQAC cell and try to reach that goal in that academic year. The QC- Report is prepared at the end of the academic year, where it gives overall picture of the achievements and shortfalls. After the introduction of the IQAC cell, we have found great improvement in our overall quality issues in the institute across various division of the institute. Internal quality Assurance Cell activities have been aligned to our Institutional Vision and goals with the support of able leadership and management most of the important activities have been brought under the IQAC.

***6.2.4 Does the university encourage its academic departments to function independently and autonomously and how does it ensure accountability?***

All the departments of the University are academically independent. They take academic decisions through the Boards of Studies and get it approved by the Academic Council. The Academic Council gives due importance to the recommendations of various Boards of Studies. Thus there is independence and autonomy in the functioning of the departments of the University. Accountability is ensured through monitoring by various committees and higher statutory bodies. An effective appraisal system also exists to ensure accountability in operations of various departments. In order to measure their performance and to judge accountability, Key Result Areas (KRAs) have been worked out for each level and the accountability is reflected through achievement against these KRAs.

***6.2.5 During the last four years, have there been any instances of court cases filed by and against the institute? What were the critical issues and verdicts of the courts on these issues?***

No.

***6.2.6 How does the university ensure that grievances / complaints are promptly attended to and resolved effectively? Is there a mechanism to analyse the nature of grievances for promoting better stakeholder-relationship?***

The university tries its best to ensure that grievances and complaints are properly attended. There are grievance redressal committees to look into student issues, admission matters, exam related matters, student disputes etc. Suggestions boxes are placed at various suitable locations in the University. Student can also send their suggestions / complains through University ERP Portal / mails, which are responded promptly. Student can approach any of the University authority without prior appointment too. In addition the mobile numbers of all important appointments of the University are displayed at prominent locations.

***6.2.7 Does the university have a mechanism for analyzing student feedback on institutional performance? If yes, what was the institutional response?***

Yes. A system of obtaining feedback from the students has been introduced. The feedback is obtained and confidentiality of the individual providing feedback is maintained. The feedback is analysed and the concerned faculty members or the administrative staff is advised suitably to improve and to institute remedial measures. Heads of the Departments are advised to look into the matter. Besides, the University has the mechanism of taking feedback from alumni and the other stakeholders of the society. Such feedbacks are attended by the concerned authorities and committees of the University. Students are at liberty to meet various Officers of the University to redress their grievances.

***6.2.8 Does the university conduct performance audit of the various departments?***

Yes. The Internal Quality Assurance Cell (IQAC) regularly conducts Academic and Administrative Audit of the departments every year through the peer team of external and internal experts. The IQAC also conducts the visits of the University authorities and internal experts for identifying the infrastructural and academic gaps.

***6.2.9 What mechanisms have been evolved by the university to identify the developmental needs of its affiliated institutions?***

Not applicable

**6.2.10 Does the university have a vibrant College Development Council (CDC) / Board of College and University Development (BCUD)? If yes, detail its structure, functions and achievements.**

The University has its Boards of Management. Its composition and functions are as given below:

- 1. Vice chancellor:** Brig. (Dr.) R S Grewal – Chairperson
- 2. Deans of faculties not exceeding two on the basis of rotation based on seniority:**
  - Dr. Rajnish Sharma
  - Dr. Sudhir Mahajan
- 3. Two persons nominated by the sponsoring body from amongst eminent educationist or from management field**
  - Mr. Mohit Chitkara
  - Dr. Kawaljeet Singh
- 4. Two eminent academicians to be nominated by Government in consultation with regulatory commission**
  - Prof. L.R. Verma, Former VC HPU
  - Prof. R Chauhan, Former Registrar HPU
- 5. Two persons from amongst the teachers by rotation based on seniority**
  - Dr. Ajay Sharma
  - Dr. Bushra Zaman
- 6. Registrar:** Dr Varinder S Kanwar – Member Secretary

### **6.3 Faculty Empowerment Strategies**

#### **6.3.1 What efforts have been made to enhance the professional development of teaching and non-teaching staff?**

The faculty members of the University are encouraged to attend faculty development programmes and orientation programmes. They are also assisted financially for attending workshops, conferences and seminars. Awards are given for publishing research papers, seminar papers and the proceedings of the seminars conducted by the University are published in the book form. The IQAC has also organized various workshops.

As explained earlier in this Report, faculty members are also allowed to proceed on academic leave to pursue higher studies especially at the doctoral level. They are also encouraged to attend Quality Improvement Programmes conducted by various national bodies.

The Computer Centre has also initiated computer training programmes for the non teaching staff. Non teaching staff is also encouraged to achieve higher qualifications, for which suitable reward is given to them.

#### **6.3.2 What is the outcome of the review of various appraisal methods used by the university? List the important decisions.**

The appraisal methods are reviewed periodically and suitable measures are instituted to improve the quality of operations and harmonize the working environment. An important decision that was taken pertained to providing additional facilities to those members of faculty who display a penchant or inclination for research. Similarly, the concept of seed money for preparing research proposals was introduced. Faculty members with below par levels of performance are suitably counseled and in some cases the increments are withheld for a specified duration.

#### **6.3.3 What are the welfare schemes available for teaching and non- teaching staff? What percentage of staff have benefitted from these schemes in the last four years? Give details.**

***The following welfare schemes are available for all teaching and non teaching staff:-***

- Free transport from and to their place of residence to the university.
- Free medical facility on the campus during working hours. In addition medical allowance paid.
- Employees contributory provident fund scheme.

- Employees' health insurance scheme benefit.
- Benefit of accidental group insurance scheme to all employees
- House rent allowance.
- Maternity and paternity leaves.
- Free uniforms for security staff, canteen staff and class IV employees.
- Study leave for higher studies.
- Research incentives.
- Special/Duty Leave for attending Conferences, Training Programmes Refresher Courses.
- Reimbursement of registration fees for attending conferences or refresher courses.
- Full reimbursement of travelling expenses during foreign travel for attending conferences.
- Assistance from bank located on the campus to get loan for purchase of computer.
- Subsidized messing and accommodation.
- Need based accommodation facilities on campus for both teaching and non-teaching staff.
- Benefit of communication allowance / phone connection is provided based on requirement to all concerned.
- Grant of small loans to the subordinate staff.
- Provide free transport and messing to all teaching and non-teaching staff for excursions.

Almost every employee has benefited from one or the other schemes mentioned above.

#### ***6.3.4 What are the measures taken by the University for attracting and retaining eminent faculty?***

The following are some of the important initiatives taken by the University for attracting and retaining eminent faculty.

- Advertisement on the web site as well as in print media bringing out salient features of the university and the achievements during the previous year including academic achievements and placement of the students.
- Healthy and conducive environment on the campus for overall development of the faculty including research facilities.
- Objective and transparent system of performance appraisal and performance based reward system.



- Academic freedom and incentives for acquiring higher qualifications.
- Incentives for research publications and for attending conferences/ seminars/ for presentation of these publications.
- Non-hierarchical organization structure.

**6.3.5 *Has the university conducted a gender audit during the last four years? If yes, mention a few salient findings.***

As per gender audit, the female: male ratio among students is 1:3. The same ratio exists in the non teaching staff. It is 1 : 1 as far as the teaching faculty is concerned.

Salient findings to be listed:

- Average period of stay in the university from the date of joining (M/F) - 5 years
- Average amount of leave (including maternity/ paternity leave availed out of the total period of stay in the university) – On an average in a year leave availed by any faculty is 65 days (including summer, winter, diwali, holi vacations and gazetted holidays). In addition the 3 months paid maternity leave and 7 days of paid paternity leave is granted as applicable.

**6.3.6 *Does the university conduct any gender sensitization programmes for its faculty?***

Yes, the University regularly conducts a gender sensitization program.

The highlights of the gender sensitive policy are as follows:-

- (a) The University has a policy of accommodating all girl students in University's girls' hostels. No girl student so far is denied admission.
- (b) There is no gender discrimination in the selection process and the girls/female staff/faculty form part of all important committees / clubs of the University.
- (c) The University has the *Prohibition of Sexual Harassment Committees* for both teaching and non-teaching staff being chaired by women.

**6.3.7 *What is the impact of the University's Academic Staff College Programmes in enhancing the competencies of the university faculty?***

The University regularly arranges Refresher/Orientation Courses as well as faculty development programmes to enhance the skill levels of the faculty. Because of these programmes, the competency of the faculty with respect to teaching skills and research standard is increased. Awareness of official procedures and working is improved in case of administrative staff.

## **6.4 Financial Management and Resource Mobilization**

### **6.4.1 What is the institutional mechanism available to monitor the effective and efficient use of financial resources?**

The University has a Finance Department headed by the Finance Officer. Annual Budgets are passed in Finance Committee, Board of Management and the Governing Council. The budget is prepared by the finance department in consultation with various departments to monitor the effective and efficient use of financial resources.

### **6.4.2 Does the university have a mechanism for internal and external audit? Give details.**

Yes. The University has a mechanism for internal and external audit. The internal audit is done through “Internal Audit Section.” Every bill is passed through this section only after pre audit. The irregularities pointed out by the internal audit section are corrected before passing the bills.

### **6.4.3 Are the institution’s accounts audited regularly? Have there been any major audit objections, if so, how were they addressed?**

Yes, the accounts are audited regularly and the annual accounts and audit report is placed before the finance committee within the stipulated time frame. To achieve transparency audit is conducted by external agencies. There has been no major audit objections raised by audit team. However, the university furnishes reply immediately with supporting documents. Sometimes on the basis of suggestions (on report) raised by audit team, university maintains it properly and places the corrected version to the next year audit team.

### **6.4.4 Provide the audited income and expenditure statement of academic and administrative activities of the last four years.**

Enclosed at *Annexure - 10*

### **6.4.5 Narrate the efforts made by the university for resource mobilization.**

The University has been mobilizing resources from multiple sources. It is a self sufficient University. The University is self financing and the only main source of funds for running the day to day affairs is the fees collected from the students. For creation of the University

infrastructure, bank loans have been taken which are being returned gradually. The University has approached various funding agencies for grants for carrying out research activities. So far, it has met with limited success in this direction. However the University is confident in improving. Another effort that is being made is to motivate the alumni to contribute towards their *Alma mater*.

***6.4.6 Is there any provision for the university to create a corpus fund? If yes, give details.***

The University has deposited an amount of Rs. 3 crores with the Govt. of Himachal Pradesh as a corpus. The interest of the same is utilized for the development of the University.

<b><i>Internal Quality Assurance System</i></b>
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***6.5.1 Does the university conduct an academic audit of its departments? If yes, give details.***

Yes. The IQAC conducts an Academic and Administrative Audit of its Departments / Sections/Centres/Support Services etc. through External and Internal Peer Teams. A special proforma for assessing the performance has been developed with gradation points. Besides, the IQAC conducts surveys for infrastructural and academic gaps through a panel of authorities and experts in the respective areas.

***6.5.2 Based on the recommendations of the academic audit, what specific measures have been taken by the university to improve teaching, learning and evaluation?***

Various measures have been instituted to establish a networking of the departments in order to enhance the coordination in their working. The faculty members are encouraged to introduce new pedagogy in teaching and learning. The concerned authorities are advised to allocate requisite resources to improve teaching, learning and evaluation. The University conducts a centralized evaluation programme every year and the answer books are evaluated within a month and the results are declared in a time bound manner. The University has introduced a 100% coding, decoding of answer books to maintain confidentiality and efficiency. Online evaluation scheme of answer books has also been introduced.

**6.5.3 *Is there a central body within the university to continuously review the teaching learning process? Give details of its structure, methodologies of operations and outcome?***

The Academic Council is the highest body in the University to review teaching and learning process regularly. This apex statutory body receives recommendation from the concerned departments. The concerned departments receive various academic proposals / recommendations from the faculty members. Thus, there is a comprehensive and continuous review of teaching and learning process in the University.

**6.5.4 *How has IQAC contributed to institutionalizing quality assurance strategies and processes?***

IQAC, by considering the vision and benchmarking, sets the goals for the institutional quality and the curriculum for the information of the stakeholders. At the end of the academic year the University prepares plan of action for the next academic year which covers the working days, vacation period, schedule of the meetings, examination schedule and occasional action plans. Similarly, each department prepares the calendar of events covering teaching plan, participation in conferences, seminars, extracurricular and co-curricular activities, remedial and extra coaching and the schedule of mentoring. The academic gaps are sincerely met through remedial measures. SWOT analyses are communicated to the concerned Departments for further action and improvement. IQAC communicates the strategically and operational issues to the concerned authorities, e.g. the budgetary provision for removing the infrastructural gaps, preparation of the vision document, benchmarking and youth development agenda.

**6.5.5 *How many decisions of the IQAC have been placed before the statutory authorities of the university for implementation?***

Almost all the decisions which have been recommended by the IQAC committee have been placed before the statutory authorities.

**6.5.6 *Does the IQAC have external members on its committees? If so, mention any significant contribution made by such members.***

Yes, the IQAC is a well balanced structure which has external members in the committee. There are representatives from the industry who bring their own perspective and have helped to bring in a culture of accountability.

***6.5.7 Has the IQAC conducted any study on the incremental academic growth of students from disadvantaged sections of society?***

IQAC sets the specific goals every year, and the culture of quality is of the continuous improvement process, the academic growth of the students is taken care in our other process.

***6.5.8 What policies are in place for the periodic review of administrative and academic departments, subject areas, research centres, etc.?***

It has been already mentioned in our research criteria.

***Any other information regarding Governance, Leadership and Management which the university would like to include.***

We always believe in Malcolm Baldrige model that, the Final result is directly linked to the Leadership, in that way, we have aligned all our goals, vision and mission under the leadership command and execution. Management is one of the strongest points in Chitkara University.

## **CRITERIA VII: INNOVATIONS AND BEST PRACTICES**

### **7.1 Environment Consciousness**

#### **7.1.1 Does the university conduct a Green Audit of its campus?**

Yes. The University conducts Green Audit of its campus. It is carried out as per the guidelines of the Central Pollution Control Board, Government of India. The use of plastic is avoided on the campus. The University office circulars are sent through e-mail. The power supply to the electric and electronic gadgets is used only when needed. The University conducts Green Audit and arrives at the measures to be taken that would lead towards Green Environment.

Some of the salient features of the Green Audit of the University campus are as follows;

- The University has planted different types of trees. Tree plantation is a regular feature of the University
- The University utilizes solar power for water heating and street lights.
- The University has its own paper recycling plants, which meets the need of file covers and letter heads of the University.
- The University practices rainwater harvesting on the campus.
- University has its own sewerage treatment plant (STP), which meets the secondary requirement of water for gardening and washing purposes.
- Hazardous waste is disposed by outsourcing.
- Requirement of organic manure for the University is met from the Vermin culture plant set up in the campus.

#### **7.1.2 What are the initiatives taken by the university to make the campus eco-friendly?**

- *Energy conservation*
- *Use of renewable energy*
- *Water harvesting*
- *Check dam construction*
- *Efforts for Carbon neutrality*
- *Plantation*
- *Hazardous waste management*
- *e-waste management*
- *any other (please specify)*

**Energy Conservation:** The University is situated on 17 acres of green area. It has established an eco-friendly building. These buildings are designed in a manner that they keep the temperature relatively low from the outside temperature even in the extreme summers and keep it relatively warm in the case of extreme winters. Each building has wide windows and balconies which permit enough of diffused light in the rooms and keep the use of electricity at its minimum. The green surroundings around buildings not only present the eye soothing sights but also make the inside environment favourable for energy conservation. The university is low on carbon foot print. The University permits only a restricted use of automobiles in the campus for the promotion of a green environment. Due emphasis is given to use of LED lights, Power Factor Control, in centralized Air Conditioning VRV technology used.

**Use of Renewable Energy:** As mentioned earlier the University takes into consideration natural source of diffused light also of balancing extreme temperatures in summers and winters. This reduces the excessive use of electric energy. The wide grounds and green trees serve the purpose of the maximum use of rain water. Extensive use of solar energy helps in conservation of non-renewable energy.

**Water Harvesting:** The University has ensured that most of the ground space is kept open and un-cemented. This ensures the proper the use of rain water in harvesting. The university has special provisions for water harvesting from roof top.

**Plantation:** The university campus is lush green and full of trees and plants the extensive plantation on open and unused land has made the university campus a unique eco friendly destination. The University conducts tree plantation drive every year on Independence Day in addition to the tree plantation undertaken by other agencies of the University like NSS and student's clubs.

**Hazardous Waste Management:** The University does not deal with any hazardous waste except the used lubricating oil, which is given to the government approved vendors for further disposal.

**E-Waste Management:** The University has e-waste management drives conducted from time to time under the supervision of the systems manager. The students and faculty are also sensitized regarding this issue. E-waste is also given to the government approved vendors for further disposal.

**Developing Eco Consciousness:** Tourism day and community development programmes under NSS are organized to develop eco-consciousness among community members. The use of polythene and plastic glasses is discouraged within the campus.

## **7.2 Innovations**

### **7.2.1 Give details of innovations introduced during the last four years which have created a positive impact on the functioning of the university.**

The University campus, spread over a vast area, with ample greenery and open spaces and located away from the noise and din of cities and towns, provides an ideal serene environment for the students and faculty to enhance and share their knowledge. A few innovations introduced during the last four years which have created a positive impact on the functioning of the university are summed up as under:-

- Wi-fi facilities all over the campus round the clock.
- Use of ICT and Multimedia for imparting knowledge to the students.
- Use of ERP package developed by Chalkpad Technologies for keeping the students and their parents informed about the performance of the students as well as providing to the students online instructional materials in the form of lecture notes, questions bank including MCQs, assignments etc.
- Fully computerized Library with access to online journals and books.
- Fully transparent Evaluation System.
- Project based learning.
- Expert lectures from industry/academia experts.
- TEDx and Toastmasters Club

## **7.3 Best Practices**

### **7.3.1 Give details of any two best practices which have contributed to better academic and administrative functioning of the university.**

The two best practices that have contributed to better academic and administrative functioning of the university are as follows:

#### **BEST PRACTICE 1:**

**Project based learning.** The students are encouraged to take up and complete projects especially those involving more than one discipline. These projects are evaluated by a board of experts and the best projects are rewarded with attractive prizes. The concept of pursuing one project in each semester has contributed significantly to learning by doing and hence fostered creativity among the students.



## **BEST PRACTICE 2:**

**Detailed Course Delivery Plan and Session Plans.** A detailed Course Handout (Course Delivery Plan) for each course is prepared well in advance of the beginning of the semester. The Course Handout conforms to the mission and objectives of the University and the Programme Educational Objectives. It outlines the study material – text books and reference books as well as material from internet and other sources - details of various sessions that would be held for the course delivery, the evaluation components and the weightages for assessment.

## **Details of Best practice 1**

<p><b>1. Title of the Practice</b> Project Based Learning.</p>
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### **2. Objectives of the Practice**

- To motivate and engage students in active learning
- To develop higher order of learning and to inculcate in the students the ability to analyze, evaluate and create.
- To enable students to work in teams.
- To inculcate the practice of learning-by-doing.
- To inculcate the ability to innovate.

### **3. The Context**

The teaching-learning process followed in various institutions is basically oriented towards “What to think” that emphasizes rote learning. The major drawback of this approach is that students are unable to imbibe the skills to analyse, evaluate and create. It also does not help in application of the theoretical knowledge gained by the students. Therefore the University decided to adopt an approach which emphasises on “How to think” wherein students are assigned projects that helps in self directed learning, system level thinking and the ability to integrate various aspects like analysis, evaluation and creativity.

#### **4. The Practice**

The students are assigned projects in each semester. These projects apart, from the mission of the University, conform to the Programme Education Objectives and course objectives. The project statements are arrived at based on these and a live problem is assigned to the students to find viable solutions. The students are guided to identify the “driving question” and other problems associated with it. Students work in teams of 3 to 4 students each and come up with design solutions. Discussions are held with the faculty guide to evaluate various options and to arrive at most suitable option. The students work on a working model, if possible, and demonstrate its functioning. A project report is prepared and a presentation is made to other students. Regular feedback is given to the students by faculty guides that enhance the learning experience.

#### **5. Evidence of Success**

Project based learning has motivated students to take more interest in their studies and the level of attendance in classes has gone up. The students have started imbibing the learning objectives. That is evident through their success in various design and technical competitions organized by the University, other elite institutions and the industry. The record of placement of students is a pointer in that direction.

#### **6. Problems Encountered and Resources Required**

The faculty is a product of teacher and examination centric system and they had to be motivated and trained to follow the new system. However, once they were exposed to the new approach they worked enthusiastically to ensure the success of the new venture. Even the students had not been exposed to learning-by-doing before they join the University. But, once they realized the merit in the new system they whole heartedly to enhance their learning experience.

## **Details of Best practice 2**

### **1. Title of the Practice**

Detailed Course Delivery Plan and Session Plans.

### **2. Objectives of the Practice**

- To ensure that the academic delivery for every course is carried out in a planned, timely and systematic manner.
- To ensure that the course objectives conform to the University's mission and the Programme Educational Objectives.
- To enable faculty to work out their strategies for the course delivery and assessment.
- To enable faculty to work out the plan for academic delivery of each session to ensure effective learning
- To apprise the students about the syllabus of the course and the modalities for its delivery.
- To inform the students about the components of evaluations, the evaluation criteria and assessment.
- To provide a mechanism to the course coordinator and the Head of Department to monitor the progress of each course.

### **3. The Context**

A course handout (Course Delivery Plan) acts as a contract between the faculty and the student. It provides the basis for effective, planned and timely academic delivery instead of the faculty resorting to adhocism based on past experience. It gives the road map to ensure that effective learning takes place and also provides the faculty with guidelines for objective assessment. The session plan helps a faculty in adopting the most suitable teaching technique and utilizing the teaching aids to commensurate with the desired skills or competencies to be developed in the students.

#### **4. The Practice**

The head of each department, much before the onset of a semester nominates the course coordinators and the faculty members to teach a particular course. The team of course coordinators and faculty, thereafter, work out the course handouts based on relevant parameters. The feedback received from the faculty, students, industry and other stakeholders and the guidelines given by the respective Boards of Study are also kept in mind. Each faculty member thereafter prepares the session plans for different sessions. These session plans are then discussed in the meeting chaired by the course coordinator and suitably refined. The session plans are prepared at least two weeks in advance. This helps in effective delivery of each session.

#### **5. Evidence of Success**

The preparation of course handouts and session plans helps in bringing about clarity of thought process amongst the faculty members. It boosts their confidence levels and also motivates them to carry out in depth study of the subject. The performance levels of the students have been very good and it has been noticed that the students come better prepared for the class.

#### **6. Problems Encountered and Resources Required**

Initially there was reluctance on the part of faculty members to adopt this practice. They were of the view that it brings in rigidity in the course delivery and hardly any flexibility is available with the faculty members. However, they soon realized the importance of adopting a systematic and methodological approach. Faculty development programmes had to be held to acquaint the faculty members with the new process. Certain faculty members, especially those who were junior in service, had to be guided. However, finally the results proved to be very satisfactory.

*Evaluative Report of the  
Departments*

## ***Evaluative Report of Department of Civil Engineering***

1. ***Name of the Department:*** Civil Engineering
2. ***Year of establishment:*** 2009
3. ***Is the Department part of a School/Faculty of the university?*** Yes
4. ***Names of programmes offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., D.Sc., D.Litt., etc.)***

At present programmes leading to the award of B.E. and Ph.D. are being run. With effect from Academic Year 2015-16 the Department is also going to offer PG programme, ME in Construction Technology and Management from Academic Session 2015-16.

5. ***Interdisciplinary programmes and departments involved:***

At present only the programmes mentioned in Para 4 above are being conducted. However, an interdisciplinary flair is provided in research activities by carrying out research on topics related to Engineering Geomorphology and Geosciences, Water Resource and Climatic Changes, Reclamation of Polluted and Receding Ponds and Use of Industrial Waste as Construction Material. In coming years formal undergraduate and postgraduate degree programmes in Environmental Engineering are planned to be introduced.

6. ***Courses in collaboration with other universities, industries, foreign institutions, etc.***

At present the Department runs programmes with its own efforts. Requisite assistance is obtained from elite institutions like NITTTR, NITs.

However, research collaboration is there with some of the foreign Universities like Glasgow Caledonian University, UK and ESTP, Paris.

7. ***Details of programmes discontinued, if any, with reasons:*** Nil

8. ***Examination System: Annual/Semester/Trimester/Choice Based Credit System***

At present continuous evaluation based semester system is adopted. However, as directed by the UGC from next Academic Year the University will adopt Choice Based Credit System.

**9. Participation of the department in the courses offered by other departments**

Faculty members from Department of Civil Engineering teach courses related to environmental sciences and disaster management for other departments. In addition, courses like engineering drawing, workshop practice are taught by the Department to all students pursuing BE in other departments.

**10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors / Asst. Professors/others)**

	<i>Sanctioned</i>	<i>Filled</i>	<i>Actual including CAS &amp; MPS</i>
Civil Engineering	24	21	21

**11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance**

Sr. No.	Name	Qualification	Designation	Specialization	Experience (in years)	No. of Ph.D. / M.phil. Students guided in last four years
1.	BUSHRA ZAMAN	<ul style="list-style-type: none"><li>• POST Doctoral Research Scientist</li><li>• PhD in Civil and Environmental Engineering (water resources and hydrology) from Utah State University, Logan, UT, USA</li><li>• M.Tech in Water Resources Engineering from IIT, Delhi</li><li>• B.Tech in Civil Engineering</li></ul>	Professor cum Deputy Dean	<ul style="list-style-type: none"><li>• Remote sensing applications in water resources engineering and management</li><li>• Application of learning machine tools, hydrologic modeling, evolutionary computation, and data-assimilation</li></ul>	13	

2.	VARINDER SINGH KANWAR	<ul style="list-style-type: none"> <li>• Ph.D degree in Civil Engineering</li> <li>• Fellow of Institute of Engineers (FIE)</li> <li>• ME in Structural Engineering.</li> <li>• Post Graduate Diploma in Rural Development</li> <li>• BE in Civil Engineering</li> </ul>	Professor cum Registrar	<ul style="list-style-type: none"> <li>• Health Monitoring of structures</li> <li>• Alternate Construction Material</li> </ul>	21	<b>Ph.D. students</b> Guided – 2 Under Guidance – 2 <b>M.E. students</b> Guided – 2
3.	RUPESH GUPTA	<ul style="list-style-type: none"> <li>• PhD</li> <li>• M Tech</li> </ul>	Professor	<ul style="list-style-type: none"> <li>• Mechanical Engineering</li> </ul>	20	
4.	ARUN KUMAR GUPTA	<ul style="list-style-type: none"> <li>• ME- Civil Engineering</li> </ul>	Professor	<ul style="list-style-type: none"> <li>• Structures</li> <li>• Water supply</li> </ul>	35	
5.	COL. ASHOK KUMAR SHARMA (RETD.)	<ul style="list-style-type: none"> <li>• Pursuing PhD</li> <li>• Master's degree in Civil Engineering</li> </ul>	Professor	<ul style="list-style-type: none"> <li>• Structures</li> <li>• Construction planning and Management</li> </ul>	34	
6.	Col. HARBANS SINGH MAVI	<ul style="list-style-type: none"> <li>• Pursuing PhD</li> <li>• ME (Structures) from IIT Kharagpur and Bachelors from PEC University of Technology, Chandigarh</li> </ul>	Professor	<ul style="list-style-type: none"> <li>• Theory and Design of Structures</li> </ul>	34	
7.	SUSHIL DOGRA	<ul style="list-style-type: none"> <li>• Master's degree in Civil Engineering (Structures) and BE from PEC University of Technology, Chandigarh.</li> </ul>	Professor	<ul style="list-style-type: none"> <li>• Computer Aided Design of Structures</li> </ul>	25	
8.	L D GARG	<ul style="list-style-type: none"> <li>• Master's degree in Engineering from Thapar University</li> </ul>	Professor	<ul style="list-style-type: none"> <li>• Strength of materials</li> <li>• Fluid Mechanics</li> </ul>	39	
9.	UDAY JOSHI	<ul style="list-style-type: none"> <li>• Master and Bachelor degree in Civil Engineering from College of Military Engineering, Pune</li> <li>• PGDM in HRD and Marketing</li> </ul>	Professor	<ul style="list-style-type: none"> <li>• Project planning and management</li> </ul>	32	



10.	KASHIDAS CHATTOPA DHYAY	<ul style="list-style-type: none"> <li>• PhD</li> <li>• ME</li> </ul>	Professor	<ul style="list-style-type: none"> <li>• Mechanical Engineering</li> </ul>	39	<b>M.E. students</b> Guided – 5
11.	C PRAKASAM	<ul style="list-style-type: none"> <li>• Ph.D. degree in Geographical Science(Remote sensing ,GIS &amp; Geomorphology) University of Burdwan</li> <li>• M. Phil in Geographical Science</li> <li>• M.Tech in Geographical Science</li> <li>• B.Tech in Civil Engineering</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Geographical Information System</li> <li>• Satellite Remote Sensing</li> <li>• Geodesy</li> <li>• Fluvial Geomorphology</li> <li>• Surface Water Resource</li> </ul>	5	
12.	ABHISHEK KANOUNGO	<ul style="list-style-type: none"> <li>• M. Tech –Highways from PEC University</li> <li>• GATE Qualified</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Transportation Engineering</li> </ul>	3	
13.	AMANDEEP SINGH	<ul style="list-style-type: none"> <li>• Masters of Engineering from Guru Nanak Dev University, Amritsar</li> <li>• Bachelor of Engineering</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Fluid Mechanics</li> <li>• Engineering Drawing</li> </ul>	3	
14.	ANUJ GUPTA	<ul style="list-style-type: none"> <li>• ME Civil Engineering (Structures) from Thapar University</li> <li>• BE Civil Engineering from Thapar University</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Civil engineering software(Auto CAD, STAADPRO)</li> </ul>	2	
15.	GURMOHA N SINGH	<ul style="list-style-type: none"> <li>• M. Tech</li> <li>• MBA from Punjabi University Patiala</li> <li>• Post Graduate Diploma in Quality Assurance from Sheridan College, Brampton, Toronto</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Engineering Drawing</li> <li>• Computer Graphics</li> </ul>	4	
16.	JYOTIRMA YEE DASH	<ul style="list-style-type: none"> <li>• Masters of Technology</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Geosciences field</li> <li>• Sedimentary basin analysis.</li> </ul>	4	

17.	KARTIK JINDAL	<ul style="list-style-type: none"> <li>• ME</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Tunnelling and construction technology</li> </ul>		
18.	NIMMY THANKOM PHILIP	<ul style="list-style-type: none"> <li>• Pursuing PhD</li> <li>• Master's in Engineering from IIT, Chennai</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Advanced Fluid Mechanics</li> <li>• Geotechnical Engineering</li> <li>• Foundation of Computational Fluid dynamics</li> </ul>	3	
19.	JASVINDER SINGH	<ul style="list-style-type: none"> <li>• Ph.D.</li> <li>• M. Tech</li> <li>• B Tech</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Fluid Mechanics</li> <li>• Engineering Drawing</li> <li>• Computer Graphics</li> </ul>	6	
20.	NITIN SOHAL	<ul style="list-style-type: none"> <li>• M. Tech</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Engineering Drawing</li> <li>• Computer Graphics</li> </ul>	5	
21.	RAHUL KHURANA	<ul style="list-style-type: none"> <li>• M. Tech in Structural Engineering from Thapar University, Patiala</li> <li>• GATE Qualified</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Structural materials</li> <li>• Reinforced concrete Design of Structures</li> <li>• Structural Analysis</li> <li>• Soil Mechanics and Foundation Engineering</li> <li>• Mechanics of Materials</li> </ul>		

**12. List of senior Visiting Fellows, adjunct faculty, emeritus professors**

Dr. Sanjay Shukla

Maj Gen Vinod Bhatt.

Maj Gen A.K. Chaturvedi

13. *Percentage of classes taken by temporary faculty – programme-wise information : 5%*

14. *Programme-wise Student Teacher Ratio : 1:15*

15. *Number of academic support staff (technical) and administrative staff: sanctioned, filled and actual*

Staff	Sanctioned	Filled	Actual
Support Staff (Technical)	15	15	15
Administrative Staff	15	15	15

16. *Research thrust areas as recognized by major funding agencies*

- Remote sensing and GIS applications in Civil and Environmental Engineering
- Annual and seasonal change detection in crop patterns using satellite imagery
- Water Resources Engineering
- Geographical Information System (GIS)
- Remote Sensing
- Advance Surveying and Global Positioning System (GPS)
- Engineering Geomorphology and Geosciences
- Study of Climatic Changes
- Disaster Management System
- Reclamation of polluted and receding ponds
- New construction material using industrial waste.
- Earthquake Engineering research
- Predicting ground water level and adulteration in ground water due to industrial waste using remote sensing and GIS technology.

17. *Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise.*

The Department started functioning effectively with effect from 2010 when the first batch of BE students joined in their second year. Thus, at present only one batch has passed out. The faculty is in the process of preparing proposals for research activities and for sanction of grants for the same.

18. *Inter-institutional collaborative projects and associated grants received*

a) *National collaboration* - Nil

**b) International collaboration** - One faculty member has been associated with ESTP, Paris for joint research related discussion and research related to Use of Industrial Waste as Construction Material. It is a joint project involving ESTP, Paris, Glasgow Caledoniam University, Scotland, a Dutch firm Geosta Soilconcrete and Chitkara University. ESTP, Paris funded the complete cost for travel and stay in Paris for the faculty member.

**19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received.**

As highlighted earlier the Department has ventured into research activities recently. However, projects for grants which are in the advance stage of sanction are given below;

Sr. No.	Name of Project	Sponsoring Agency	Grant Sought
1.	To find out new materials from waste (industry sludge) and its use in armed forces (submitted)	Armament Research Board, DRDO, New Delhi	Rs 35.20 Lacs
2.	R&D Support in Earth & Atmospheric Science (submitted)	Ministry of Earth Sciences, New Delhi.	Rs 48.25 Lacs
3.	Project under fast scheme: Center for new construction material research (submitted)	MHRD, New Delhi	Rs 80 Lacs
4.	Setting up of NRDC-UIFC (National Research Development Corporation) (submitted)	NRDC, New Delhi.	Equipment will be provided by NRDC
5.	Rural Women Technology Park at Gram Panchayat Kalujhanda, Block Dharampur, District Solan, Himachal Pradesh. (submitted)	Department of Science and Technology	Rs 89.59 Lacs
6.	Evaluation of geomorphic resource potential for water resource planning and management for water stressed and drought prone areas: a geoengineering Model. Case study – of Una District, Himachal Pradesh, India.	UGC	RS. 3.20 Lacs
7.	Geoinformatics Winter School – 2015	DST, New Delhi	Rs 26.16 Lacs

**20. Research facility / centre with**

- *state recognition* - Nil
- *national recognition* - Nil
- *international recognition*

Research work done by the department on new construction materials has been recognised by international universities, namely ESTP Paris, Glasgow Caledonian University UK and Geosta Soilconcrete an Industrial House, which have jointly agreed for continuation of above mentioned research work.

**21. Special research laboratories sponsored by / created by industry or corporate bodies**

Nil at present

**22. Publications:**

*\* Number of papers published in peer reviewed journals (national / International): 30*

*\* Book Chapters: 6 (as per detail given below)*

(a) **Prakasam, C** (2015). Identification of Surface Water Harvesting Sites for water stressed Areas Using GIS: A Case study of Ausgram Block, Burdwan District, West Bengal, India. Management of Natural Resources in a Changing Environment (Raju, N.J., Gossel, Wolfgang and Sudhakar, M) Springer International, New Delhi. Pp 70-86.

(b) **Prakasam, C** (2013). Evaluation of Physical Resource Base Using GIS to Suggest Alternative Agricultural Practices in Some Backward Villages of Ausgram Block in Burdwan District, West Bengal. *Resources and Development Issues and Concerns* (Jana, N.C., Sivaramakrishnan, Lakshmi Eds), Progressive Publishers, Kolkata. Pp. 169-190.

(c) **Prakasam, C** and Biswas, B. (2013) Surface Water Conservation Zone Identification, using GIS for Water Stressed Area, part of Burdwan District, West Bengal, India. *Geospectrum* (Mukhopadhyay, S., Ray, D., Kundu, A Eds), acb Publications, Kolkata. Pp. 133-146.

(d) **Prakasam, C** (2013). Seasonal Land Use Land Cover Planning for the backward Villages in Ausgram Block, Burdwan District, West Bengal, India: A Geospatial Technological Approach. *Sustainable Development: An Interdisciplinary Approach* (Pinaki Chakraborty, Piyali Dasgupta and Chameli Mandal, Eds) Sahajatri, Kolkata. Pp. 39-58.

(e) **Prakasam, C.** (2012) Surface Water Resource Potential Zone Identification – A Geomorphic Approach. In *Water: The Epic Struggle for 21st Century*, (Jat., B.C Eds), Avishkar Publishers & Distributors, Jaipur. Pp. 30-48.

(f) **Prakasam, C** and Biswas, B. (2012) Water Stressed Management System: A GIS Approach. In *Water: The Epic Struggle for 21st Century*, (Jat., B.C Eds), Avishkar Publishers & Distributors, Jaipur. Pp. 194-209.

**\* Books with ISBN with details of publishers - 2**

- Text book on Water Supply Engineering, Publisher - Vikas Publication, ISBN No 978-93259-8425-7
- Text book on The Basics of Environmental Sciences, Publisher - Chitkara University Publications, ISBN No 978-93-82782-13-1
- Geomorphic Resource Evaluation Using RS-GIS for Land Use Land Cover in Water Stressed Areas (Under Review).

**\* Number listed in International Database (For e.g. Web of Science, Scopus, Humanities International Complete, Dare Database - International Social Sciences Directory, EBSCO host, etc.)**

* Citation Index (Individual Max):	53
* SNIP (Individual Max.)	1.734
* SJR (Max.)	1.693
* Impact Factor (Individual Max):	5.71
* h-index (Individual Max.) :	5

**23. Details of patents and income generated :** Nil

**24. Areas of consultancy and income generated**

Ruchira Paper Mills, Nahan have assigned a project to recommend suitable techniques to utilize their waste material that contains abundant quantities of  $\text{CaCO}_3$  as a construction material or for any other purposes. The cost incurred by the Department for providing consultancy services will be reimbursed by the Company. Similarly, Colgate (Baddi) have paid an amount of Rs.10,000 for a project to recommend suitable techniques to utilize their waste material that contains abundant quantities of  $\text{CaCO}_3$  as a construction material or for any other purposes. Additional grants are also expected from them as the project proceeds further.

The Department has facility of offering consultancy in the field of Material Testing, Water and Sewerage Testing, Structural Design etc. However, no income has been generated on this account so far.

**25. Faculty selected nationally / internationally to visit other laboratories / institutions/ industries in India and abroad**

University sends faculty to visit other laboratories / institutions / industries in India and abroad regularly. Some of the Universities /Institutions / Industries visited by the faculty during the last few years are:-

- IITs at Mumbai, Delhi, Roorkee, Mandi
- Kalinga University, Bhuvneshwar
- Thapar University, Patiala
- NITTR Chandigarh
- PEC University of Technology
- Glasgow Caledonian University, UK
- University of Illinois, Urbana Champaign, USA
- ESTP, Paris
- Lafarge Industry
- Ambuja and JK Cement Plants

**26. Faculty serving in**

*a) National committees b) International committees c) Editorial Boards d) any other (please specify)*

S.No.	Faculty Name	Journal Name	Capacity
1	Prof.(Dr.) Bushra Zaman	Journal On Today's Ideas - Tomorrow's Technologies	Member of Editorial Board
		International journals: <ul style="list-style-type: none"> <li>• International Journal of Remote Sensing (Taylor &amp; Francis)</li> <li>• IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing</li> <li>• Computers &amp; Geosciences (Elsevier)</li> <li>• Water Air &amp; Soil Pollution, An international journal of environmental pollution (Springer)</li> <li>• American Journal of Remote Sensing</li> </ul>	Peer reviewer
2	Dr. C Prakasam	• Peer Reviewer for Environmental Monitoring and Assessment (Springer).	Peer Reviewer
		• Peer Reviewer for International Journal of Engineering & Technical Research, Rajasthan (India).	Peer Reviewer

		<ul style="list-style-type: none"> <li>• Editorial Board Member and Peer Reviewer: International Journal of Geomatics and Geosciences.</li> <li>• Editorial Board Member and Peer Reviewer for International Journal of Advances in Remote Sensing and GIS.</li> <li>• Editorial Board Member and Peer Reviewer: Review of Environment and Earth Sciences.</li> <li>• Peer Reviewer for American Journal of Civil Engineering.</li> <li>• Peer Reviewer for American Journal of Remote Sensing</li> <li>• Institute for Information Resources, Australia, life member and Peer Reviewer of their journals.</li> <li>• Peer Reviewer for International journal of Scientific Research and Essays, Malaysia.</li> <li>• Editorial Board Member and Peer Reviewer: IJMR (International Journals of Multi-Dimensional Research).</li> <li>• Peer Reviewer for International Journal of Scientific Engineering and Technology</li> <li>• Member : Geospatial World</li> <li>• Life Member: Indian Association of Hydrologists, Roorkee. – LM 1800</li> <li>• Life Member: Indian Institute of Geomorphologists (IGI) – LM 432.</li> </ul>	<p>Editorial Board Member and Peer Reviewer</p> <p>Editorial Board Member and Peer Reviewer</p> <p>Peer Reviewer</p> <p>Peer Reviewer</p> <p>Life member and Peer Reviewer</p> <p>Peer Reviewer</p> <p>Editorial Board Member and Peer Reviewer</p> <p>Peer Reviewer</p> <p>Member</p> <p>Life Member</p> <p>Member</p> <p>Life Member</p>
	Dr Varinder S Kanwar	<ul style="list-style-type: none"> <li>• Fellow of Institution of Engineers</li> <li>• Life Member of American Society for Civil Engineering – India</li> <li>• Life Member of Indian Concrete Institute</li> <li>• Life member Punjab Science Congress</li> <li>• Member of Board of Study Panjab University for Civil Engineering</li> </ul>	<p>Fellow</p> <p>Life Member</p> <p>Life Member</p> <p>Life Member</p> <p>Member BoS</p>



		<ul style="list-style-type: none"> <li>• Peer Reviewer, Emerald Publication – International Journal of Structural Integrity</li> <li>• Peer Reviewer, Elsevier Publication – Engineering Structures</li> <li>• Editorial Board Member, Reviewer, American Association for Science and Technology – Civil Engineering Journals</li> </ul>	Peer Reviewer  Peer Reviewer  Editorial Board Member, Reviewer
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**27. Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs).**

Faculty development programs are conducted regularly by the Department which encompasses the following

- Presentation by own faculty who had opportunity to attend any such type of workshop / training programme within the country or abroad.
- Outside experts are also invited to train the faculty on latest updates in the field of Civil Engineering.
- Any faculty who presents a research paper / article at any national / international forum has to present the same to all faculty of the Department.
- Department sponsors faculty to attend summer / winter school being organised by other institutions to keep themselves abreast with the latest know-how related to their fields.

**28. Student projects**

- *percentage of students who have done in-house projects including inter-departmental projects* 100%
- *percentage of students doing projects in collaboration with other universities / industry / institute* 100%

**29. Awards / recognitions received at the national and international level by**

➤ **Faculty**

Dr C. Prakasam

- Received the fellowship during his Ph.D period from DST-West Bengal.
- Received the fellowship (PURSE) during his Post Ph.D research work period from DST, New Delhi.

Dr. Bushra Zaman

- Winner of Spring Runoff Conference 2010, Utah State University, Logan, USA– Student Presenter competition

- Winner of Social entrepreneur award at the Elevator Pitch competition at Utah State University (2010) - \$1000 Award
- Women's Center Scholarship – 2008-2009 - \$6500 Scholarship Award
- Graduate Research Assistantship – \$25000, 2007-2010

Dr. Varinder S Kanwar

- Research paper entitled ,”Finite Element Modeling of Reinforced Concrete Corners under Opening Bending Moment” awarded with E P Nicolaides Prize by Institution of Engineer (India)

➤ ***Doctoral / post doctoral fellows***

Dr C. Prakasam

- Received the fellowship during his Ph.D period from DST-West Bengal.
- Received the fellowship (PURSE) during his Post Ph.D research work period from DST, New Delhi.

Dr. Bushra Zaman

- Women's Center Scholarship – 2008-2009 - \$6500 Scholarship Award
- Graduate Research Assistantship – \$25000, 2007-2010

➤ ***Students***

- Shivam Aggarwal & Harmanjit Singh from Civil Engineering department participated in Punjab Engineering College's Annual Fest, 2014 which was held from 31<sup>st</sup> October 2014 to 3<sup>rd</sup> November 2014 where they represented our university. They participated in a team of two for the first event, **TECH PREZZ** which required them to present their own Civil Engineering innovation. They presented their idea of “**Earthships**” and they bagged the **First position** and a cash reward of Rs. 5000.



- Vinay Chadha and Nitish Sharma from Civil Engineering department participated in AutoDesk 3D Design Challenge 2014 on the topic “Architecture and the Building Information Modeling (BIM)” held at Amity University, Noida held on 18<sup>th</sup> November 2014. This competition is held annually at an International level and is powered by Autodesk. In the competition, Vinay Chadha and Nitish Sharma were among the top 11 teams out of 6000 qualifying teams in the North-East region. The Chitkara University team received a qualifying certificate in the Architecture and BIM model of “**Dreamhouse**” and also won a shopping card worth Rs.2000.



- Rishabh Sharma from Civil Engineering department had attended a summer M.B.A program at Harvard University from 20<sup>th</sup> June 2014 to 7<sup>th</sup> July 2014. The basic idea was “**How can you run a business in your respective field?**” Thousands of students attend this program every year where they learn the basics of management and gain an insight about various management strategies.



The international students were given a topic on **“How to initialize & plan a business with \$5000”**. Rishav Sharma presented his business idea and prepared a business plan which received a lot of positive attention. He received a first prize among all the international students and was promised a scholarship of \$5000 if he wanted to implement his business idea in the US.

**30. *Seminars/ Conferences/Workshops organized and the source of funding (national / international) with details of outstanding participants, if any.***

Following National conferences were organized by the department and funded by the University:

<b>Sr. No.</b>	<b>Conference Title</b>	<b>Number of participants</b>	<b>Eminent Participants</b>
1.	Advances in Infrastructure Development", October 11-12, 2012.	50	<ul style="list-style-type: none"> <li>• Dr. Siby John, PEC, Chandigarh</li> <li>• Brig V.S. Katarya</li> <li>• Maj Gen Vinod Bhatt.</li> <li>• Maj Gen A.K. Chaturvedi</li> </ul>
2.	National Conference on Sustainable Infrastructure Development (NCSID 2014) by Chitkara University HP and NITTTR Chandigarh 13-14 March 2014	100	<ul style="list-style-type: none"> <li>• Dr. Achal Mittal</li> <li>• Er. Pramod Bhandari</li> <li>• Dr. A. K Gupta,</li> <li>• Dr. B.N Basu,</li> <li>• Dr. Naveen Kwatra,</li> <li>• Dr. H. S. Sharma,</li> <li>• Dr. Dipteek Parmar</li> <li>• Prof . A.K Duggal</li> <li>• Dr. Hemant Sood</li> <li>• Ms. Himmi Gupta</li> <li>• Prof. P.K Singla</li> <li>• Dr. Rakesh Wats</li> <li>• Dr. Ponam Sayal</li> </ul>

**31. *Code of ethics for research followed by the departments***

Department takes due care to ensure that researchers follow research ethics and avoid plagiarism at all cost. There is a University Research Ethics Committee (UREC) that reports to Doctoral Research Committee. Salient feature of the policy pertaining to abiding by ethics in research as laid down by UREC are as follows:-

### **Ethical behaviour: general guidance**

- Ethical behaviour includes openness as the norm, including information about methodology and findings, except on occasions when the funder or sponsor of the research lays down conditions about dissemination to which the researcher and his/her institution give their assent in advance.
- The principal investigators have a key stake in maintaining ethical conduct in their own research and in that of staff and students in their charge, including discipline-specific expertise and judgement of what is ethically appropriate in the field concerned.
- The research undertaken must be lawful, must comply with national legislation, and should seek to comply with all relevant national and international Codes of ethical practice, and with the Human Rights Act.
- The dissemination of research findings must be transparent and open to peer review and public comment where applicable. The findings must be presented honestly and accurately, should avoid the withholding of any material information, and should wherever possible be made accessible to non-specialists.
- Agreement by staff to enter into confidentiality clauses in whole or in part should be given only where strictly necessary; for example when commercial, security or personal data are involved, should wherever possible be time-limited, and should not lead to damage to the careers or lives of research workers or research participants.

### **Research misconduct**

The University, while anticipating that all its members will act ethically, nevertheless has safeguards in place for use in the event of alleged or actual research misconduct or malpractice, and to prevent corrupt practices and professional misconduct.

Misconduct and malpractice may include but is not limited to the following:

#### **(a) *Fabrication***

This may include the creation of (fictitious) data or other aspects of research, including documentation and participant consent.

#### **(b) *Falsification***

This may include inappropriate manipulation and/or selection of data, imagery and/or consent.

### **(c) *Misrepresentation***

This may include:

- misrepresentation of data, including undisclosed suppression of findings or data, or knowingly or negligently presenting flawed interpretation of data;
- undisclosed duplication of publication, including undisclosed duplicate submission of publications;
- misrepresentation of interests, including failure to declare interests of either the researcher or the funders of the research;
- misrepresentation of qualifications or experience which is not held;
- misrepresentation of involvement, such as inappropriate claims to authorship and/or attribution of work, or the denial of the same to others.

### **(d) *Plagiarism***

This is the unacknowledged and deceitful use of someone else's work. The offense is not confined to literary work but extends to artistic, musical, mechanical and other forms of publication. The definition includes:

- collusion, where a piece of work is prepared by a group (e.g. a research group) with the intention or expectation that it will be represented as if it were the exclusive work of only some members of the group (e.g. a principal investigator, a junior researcher);
- commissioning of work by a member of staff that is not his or her own but representing it as if it were, e.g. written by another person, whether a colleague, or a student whose work is submitted to the member of staff, or a person who is not a member of the university;
- misappropriation of work, including copying or paraphrasing, by a member of staff from another source (literary, artistic, musical, mechanical, etc.), whether in unpublished or published form (including electronic sources) of another person, without appropriate acknowledgement or, where appropriate, approval;
- duplication of existing or almost identical work by the staff member that is already in the public domain and claiming it to have a measure of originality that justifies further publication. The offence of plagiarism does not occur under this category where due acknowledgement of previous publication is made when the work is first submitted to be considered for publication, and in the subsequent publication.

***(e) Failure to manage and/or preserve data and primary materials***

This may include failing to ensure that relevant primary data and research evidence are preserved and accessible to others for reasonable periods after the completion of the research. Such conditions should also be applied where ownership of the data rests with third parties, for instance where there is commercial sponsorship of research.

***(f) Breach of duty of care in carrying out responsibilities for:***

- humans;
- animals used in research; and
- the environment.

This may involve deliberately, recklessly or by gross negligence:

- disclosing improperly the identity of individuals or groups involved in research without their consent or other breach of confidentiality;
- placing those involved in research in danger, whether as researchers, subjects, participants or associated individuals, including reputational danger where that can be anticipated, without their consent and without appropriate safeguards even with their consent;
- not taking all reasonable care to ensure that the risks and dangers, the broad objective and the sponsors of research are known to participants, or their legal representatives, to ensure appropriate informed consent and that this is obtained explicitly and transparently;
- failing to observe legal and reasonable requirements or obligations of care for animal subjects of research;
- failing to observe legal and reasonable requirements or obligations of care for the protection of the environment;
- improper conduct in peer review of applications or publications, including gross misrepresentation of the content of material, inadequate disclosure of clearly limited competence, or abuse of the material provided in confidence for peer review.

For the avoidance of doubt misconduct in research includes acts of omission as well as acts of commission.

Complaints and Disclosures, in conjunction with the procedures give safeguards to employees of the University who make a complaint or disclosure, including in matters relating to research.

**32. Student profile programme-wise (Current Academic Year):**

Name of the Programme	Applications Received	Selected		Pass percentage	
		Male	Female	Male	Female
B.E. (Civil Engineering)	About 500	113	7	-	-
Ph.D. (Civil Engineering)	2	2	-	-	-

**33. Diversity of students (Current Academic Year)**

Name of the Programme	% of students from the Same university	% of students from other Universities within the State	% of students from universities outside the State	% of students from other countries
B.E. (Civil Engineering)		45	50	5
Ph.D. (Civil Engineering)	-	-	100	-

**34. How many students have cleared Civil Services and Defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise.**

GATE	-	4
Defense Services	-	3
Civil Services	-	1
IELTS	-	6

**35. Student progression**

Student progression	Percentage against enrolled
UG to PG	10
PG to M.Phil.	-
PG to Ph.D.	-
Ph.D. to Post-Doctoral	-
Employed Campus selection	30
Employed Other than campus recruitment	10
Entrepreneurs	10



**36. Diversity of staff**

Department/ School	% of faculty from the same university	% of faculty from other Universities within the State	% of faculty from Universities outside the State	% of faculty from other countries
Civil Engineering	Nil	16	84	-

**37. Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period:** Nil

**38. Present details of departmental infrastructural facilities with regard to**

- a) **Library :** 500 Books
- b) **Internet facilities for staff and students:** 1 Gbps provided to all
- c) **Total number of class rooms:** 8
- d) **Class rooms with ICT facility:** 8
- e) **Students' laboratories** 10
- f) **Research laboratories** 1

**39. List of doctoral, post-doctoral students and Research Associates**

- a) **from the host institution/university** Nil
- b) **from other institutions/universities** 2

**40. Number of post graduate students getting financial assistance from the university.**  
Nil

**41. Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology.**

Yes, it was undertaken jointly with the industries which conducted placement drive on the campus. Based on inputs obtained, the University is planning to start a PG programme in Construction Planning and Management from the Academic Session 2015-16. The methodology adopted basically veered around discussions and obtaining verbal feedback.

**42. Does the department obtain feedback from**

**a. faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?**

Obtaining feedback from the faculty is ongoing process. The feedback is discussed in the faculty meetings and recommendations arrived at are put up before the Board of Studies for consideration. The Board of Studies, after

discussions, places its recommendations before the Academic Council for further action.

A record of teaching-learning-evaluation for each course is maintained by the course coordinators. The same is analysed and suitable measures are instituted, if required.

***b. students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?***

A formal system of obtaining feedback from the students has been instituted. The format for the same has already been explained and is attached at Annexure 3. The analyses from the feedback are discussed in the faculty meetings. In case required, suitable measures are taken within the Department. Issues related to policy matters are placed before the Board of Studies.

***c. alumni and employers on the programmes offered and how does the department utilize the feedback?***

The department is in constant touch with its alumni and their employers. All efforts are made to obtain the feedback from the alumni right from the day they attend convocation. The industries / companies who visit the campus for recruitment also form one of the major sources of feedback on the programmes offered by the department and need, if any, for modifications / refinement in the contents of the programmes. Representatives from the industry are members of the Board of Studies and also the Academic Council. They are regularly contacted to obtain their feedback. The feedback is discussed at length in the department before forwarding the recommendations to the Dean (Academics) for placing it before the authorities based on merit.

***43. List the distinguished alumni of the department (maximum 10)***

1. Karan Bhai
2. Parachi Vashishth
3. Divya Diwakar
4. Prateek
5. Ashish Verma
6. Sumit Jaiswal
7. Arun Thakur
8. Musab Ahmad Sofi

**44. Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts.**

- Expert Talk on “Urban Planning in India – A Paradigm Shift” was delivered by Ms Shobha Mishra, Director, FICCI on April 26, 2012.
- Expert Lecture on “Infrastructure Development and Making of the Bandra Worli Sea-Link” was delivered by Col. Satish Dewanji, G.M, Gammon on 30<sup>th</sup> April 2012.
- The training on Total Station Module was held on 14th - 15th March, 2012 by faculty from NITTTR Chandigarh.
- Training Programme on Non Destructive Testing of Concrete held from 29th February to 2nd March, 2013 by faculty from NITTTR Chandigarh.
- National conference on “Advances in Infrastructure Development”, was organised by the department on 11-12 October, 2012.
- National Conference on Sustainable Infrastructure Development (NCSID 2014) by the department on 13 -14 March, 2014
- Workshop on “Energy from Renewable/Nonconventional Sources“ organized on 10<sup>th</sup> October 2013. The programme was conducted by Major General (Retd) Ajay Kumar Chaturvedi, AVSM, VSM
- One day seminar on “Application of geoinformatics on civil engineering” was held on 16<sup>th</sup> November 2013 by Dr.C Prakasham
- Guest Lecture on Disaster Management by Prof. Chandan Ghosh, Ph.D.(IIT-K), Dr.Engg.(Ibaraki Univ., Japan), Professor & Head [GeoHazards], National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India in the Department Of Civil Engineering on 18th October 2014.
- Four days (15<sup>th</sup> -19<sup>th</sup> April, 2014) industry visit programme and lecture on “Aggregate and Concrete Test” was conducted by Ambuja Cement Limited, Sector 5, Panchkula.
- Five days lecture series (March 31 to April 4, 2014) on Construction Planning by Prof. Mika Lindholm from Helsinki Metropolia, Finland was organized by the department.
- Five days lecture series (March 31 to April 4, 2014) on Soil Mechanics and Geotechnical Engineering by Sanjay Kumar Shukla from ECU, Australia was organized by the department.
- Five days lecture series (March 31 to April 4, 2014) on Civil Engineering Materials by Prof. Yunlian Zhang from Zhejiang University of Science and Technology, China was organized by the department.

- Technical lecture on Aggregate and Concrete Testing was conducted by Ambuja Cement from April 15-18, 2014
- Workshop on “Disaster Management and Mitigation” was conducted by Prof. Chandan Ghosh on November 18, 2014
- Expert talk on “What to do outside the campus” was delivered by Mr. Pawan Solanki, Deakin University on January 12, 2015
- Workshop on “Ecological Imbalance and Himalyan Ecology” was conducted by Maj. Gen. A.K. Chaturvedi on January 22, 2015
- Civil Engineering Department Club (CIVINGS) organized competition “3-D Structure over the soap, SCRAP IT” on January 28, 2015
- Workshop on “Autodesk-Civil Engineering related Software” was conducted by Autodesk on February 6-7, 13-14, 20-21, 27-28, 2015

**45. *List the teaching methods adopted by the faculty for different programmes.***

- Lectures and tutorials
- Project based learning
- Discussions: through chat forums and also in classrooms
- Seminars
- Practical involving problem solving techniques
- Survey Camps
- Industrial Training
- Internships
- Educational Tours

**46. *How does the department ensure that programme objectives are constantly met and learning outcomes are monitored?***

- The programme educational objectives are aligned with the programme outcomes.
- Evaluation components are so designed that programme outcomes are achieved. The process is monitored continuously and documented as explained in Para 2.6.4 above.
- Continuous evaluation is put in place to evaluate the understanding of various aspects of Civil Engineering.
- Result analysis is performed after every evaluation components to identify scope of improvement / refinement in the curriculum.

**47. Highlight the participation of students and faculty in extension activities.**

Students are involved in various NSS activities which involve:

- Encouraging citizens to dig Rain Water Harvesting Pit to increase the level of ground water table,
- Encouraging and facilitating the planting of trees to reduce the pollution
- Designing the bio-waste pit for facilitating the Bio-Waste Management
- Discourage plastic usage.

Apart from regular studies, students actively participate in co-curricular and extra-curricular activities and are always in forefront in organizing the events time to time. Following events are held every year where students from the department participate with enthusiasm

- Techelone (Technical Fest)
- Algorythm (Cultural Fest)

Students also participate in other activities related to Institutional Social Responsibilities in nearby villages.

**48. Give details of “beyond syllabus scholarly activities” of the department.**

- The department strives to impart wholesome learning to students and in its effort to do so organises:-
  - Expert talks from eminent speakers from the Industry are organized on a regular basis. Global Engineering Week, where the eminent speakers from across the globe teach students for one week is a regular feature of the Department. Besides regular course content teaching the topics like “What to do outside the campus” are also covered by the eminent speakers.
  - Training programs and workshops are held for the students so that they are abreast with the industry standards, in the recent past the students of this department visited Sewerage Treatment Plant at Chandigarh, RMC Plant at Nalagarh, Cement Manufacturing Plant at Solan etc.
- The Department encourages students and staff to participate in various national and international conferences to present their work for which financial assistance is provided.
- Some of the “beyond syllabus scholarly activities” organised by the Department have already been covered under Para 44 above.

49. *State whether the programme/ department is accredited/ graded by other agencies? If yes, give details.*

The Department has just become eligible to apply for accreditation. It has, thus, applied for NAAC accreditation.

50. *Briefly highlight the contributions of the department in generating new knowledge, basic or applied.*

The Department has made a beginning to engage in serious research activities. In that direction a research centre known as **Geo-informatics and Building Technology Research Centre (GBTRC)** has been established. It is a Research Centre under the aegis of CURIN. The center focuses on state of the art engineering research and the key mission of the GBTRC is to conduct applied research in civil and environmental engineering. The major goal is to use the latest tools and techniques to come up with innovative research designs that can make life easier. In this perspective, research in advance engineering and technology, such as the use of Geographical Information System (GIS) and advanced remote sensing know-how, water resources research, building technology and new building material research in particular is of principal importance. The center provides an opportunity to pursue exploratory projects in diverse areas of engineering and brings together a team of dedicated researchers who push the limits to achieve the goals.

**Major Research Thrust Areas:**

- Remote sensing and GIS applications in Civil and Environmental Engineering
- Annual and seasonal change detection in crop patterns using satellite imagery
- Water Resources Engineering
- Geographical Information System (GIS)
- Remote Sensing
- Advance Surveying and Global Positioning System (GPS)
- Engineering Geomorphology and Geosciences
- Water Resource and Climatic Changes
- Disaster Management System
- Reclamation of polluted and receding ponds
- New construction material using industrial waste.
- Earthquake Engineering research
- Predicting ground water level and adulteration in ground water due to industrial waste using remote sensing and GIS technology.

**51. *Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.***

**Strengths**

- Qualified, committed and motivated faculty members
- Excellent ambience with state-of-art equipment in a sprawling campus.
- Pro-active approach of learning-by-doing. Emphases on higher order learning
- Good research culture having linkage with R&D organizations.
- Well established library with online access to journals and learning resources.
- Good campus placement record
- Excellent infrastructure with Campus-Wide-Networking through ERP solution (provided by Chalkpad) and wi-fi connectivity to the hostels.
- Well placed alumni in reputed industry and academic institutions across the globe.
- Increased availability of resources from advanced research labs.
- Memoranda of Understanding (MOUs) with industry, R&D centres, foreign universities.
- Centre for English Language Training (CELT) rendering services to students of rural background and the community at large.
- Established Industry-Institute hub enabling interaction between the Institute and Industry
- Research oriented faculty members who have submitted research project proposal to various funding agencies like DST.
- Faculties are having research publications in international and national journals
- Students are encouraged to pursue innovative projects.
- Ample opportunity for the students to participate and organise co-curricular activities.
- Award of scholarships to meritorious students

**Weaknesses**

- Shortage of senior and experienced faculty
- Limited financial support from funding agencies.
- Lack of good quality research scholars for doctoral programmes.
- Lack of fellowships and scholarships to attract eminent research scholars to promote research environment.

- University is located in the rural area, where the connectivity is limited. There is lack of essential amenities like good schools, shopping complex etc., which is discouraging for the faculty to stay on campus.

### **Opportunities**

- Faculty Development Programmes and other measures to enhance the skills and qualifications of the faculty
- Availability of industry base in surrounding areas, implying scope for collaboration in respect of staff exchange, student internships, joint consultancy and projects.
- Establishment of Incubation Centre.
- Improving quality of instruction by supplementing with e-learning.
- Institutionalizing services to community by making use of technology.
- Transforming research & development into patentable product.
- Utilizing strong alumni network in Institution building.
- Starting industry specific PG programmes.
- Availability of abundant space for horizontal expansion.

### **Challenges**

- Grooming the faculty to switch over from a teacher and examination centric approach to a learning centric approach.
- Generating adequate funds for research activities.
- Competition with the vast number of Universities/Colleges which have mushroomed in the recent years.
- Slow down of economy resulting in lesser employment opportunities in infrastructure sector.

### **52. *Future plans of the department.***

- To be a leading department of the University.
- Efforts will be to focus on intake of the students who are high in order of merit and their all round development.
- To start PG and Doctoral programmes in collaboration with industries.
- Expedite cases for research funding from government agencies.
- To file Patents of the research work undertaken in the department.



## ***Evaluative Report of the Computer Science and Engineering Department***

1. ***Name of the Department:*** Computer Science and Engineering
2. ***Year of establishment:*** 2008
3. ***Is the Department part of a School/Faculty of the university?*** Yes
4. ***Names of programmes offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., D.Sc., D.Litt., etc.)***  
B.E., M.E. and Ph.D.
5. ***Interdisciplinary programmes and departments involved:***  
At present only the programmes mentioned in Para 4 above are being conducted. However, an interdisciplinary flair is provided in research activities by carrying out research on topics related to Agile technology, Bioinformatics algorithms, Analysis of microarray gene expression and protein sequence/structure data to help fuel physiological information discovery and Social networking. In coming years formal undergraduate and postgraduate degree programmes in Biotechnology and Biomedical Engineering are planned to be introduced.
6. ***Courses in collaboration with other universities, industries, foreign institutions, etc.***  
At present the Department runs programmes with its own efforts. Requisite assistance is obtained from elite institutions like NITTTR, NITs. Short term academic visits programs are in place with the following universities:-
  - Glasgow Caledonian University - UK,
  - Qilu University of Technology - China,
  - Binus University - Indonesia,
  - Vancouver Island University - Canada,
  - Deakin University - Australia,
  - Soongsil University - Korea,
  - Korea University (Sejong Campus) - Korea
7. ***Details of programmes discontinued, if any, with reasons*** - Nil
8. ***Examination System: Annual/Semester/Trimester/Choice Based Credit System***  
At present continuous evaluation based semester system is adopted. However, as directed by the UGC from next Academic Year the University will adopt Choice Based Credit System.

**9. Participation of the department in the courses offered by other departments**

Teaching courses like Introduction to Programming Logic, Programming in C, Object Oriented Programming, Computer Networks and Data Structures to the other departments.

**10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/others)**

	<i>Sanctioned</i>	<i>Filled</i>	<i>Actual including CAS&amp; MPS</i>
<b>Computer Science Engineering</b>	<b>84</b>	<b>73</b>	<b>73</b>

**11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance**

Sr. No.	Name	Qualification	Designation	Specialization	Experience (in years)	No. of Ph.D. / M.phil. Students guided for last four years
1.	BHANU KAPOOR	<ul style="list-style-type: none"> <li>• Master and doctorate of engineering from Southern Methodist University, Dallas, Texas.</li> <li>• BE from IIT Kanpur</li> </ul>	Professor	<ul style="list-style-type: none"> <li>• Power management system</li> <li>• Rtl coding using spyglass predictive analysis</li> <li>• Optimization of clock gating using integrated circuit design</li> <li>• Generating and verifying isolation logic module in design of integrated circuits</li> <li>• Measuring activity in digital circuits</li> </ul>	15	10
2.	SUDHIR MAHAJAN	<ul style="list-style-type: none"> <li>• PhD from Panjab University, Chandigarh.</li> </ul>	Professor cum Dean R&D	<ul style="list-style-type: none"> <li>• More than 38 years of teaching experience.</li> <li>• Established computer centre at University of Horticulture and Forestry, Nauni.</li> <li>• Established GIS and Remote Sensing Lab and instrumentation centre in the University.</li> </ul>	38	-

3.	SUMEET DUA	<ul style="list-style-type: none"> <li>• PhD</li> <li>• M. Tech</li> </ul>	Professor	<ul style="list-style-type: none"> <li>• Publications in National &amp; International Journals / Conferences.</li> </ul>	15	10
4.	SANDEEP SACHDEVA	<ul style="list-style-type: none"> <li>• PhD</li> <li>• M. Tech</li> </ul>	Professor	<ul style="list-style-type: none"> <li>• Multiprocessor systems</li> </ul>	20	
5.	S N PANDA	<ul style="list-style-type: none"> <li>• PhD</li> <li>• M. Tech</li> </ul>	Professor	<ul style="list-style-type: none"> <li>• Computer Science</li> </ul>	15	
6.	PREETI AGGARWAL	<ul style="list-style-type: none"> <li>• PhD</li> <li>• M. Tech</li> </ul>	Professor	<ul style="list-style-type: none"> <li>• Computer Science</li> </ul>	14	
7.	ANUJ GUPTA	<ul style="list-style-type: none"> <li>• PhD.</li> <li>• M Tech</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Databases</li> </ul>	10	
8.	SACHIN AHUJA	<ul style="list-style-type: none"> <li>• PhD.</li> <li>• M Tech</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Computer Networking</li> </ul>	8	
9.	AMARINDER KAUR	<ul style="list-style-type: none"> <li>• Pursing PhD</li> <li>• M. Tech in Computer Science &amp; Engineering</li> <li>• B Tech in Computer Science &amp; Engineering</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Theory of computation</li> </ul>	8	
10.	SUDHA GOYAL	<ul style="list-style-type: none"> <li>• Ph.D.</li> <li>• M. Tech</li> <li>• AMIE</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Databases</li> </ul>	8	
11.	JAITEG SINGH	<ul style="list-style-type: none"> <li>• Ph.D.</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Computer Science</li> </ul>	7	
12.	AMITJOT SINGH	<ul style="list-style-type: none"> <li>• Ph.D.</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Computer Science</li> </ul>	7	
13.	GIRISH RAO	<ul style="list-style-type: none"> <li>• Post Graduation in Computer Science Engineering &amp; Applications</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Application development</li> </ul>	25	
14.	MONIKA SETHI	<ul style="list-style-type: none"> <li>• M Tech</li> <li>• B Tech</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Machine learning</li> <li>• Information Retervial</li> </ul>	9	

15.	VIDHU BAGGAN	<ul style="list-style-type: none"> <li>• M. Tech</li> <li>• B Tech</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Software Engineering</li> </ul>	10	
16.	PRASENJIT DAS	<ul style="list-style-type: none"> <li>• PhD in Data Mining (pattern matching)</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Data Mining and Security</li> </ul>	10	
17.	SAPNA SAXENA	<ul style="list-style-type: none"> <li>• PhD in Computer Science</li> <li>• M Tech in Computer Science</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Parallel Programming</li> <li>• Network Security</li> </ul>	13	1
18.	SHAILY JAIN	<ul style="list-style-type: none"> <li>• PhD in Computer Science</li> <li>• M Tech in Computer Science</li> <li>• B Tech</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Networking,</li> <li>• SoC</li> <li>• Database</li> </ul>	8.5	8
19.	ZEBA	<ul style="list-style-type: none"> <li>• Pursuing PhD in computer Science</li> <li>• M.Phil.</li> <li>• MCA</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Operating Systems</li> </ul>	8	
20.	TANU SHARMA	<ul style="list-style-type: none"> <li>• PhD</li> <li>• M.Tech in Computer Science &amp; Engineering from Jaypee Institute of Information Technology (JIITU), Noida</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Biotechnology Software</li> <li>• Embedded System,</li> </ul>	6.5	2
21.	DISHA	<ul style="list-style-type: none"> <li>• PhD in Computers</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Parallel Programming</li> <li>• Network Security</li> </ul>	7.5	
22.	VANITA JAITLEY	<ul style="list-style-type: none"> <li>• PhD in Data Mining (pattern matching)</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Data Mining</li> <li>• Social Network Analysis</li> </ul>	5	
23.	NEHA KISHORE	<ul style="list-style-type: none"> <li>• PhD</li> <li>• Masters in Computers from Punjabi University, Patiala</li> <li>• UGC Net qualified</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Parallel Programming</li> <li>• Network Security</li> </ul>	5.5	

24.	AJAY KUMAR	<ul style="list-style-type: none"> <li>• ME</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Agile Technology</li> </ul>	7.5	
25.	ANKITA TUTEJA	<ul style="list-style-type: none"> <li>• M Tech –CSE</li> <li>• B E – CSE</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Network Security</li> </ul>	2	
26.	JAGANDEEP SINGH	<ul style="list-style-type: none"> <li>• M Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Computer Programming</li> </ul>	8	
27.	PAVNEET KAUR	<ul style="list-style-type: none"> <li>• M Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Compiler Design</li> </ul>	6	
28.	GURDIP KAUR	<ul style="list-style-type: none"> <li>• M Tech</li> <li>• B E</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Compiler Design</li> </ul>	8	
29.	ASHOK KUMAR	<ul style="list-style-type: none"> <li>• Pursuing Ph.D.</li> <li>• M.Tech.</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Numerical analysis and Optimization</li> </ul>	6	
30.	CHANDANDEEP KAUR	<ul style="list-style-type: none"> <li>• M Tech</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Data Mining</li> </ul>	1.5	
31.	CHETAN SHARMA	<ul style="list-style-type: none"> <li>• M. Tech in Information Technology</li> <li>• B E - CSE</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Software Engineering</li> </ul>	7	
32.	GAURAV MEHTA	<ul style="list-style-type: none"> <li>• M. Tech in Computer Science and Engineering</li> <li>• B. Tech</li> <li>• Oracle Certified Professional (OCP) in ORACLE 9i as DBA (Database Administrator)</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Data Mining,</li> <li>• Computer Networks</li> </ul>	8.5	1
33.	MERRY SAXENA	<ul style="list-style-type: none"> <li>• Pursuing Ph.D</li> <li>• M Tech</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Wireless Sensor Networks</li> </ul>	12	
34.	GURJEET KAUR SAINI	<ul style="list-style-type: none"> <li>• MCA</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Computer Applications</li> </ul>	6	
35.	ADITI GOYAL	<ul style="list-style-type: none"> <li>• M Tech</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Computer Science &amp; Engineering</li> </ul>	7	

36.	HARSIMRAN KAUR	<ul style="list-style-type: none"> <li>• M Tech in Computer Science</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Wireless Sensor Networks</li> </ul>	2.5	
37.	BISHWAJEET KUMAR PANDAY	<ul style="list-style-type: none"> <li>• M Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Computer Sciene &amp; Engineering</li> </ul>	5	
38.	JATIN ARORA	<ul style="list-style-type: none"> <li>• M Tech</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Computer Sciene &amp; Engineering</li> </ul>	5	
39.	SARAVJEET SINGH	<ul style="list-style-type: none"> <li>• M Tech</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Computer Sciene &amp; Engineering</li> </ul>	5	
40.	JASPREET KAUR	<ul style="list-style-type: none"> <li>• Masters in Computer Application (MCA) [Honors] from Guru Nanak Dev University, Amritsar with Distinction</li> <li>• BCA [Honors] from Guru Nanak Dev University, Amritsar with Distinction</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Image Processing</li> </ul>	6	
41.	KARAN BAJAJ	<ul style="list-style-type: none"> <li>• M Tech in CSE</li> <li>• B Tech in Computer Science &amp; Engineering from Himachal Pradesh University</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Data Mining</li> <li>• Machine Learning</li> <li>• Network security</li> </ul>	5	
42.	MANI ARORA	<ul style="list-style-type: none"> <li>• M.E. in CSE from NITTTR, Chandigarh</li> <li>• B.Tech. in CSE with Honor's from Kurukshetra University</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Wireless network security.</li> </ul>	4	

43.	MANI SAHORE	<ul style="list-style-type: none"> <li>• M Tech –CSE</li> <li>• B E – CSE</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Agile Technology</li> </ul>	2.5	
44.	MANIK GUPTA	<ul style="list-style-type: none"> <li>• Masters' in Computer Science and Engineering from MMU, Maulana.</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Wireless censor network.</li> </ul>	4.5	3
45.	MANISH KUMAR	<ul style="list-style-type: none"> <li>• M. Tech (ICT) from Punjabi University, Patiala</li> <li>• B. Tech (CSE)</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Adhoc Networks</li> </ul>	2.5	
46.	ABHISHEK JAIN	<ul style="list-style-type: none"> <li>• M. Tech</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Computer Science</li> </ul>	5	
47.	DEEPINDER KAUR	<ul style="list-style-type: none"> <li>• ME</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Watermarking</li> <li>• Data Mining</li> </ul>	6	
48.	MUKESH KUMAR	<ul style="list-style-type: none"> <li>• M. Tech in Computer Science &amp; Engineering</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Computer Networks</li> <li>• Cryptography stenography</li> </ul>	5.6	
49.	NANDINI NAYAR	<ul style="list-style-type: none"> <li>• ME</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Software Engineering</li> </ul>	5	
50.	NEHA AGGARWAL	<ul style="list-style-type: none"> <li>• Pursing PhD in Requirement Engineering for web</li> <li>• Masters in Computers from Kurukshetra University</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Software Engineering</li> </ul>	6.5	
51.	NITIN GOYAL	<ul style="list-style-type: none"> <li>• M.E</li> <li>• BE</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Image Processing</li> </ul>	6	
52.	PREETI ANAND	<ul style="list-style-type: none"> <li>• M.E</li> <li>• BE</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Computer Network</li> </ul>	5	

53.	SHINA	<ul style="list-style-type: none"> <li>• M.E</li> <li>• BE</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Software Engineering</li> </ul>	3	
54.	PALAK MAKHIJA	<ul style="list-style-type: none"> <li>• M. Tech in Computer Science &amp; Engineering</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Software Engineering</li> </ul>	1.5	
55.	NEHA GUPTA	<ul style="list-style-type: none"> <li>• M.E</li> <li>• BE</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Networking</li> <li>• Image Processing</li> <li>• Database and software enginnering.</li> </ul>	8	
56.	POONAM	<ul style="list-style-type: none"> <li>• Masters in Computers</li> <li>• Bachelors in Computers</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Software Engineering</li> </ul>	3.5	
57.	RAJNI SHARDA	<ul style="list-style-type: none"> <li>• Masters in Computers from Punjab Technical University</li> <li>• Bachelors in Computers from Punjab University</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Software Engineering</li> </ul>	3	
58.	RINKU	<ul style="list-style-type: none"> <li>• Pursuing PhD</li> <li>• Masters in Computers from Maharshi Dayanand University, Rohtak</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Automata Theory and Computation</li> <li>• Software Engineering</li> </ul>	8	
59.	DEEPAK THAKUR	<ul style="list-style-type: none"> <li>• ME</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Software Engineering</li> <li>• Cloud computing</li> </ul>		
60.	ISHU SHARMA	<ul style="list-style-type: none"> <li>• ME</li> <li>• B E</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Software Engineering</li> </ul>		
61.	JAGPREET KAUR	<ul style="list-style-type: none"> <li>• ME</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Cloud computing</li> </ul>		
62.	SUNNY SINGH	<ul style="list-style-type: none"> <li>• ME</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Database and software enginnering.</li> </ul>		
63.	SURBHI HURIA	<ul style="list-style-type: none"> <li>• ME</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Database</li> </ul>		



64.	TANYA GERA	• ME • B Tech	Assistant Professor	• Image Processing		
65.	RESHAM ARYA	• ME • B Tech	Assistant Professor	• Networking		
66.	SHIVANI WADHWA	• ME • B Tech	Assistant Professor	• Database and software enginnering.	4	
67.	RUPALI GILL	• ME • B Tech	Assistant Professor	• Software Engineering	6	
68.	RISHU CHHABRA	• ME • B Tech	Assistant Professor	• Cloud computing	6	
69.	SHANKAR S AGGARWAL	• Masters in Computers • M.Sc. in Computer Science from Kurukshetra University	Assistant Professor	• Software Engineering • Cloud computing	5	
70.	SHIVANI GAUTAM	• Pursing PhD • Masters in Computers from Kurukshetra University	Assistant Professor	• Databases	9	
71.	VANDANA THAKUR	• M Tech in Computer Science • B Tech	Assistant Professor	• Database	8.5	
72.	A SANGEETHA	• M.Phill • MCA	Assistant Professor	• Numerical analysis and Optimization	10	
73.	MANPREET KAUR	• M Tech	Assistant Professor	• Computer Science	7	

**12. List of senior Visiting Fellows, adjunct faculty, emeritus professors**

- Prof Bill Mckenman, Dart Mouth College, USA
- Prof. Mark Yoder, Rose Hulam Institute of Technology, USA
- Prof. Navneet Goel, BITS, Pilani
- Mr. Pradeep Kumar, nVidia Technologies

**Faculty who visited and engaged a full fledged course under Global Engineering Week (GEW) –**

- Prof. Christophe Fournier from UM2, France
- Prof. Dana Sulistiyo Kusumo from Binus University, Indonesia
- Prof. Jeremy Pasquier from Sopra Group, France
- Prof. Sonia Hamnane from Binus University, Indonesia
- Prof. Joseph MOUZNA from ESIGELEC, Rouen, France
- Prof. Teuku Aulia Geumpana from BINUS International Jakarta, Indonesia
- Prof. Gang Li from Deakin University, Melbourne, Australia

**13. *Percentage of classes taken by temporary faculty – programme-wise information:***

4%

**14. *Programme-wise Student Teacher Ratio:*** 1:15

**15. *Number of academic support staff (technical) and administrative staff: sanctioned, filled and actual***

Staff	Sanctioned	Filled	Actual
Academic Support Staff (Technical)	20	20	20
Administrative Support Staff	40	40	40

**16. *Research thrust areas as recognized by major funding agencies***

- Multiprocessor systems on a chip design.
- Parallel Computing
- Network Security
- Wireless sensor networks
- Biotechnology
- Embedded systems
- Agile technology
- Social networking
- Security in data mining
- Web development
- Image processing
- Natural language processing
- Artificial intelligence
- Automata theory and computation
- Compiler design
- Microcontroller programming

- 17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise.**

The Department started functioning effectively with effect from 2009 when the first batch of BE students joined in their second year. Thus, at present only two batches have passed out. The faculty is in the process of preparing proposals for research activities and for sanction of grants for the same.

- 18. Inter-institutional collaborative projects and associated grants received**

**a) National collaboration** - Nil

**b) International collaboration** - Nil

- 19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received.**

At present nil, however, projects for grants which are in the advance stage of sanction are given below;

<b>Sr. No.</b>	<b>Name of Project</b>	<b>Sponsoring Agency</b>	<b>Grant Sought</b>
1.	Design a heterogeneous MPSoC (Multiprocessor System on a chip) system with a new replacement policy and low energy consumption for specialized embedded system applications(Submitted)	DST	Rs 14.47 Lacs

- 20. Research facility / centre with**

**State recognition** - Nil

**National recognition** - CUDA Teaching Center recognized by nVidia Technologies

**International recognition**

Research work done by the faculty of the department on parallel computing, computer networks, biotechnology, embedded systems, data mining has been recognised by International Conferences of repute.

- 21. Special research laboratories sponsored by / created by industry or corporate bodies**

➤ nVidia technologies has sponsored CUDA lab in department for research activities.

➤ CCNA lab for project work in the area of networking.

**22. Publications:**

- \* Number of papers published in peer reviewed journals (national / international):** 28
- \* Monographs :** Nil
- \* Chapters in Books:** Nil
- \* Edited Books :** Nil
- \* Books with ISBN with details of publishers –**

Publication (Books)-

- a) Chapters in Books: 7
- b) Books edited: Nil
- c) Books with ISBN with details of publishers: -1

Principle of Image Processing, ISBN – 9647978812726, Kalyani Publishers

**\* Number listed in International Database (For e.g. Web of Science, Scopus, Humanities International Complete, Dare Database - International Social Sciences Directory, EBSCO host, etc.)**

- \* Citation Index – range / average** 2- 30
- \* SNIP** -
- \* SJR** -
- \* Impact Factor – range / average (individual maximum)** - 2
- \* h-index (individual maximum)** 2

**23. Details of patents and income generated:** Nil

**24. Areas of consultancy and income generated:** Nil

**25. Faculty selected nationally / internationally to visit other laboratories / institutions / industries in India and abroad**

University sends faculty to visit other laboratories / institutions / industries in India and abroad regularly. Some of the Universities /Institutions / Industries visited by the faculty during the last few years are

- IITs at Mumbai, Delhi, Roorkee, Mandi
- SRM University, Chennai
- Thapar University, Patiala
- NITTR Chandigarh

- PEC University of Technology
- Infosys Technologies
- JUIT, Wagnaghat
- IIIT, Noida
- ITM University, Gurgaon

**26. Faculty serving in**

*a) National committees b) International committees c) Editorial Boards d) any other (please specify)*

S. No.	Faculty Name	Journal / Society Name	Capacity
1	Dr. Bhanu Kapoor	IEEE	Member
2	Dr. Sudhir Mahajan	Journal of Indian Society of Remote Sensing	Reviewer
3	Dr. Shaily Jain	Int. J. of Computer Applications in Technology, Int. J. of Computer Aided Engineering and Technology	Member of Reviewer Board
4	Dr. Shaily Jain, Mr. Sushil Bansal, Ms. Sapna Saxena	Computer Society of India	Member
5	Ms. Neha Kishore	ACM	Member

**27. Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs).**

Faculty development programs are conducted regularly by the Department which encompasses the following

- (a) Presentation by own faculty who had opportunity to attend any such type of workshop / training programme within the country or abroad.
- (b) Outside experts are also invited to train the faculty on latest updates in the field of Computer Science and Engineering.
- (c) Any faculty who presents a research paper / article at any national / international forum has to present the same to all faculty of the Department.

- (d) Department sponsors faculty to attend summer / winter school being organised by other institutions to keep themselves abreast with the latest know-how related to their fields.

Following activities have been conducted:-

HRD programmes	3
Orientation programmes	7
Staff training conducted by the university	10
Staff training conducted by other institutions	3
Summer/winter schools, workshops, etc.	10

**a. Student projects**

**b. percentage of students who have done in-house projects** 100%  
including inter-departmental projects

**c. percentage of students doing projects in collaboration** 100%  
with other universities /industry / institute

**28. Awards / recognitions received at the national and international level by**

**a. Faculty: 5**

- Mr Sushil Kumar Bansal – Bronze Level Faculty Award in 2013 from Infosys Ltd.
- Ms Sapna Saxena – Bronze Level Faculty Award in 2013 from Infosys Ltd.
- Dr. Shaily Jain - Bronze Level Faculty Award in 2014 from Infosys Ltd.
- Mr Rinku - Bronze Level Faculty Award in 2014 from Infosys Ltd.
- Mr Shankar Aggrawal - Bronze Level Faculty Award in 2014 from Infosys Ltd.

**b. Doctoral / post doctoral fellows:** Nil

**c. Students:** 09

S. No	Name of Students	Name of Project	National and International Recognition
1	Kush Dhawan, Sahil David, Avinash, Anirudh Duggal	Agricultural project	4 <sup>th</sup> position in Imagine Cup by Microsoft Inc.
2	Abhishek Sharma, Akhil Kumar Dharni, Sahil David, Sunit Rana	Mobile App for Chandigarh Administration	1 <sup>st</sup> prize in Code for Chandigarh Contest
3	Nishima Arora	Crime Against women	3 <sup>rd</sup> prize in SAP Lumira Contest

**29. Seminars / Conferences / Workshops organized and the source of funding (national international) with details of outstanding participants, if any.**

Details of workshop conducted by the department in the University from its own resources are given below;

<b>Sr. No.</b>	<b>Name of the Faculty/ Speakers of workshop</b>	<b>Name of workshop</b>	<b>Date of workshop</b>
1	Prof. Bill McKeeman	Compiler Design using MATLAB by IUCEE	28 <sup>th</sup> June- 2 <sup>nd</sup> July, 2010
2	Mr. Prateek Bhatia	Advanced DBMS and its implementation using Oracle	15-16 <sup>th</sup> June-2011
3	Dr. Archana Mantri	Project Based Learning	6 <sup>th</sup> August-2011
4	Prof. Andrej Rucinski	IUCEE workshop on Globally relevant Electrical and Computer Technology Curriculum	8 <sup>th</sup> August- 9 <sup>th</sup> August, 2011
5	Mr. Ankit Fadia	Workshop on Ethical Hacking	7 <sup>th</sup> April-2012
6	Prof. C.P. Ravikumar.	ARM Architecture	7 <sup>th</sup> - 9 <sup>th</sup> July-2012
7	Sadanand Gulawadi	National Workshop on “ARM Architecture and Design”	5 <sup>th</sup> – 7 <sup>th</sup> July-2012
8	Bharat , Manish Bali	National Workshop on “Parallel Programming using CUDA”	30 <sup>th</sup> July- 1 <sup>st</sup> Aug 2012
9	Prof Sumeet Dua	Data Mining	14 <sup>th</sup> -18 <sup>th</sup> July, 2014
10	Gaurav Mehta, Sapna Saxena, Ankita Tuteja, Neha Kishor	Cyber Crime	13 <sup>th</sup> -14 <sup>th</sup> Dec, 2014

**30. Code of ethics for research followed by the departments**

Department takes due care to ensure that researchers follow research ethics and avoid plagiarism at all cost. There is a University Research Ethics Committee (UREC) that reports to Doctoral Research Committee. Salient feature of the policy pertaining to abiding by ethics in research as laid down by UREC are as follows:-

### **Ethical behaviour: general guidance**

- Ethical behaviour includes openness as the norm, including information about methodology and findings, except on occasions when the funder or sponsor of the research lays down conditions about dissemination to which the researcher and his/her institution give their assent in advance.
- The principal investigators have a key stake in maintaining ethical conduct in their own research and in that of staff and students in their charge, including discipline-specific expertise and judgement of what is ethically appropriate in the field concerned.
- The research undertaken must be lawful, must comply with national legislation, and should seek to comply with all relevant national and international Codes of ethical practice, and with the Human Rights Act.
- The dissemination of research findings must be transparent and open to peer review and public comment where applicable. The findings must be presented honestly and accurately, should avoid the withholding of any material information, and should wherever possible be made accessible to non-specialists.
- Agreement by staff to enter into confidentiality clauses in whole or in part should be given only where strictly necessary; for example when commercial, security or personal data are involved, should wherever possible be time-limited, and should not lead to damage to the careers or lives of research workers or research participants.

### **Research misconduct**

The University, while anticipating that all its members will act ethically, nevertheless has safeguards in place for use in the event of alleged or actual research misconduct or malpractice, and to prevent corrupt practices and professional misconduct.

Misconduct and malpractice may include but is not limited to the following:

#### **(a) *Fabrication***

This may include the creation of (fictitious) data or other aspects of research, including documentation and participant consent.

#### **(b) *Falsification***

This may include inappropriate manipulation and/or selection of data, imagery and/or consent.



### **(c) *Misrepresentation***

This may include:

- misrepresentation of data, including undisclosed suppression of findings or data, or knowingly or negligently presenting flawed interpretation of data;
- undisclosed duplication of publication, including undisclosed duplicate submission of publications;
- misrepresentation of interests, including failure to declare interests of either the researcher or the funders of the research;
- misrepresentation of qualifications or experience which is not held;
- misrepresentation of involvement, such as inappropriate claims to authorship and/or attribution of work, or the denial of the same to others.

### **(d) *Plagiarism***

This is the unacknowledged and deceitful use of someone else's work. The offense is not confined to literary work but extends to artistic, musical, mechanical and other forms of publication. The definition includes:

- collusion, where a piece of work is prepared by a group (e.g. a research group) with the intention or expectation that it will be represented as if it were the exclusive work of only some members of the group (e.g. a principal investigator, a junior researcher);
- commissioning of work by a member of staff that is not his or her own but representing it as if it were, e.g. written by another person, whether a colleague, or a student whose work is submitted to the member of staff, or a person who is not a member of the university;
- misappropriation of work, including copying or paraphrasing, by a member of staff from another source (literary, artistic, musical, mechanical, etc.), whether in unpublished or published form (including electronic sources) of another person, without appropriate acknowledgement or, where appropriate, approval;
- duplication of existing or almost identical work by the staff member that is already in the public domain and claiming it to have a measure of originality that justifies further publication. The offence of plagiarism does not occur under this category where due acknowledgement of previous publication is made when the work is first submitted to be considered for publication, and in the subsequent publication.

***(e) Failure to manage and/or preserve data and primary materials***

This may include failing to ensure that relevant primary data and research evidence are preserved and accessible to others for reasonable periods after the completion of the research. Such conditions should also be applied where ownership of the data rests with third parties, for instance where there is commercial sponsorship of research.

***(f) Breach of duty of care in carrying out responsibilities for:***

- humans;
- animals used in research; and
- the environment.

This may involve deliberately, recklessly or by gross negligence:

- disclosing improperly the identity of individuals or groups involved in research without their consent or other breach of confidentiality;
- placing those involved in research in danger, whether as researchers, subjects, participants or associated individuals, including reputational danger where that can be anticipated, without their consent and without appropriate safeguards even with their consent;
- not taking all reasonable care to ensure that the risks and dangers, the broad objective and the sponsors of research are known to participants, or their legal representatives, to ensure appropriate informed consent and that this is obtained explicitly and transparently;
- failing to observe legal and reasonable requirements or obligations of care for animal subjects of research;
- failing to observe legal and reasonable requirements or obligations of care for the protection of the environment;
- improper conduct in peer review of applications or publications, including gross misrepresentation of the content of material, inadequate disclosure of clearly limited competence, or abuse of the material provided in confidence for peer review.

For the avoidance of doubt misconduct in research includes acts of omission as well as acts of commission.

Complaints and Disclosures, in conjunction with the procedures give safeguards to employees of the University who make a complaint or disclosure, including in matters relating to research.

31. *Student profile programme-wise:*

Name of the Programme (refer to question no. 4)	Applications Received	Selected		Pass percentage	
		Male	Female	Male	Female
B.E.(CSE)	1500	227	96	-	-

32. *Diversity of students*

Name of the Programme (refer to question no. 4)	% of students from the same university	% of students from other universities within the State	% of students From Universities outside the State	% of students from other countries
B.E.(CSE)	Nil	30	70	-

33. *How many students have cleared Civil Services and Defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise*

University is gathering the exact number of students who have cleared various competitive examinations. But on the basis of existing information following students have cleared the competitive exams as mentioned below :

**GATE - 20**

- Gursleen Kaur
- Paras Vij
- Richa Goyal
- Manpreet Singh
- Dhruv Sharma
- Himanshu Misra
- Kanwal preet Singh
- Ashish Sharma
- Archana
- Preetika Sharma
- Kartik Prakash
- Vandana dhiman
- Snigdha Agarwal
- Amanpreet

- Shilpa
- Monika Yadav
- Abhinav Shukla
- Love Dhaka
- Anjali Vashista
- Shweta

#### **GRE, IELTS and TOEFEL - 62**

- |                    |                  |
|--------------------|------------------|
| • Nishant Angaria  | IELTS            |
| • Dhruv Bhatia     | GRE              |
| • Aashish Passi    |                  |
| • Abhinav Mohanty  | GRE, TOEFL       |
| • Varun Khanna     | GRE, IELTS       |
| • Priyanka Gautam  | GRE, TOEFL       |
| • Karan Bajaj      | GRE              |
| • Akhil Saini      | IELTS, TOEFL     |
| • Shweta           | IELTS, GATE      |
| • Vaidant Singh    | GRE, TOEFL       |
| • Saurabh Adhir    | GRE              |
| • Deepak Lamba     | IELTS, GMAT      |
| • Himanshu Misra   | GRE, GATE, TOEFL |
| • Hanish Goel      | GRE, IELTS       |
| • Dixit Thareja    | IELTS            |
| • Iqbal Singh      | GRE, IELTS       |
| • Nikhil Suri      | IELTS            |
| • Abhishek Gautam  | GRE, TOEFL       |
| • Shifa Chaudhary  | GRE, TOEFL       |
| • Aditi Miglani    | TOEFL, GMAT      |
| • Yogesh Gupta     | GRE, TOEFL       |
| • Rishabh Walia    | GRE, IELTS       |
| • Sonal Atreja     | GRE              |
| • Akash Deep Singh | IELTS            |
| • Ankit Chhabra    | IELTS, 7.5       |
| • Nupur Mittal     | GRE              |
| • Karandeep Singh  | IELTS            |
| • Arushi Chawla    | GRE, TOEFL       |
| • Abhishek Jain    | GRE, TOEFL       |

- Garima Chauhan GRE, TOEFL
  - Arun Sharma IELTS
  - Chandan Bagai GRE, TOEFL
  - Harsimran Singh IELTS
  - Anirudh Syal IELTS
  - Anik Ralhan IELTS
  - Henna GRE, TOEFL
  - Aashish Malhotra TOEFL, GMAT
  - Amitinder Pal Singh IELTS
  - Ashmeet Arora GRE, TOEFL
  - Navita Goel GRE
  - Sagar Suri IELTS
  - Mohit Girdher IELTS
  - Akashdeep Singh Mann IELTS
  - Anirudh duggal GRE, TOEFL
  - Chirag Bhatia IELTS
  - Anupam Bahl GRE, TOEFL
  - Amritpal singh GRE, IELTS
  - Rohit Ahuja IELTS
  - Kushank Bhanot GRE
  - Dev Robin Chaudhary IELTS, Oracle Certified professional
  - Vipul Sharma GRE, TOEFL
  - Prabhjot Kaur IELTS, GMAT
  - Gitansh Sharda IELTS
  - Nikit kapoor IELTS
  - Gurdev Singh IELTS
  - Venus sharma IELTS
  - Kritika Moudgill GRE, TOEFL
  - Manveer IELTS
  - Amneet IELTS
  - Kapil IELTS
  - Mayank IELTS
  - Pritpal Singh GRE, IELTS
- CAT - 15**
- Ishan Mahajan
  - Lovaditya Raghu

- Sumit Arya
- Kaushik Handoo
- Ankush Goyal
- Kartik Prakash
- Supriya Pathania
- Vitasta Solanki
- Ashmit Kaushal
- Sumit Mahajan
- Parul Yadav
- Ashish Grover
- Shagun Gupta
- Animesh Sharma
- Anmol Chaudhary

**34. Student progression**

<i>Student progression</i>	<i>Percentage against enrolled (Approximately)</i>
UG to PG	10
PG to M.Phil.	-
PG to Ph.D.	-
Ph.D. to Post-Doctoral	-
Employed	
Campus selection	80
Other than campus recruitment	5
Entrepreneurs	2

**35. Diversity of staff**

<i>Percentage of faculty who are graduates of the same university</i>	<i>Nil</i>
From other universities within the State	40%
From universities from other States	60%
From universities outside the country	Nil

**36. Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period:**

4

**37. Present details of departmental infrastructural facilities with regard to**

- (a) **Library:** The department Library is well equipped with reference books and resources in the form of CD-ROMs, On-line databases, audio video cassettes,

e-journals, patents, e-standards, thesis, reports, monographs etc. Total number of books: 500.

(b) **Internet facilities for staff and students:** All the faculty members are provided with laptops along with 1 Gbps internet with Wi-Fi Connectivity at the time of taking classes. However all students do possess their own laptops and use the internet facility provided by the University.

(c) **Total number of class rooms:** 24

(d) **Class rooms with ICT facility:** 24

(e) **Students' laboratories:** 09

(f) **Research laboratories:** 02

38. **List of doctoral, post-doctoral students and Research Associates**

a) **from the host institution/university:** 03

b) **from other institutions/universities:** Nil

39. **Number of post graduate students getting financial assistance from the university:**

15

40. **Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology.**

Nil

41. **Does the department obtain feedback from**

(a) **Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?**

Obtaining feedback from the faculty is ongoing process. The feedback is discussed in the faculty meetings and recommendations arrived at are put up before the Board of Studies for consideration. The Board of Studies, after discussions, places its recommendations before the Academic Council for further action.

A record of teaching-learning-evaluation for each course is maintained by the course coordinators. The same is analysed and suitable measures are instituted, if required.

(b) **Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?**

A formal system of obtaining feedback from the students has been instituted. The format for the same has already been explained and is attached at Annexure 3. The analyses from the feedback are discussed in the faculty meetings. In case required, suitable measures are taken within the Department. Issues related to policy matters are placed before the Board of Studies.

**(c) Alumni and employers on the programmes offered and how does the department utilize the feedback?**

The department is in constant touch with its alumni and their employers. All efforts are made to obtain the feedback from the alumni right from the day they attend convocation. The industries / companies who visit the campus for recruitment also form one of the major sources of feedback on the programmes offered by the department and need, if any, for modifications / refinement in the contents of the programmes. Representatives from the industry are members of the Board of Studies and also the Academic Council. They are regularly contacted to obtain their feedback. The feedback is discussed at length in the department before forwarding the recommendations to the Dean (Academics) for placing it before the authorities based on merit.

**42. List the distinguished alumni of the department (maximum 10)**

Mr Rohit Gupta – Developer Google India

Mr Abhishek Sharma – Developer Amazon Technologies Ltd.

Mr Rajat Chopra – Doing Masters in I.T from University of North Carolina

Mr Avinash - Entrepreneur

Ms Ojaswee Sharma- Film making

Mr Anirudh Duggal – Developer Infosys technologies

Ms. Aarushi – Doing M.S. in University of Chicago

Ms. Garima Chauhan- Doing M.S. From University of Texas

Ms. Japneet Kaur - Developer Infosys technologies

Mr. Aayush Sharma – Developer in Newgen Technologies

**43. Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts.**

<b>Title</b>	<b>End Date</b>	<b>Resource Person</b>
Workshop on Ethical Hacking	7 <sup>th</sup> April-2012	Mr. Ankit Fadia
Workshop on Parallel Programming	5 <sup>th</sup> August 2010	Mr. Hesham F. Abdul Basit

**44. List the teaching methods adopted by the faculty for different programmes.**

- Lectures and tutorials
- Project based learning
- Discussions: through chat forums and also in classrooms



- Seminars
- Practical involving problem solving techniques
- Industrial Training
- Internships
- Educational Tours

**45. *How does the department ensure that programme objectives are constantly met and learning outcomes are monitored?***

- The programme educational objectives are aligned with the programme outcomes.
- Evaluation components are so designed that programme outcomes are achieved. The process is monitored continuously and documented as explained in Para 2.6.4 above.
- Continuous evaluation is put in place to evaluate the understanding of various aspects of Computer Science and Engineering.
- Result analysis is performed after every evaluation components to identify scope of improvement / refinement in the curriculum.

**46. *Highlight the participation of students and faculty in extension activities.***

In order to serve the humanity and alleviate suffering through counseling and good works, students are encouraged to participate in outreach programs conducted by the Department such as visits to Orphanage, Old Age Home, activities carried by NSS Unit etc.

Students are involved in various NSS activities which involve:

- Encouraging citizens to dig Rain Water Harvesting Pit to increase the level of ground water table,
- Encouraging and facilitating the planting of trees to reduce the pollution
- Designing the bio-waste pit for facilitating the Bio-Waste Management
- Discourage plastic usage.

Apart from regular studies, students actively participate in co-curricular and extra-curricular activities and are always in forefront in organizing the events time to time. Following events are held every year where students from the department participate with enthusiasm

- Techelone (Technical Fest)
- Algorythm (Cultural Fest)

Students also participate in other activities related to Institutional Social Responsibilities in nearby villages.

**47. Give details of “beyond syllabus scholarly activities” of the department.**

- Courses on soft skills, general aptitude and technical aptitude are taught to all students.
- Add on programs are conducted by the Department to equip the students with skills required by Industries.
- Seminars and workshops are arranged to improve the technical skills of the students and to make them aware of current technology.
- Through the MoUs with Industries, Eminent Personalities from Industry are brought to give hands – on training on the technologies the Industries presently uses.

**48. State whether the programme/ department is accredited/ graded by other agencies? If yes, give details.**

Yes, nVIDIA has awarded internationally recognized CTC status to the department.

**49. Briefly highlight the contributions of the department in generating new knowledge, basic or applied.**

The Department has made a beginning to engage in serious research activities. In that direction a research centre known as Research Centre for Advances in Computer Science (RCACS). It comprises of a group of people working together with an aim to lead the centre to the highest in research perspective. This research group deals with a variety of issues, concepts, methods and techniques associated with Computer Science. Research centre tackles difficult real-world problems that often have high impact on industry, commerce and the public. It involves a shared ethos of "computing in the world" in which fundamental advances in Computer Science are connected to knowledge and methods from other disciplines to enable deep collaborations with research users in diverse sectors. The research centre comprises of a number of research oriented people covering many sub-disciplines of Computer Science. Research undertaken covers a diverse range of interdisciplinary areas, informs our teaching and has strong links with industry. **Major Research Thrust Areas:**

- Security in wireless networks
- Memory customization in MPSoC
- Data mining technologies
- Bioinformatics algorithms.
- Analysis of microarray gene expression and protein sequence/structure data to help fuel physiological information discovery.

- Parallel Computing, Network Security, Web Application Development
- Machine Learning.
- Cloud computing
- Software engineering
- Human computer interaction

**50. *Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.***

**Strengths**

- Qualified, committed and motivated faculty members
- Excellent ambience with state-of-art equipment in a sprawling campus.
- Pro-active approach of learning-by-doing. Emphases on higher order learning
- Good research culture having linkage with R&D organizations.
- Well established library with online access to journals and learning resources.
- Good campus placement record
- Excellent infrastructure with Campus-Wide-Networking through ERP solution (provided by Chalkpad) and wi-fi connectivity to the hostels.
- Well placed alumni in reputed industry and academic institutions across the globe.
- Increased availability of resources from advanced research labs.
- Memoranda of Understanding (MOUs) with industry, R&D centres, foreign universities.
- Centre for English Language Training (CELT) rendering services to students of rural background and the community at large.
- Established Industry-Institute hub enabling interaction between the Institute and Industry
- Research oriented faculty members who have submitted research project proposal to various funding agencies like DST.
- Faculties are having research publications in international and national journals
- Students are encouraged to pursue innovative projects.
- Ample opportunity for the students to participate and organise co-curricular activities.
- Award of scholarships to meritorious students

### **Weaknesses**

- Shortage of senior and experienced faculty
- Limited financial support from funding agencies.
- Lack of good quality research scholars for doctoral programmes.
- Lack of fellowships and scholarships to attract eminent research scholars to promote research environment.
- University is located in the rural area, where the connectivity is limited. There is lack of essential amenities like good schools, shopping complex etc., which is discouraging for the faculty to stay on campus.

### **Opportunities**

- Faculty Development Programmes and other measures to enhance the skills and qualifications of the faculty
- Availability of industry base in surrounding areas, implying scope for collaboration in respect of staff exchange, student internships, joint consultancy and projects.
- Establishment of Incubation Centre.
- Improving quality of instruction by supplementing with e-learning.
- Institutionalizing services to community by making use of technology.
- Transforming research & development into patentable product.
- Utilizing strong alumni network in Institution building.
- Starting industry specific PG programmes.
- Availability of abundant space for horizontal expansion.

### **Challenges**

- Grooming the faculty to switch over from a teacher and examination centric approach to a learning centric approach.
- Generating adequate funds for research activities.
- Competition with the vast number of Universities/Colleges which have mushroomed in the recent years.
- Slow down of economy resulting in lesser employment opportunities in infrastructure sector.

### **51. Future plans of the department.**

- To register a good number of patents.
- To obtain a good number of external agencies funded projects.
- Expose our students to various programmes that are held in other institutions / industries in India and abroad.
- To organize international conferences and symposiums.

## ***Evaluative Report of the Electronics & Communication Engineering Department***

1. ***Name of the Department:*** Electronics & Communication Engineering
2. ***Year of establishment:*** 2009
3. ***Is the Department part of a School/Faculty of the university?*** Yes
4. ***Names of programmes offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., D.Sc., D.Litt., etc.)***
  - B.E. (Electronics & Communication Engineering)
  - M.E (Micro Electronics)
  - Ph.D. (Electronics & Communication Engineering)
5. ***Interdisciplinary programmes and departments involved:***

At present only the programmes mentioned in Para 4 above are being conducted. However, an interdisciplinary flair is provided in research activities by carrying out research on topics related to Assessment of Seasonal snow cover changes using CVA based on change detection algorithm over topographically corrected North Indian Himalayan, Deposition and Characterization of DLC thin films for low K Dielectric applications, Design of Low Frequency LNA for neurological applications.
6. ***Courses in collaboration with other universities, industries, foreign institutions, etc.***

At present the Department runs programmes with its own efforts. Requisite assistance is obtained from elite institutions like NITTTR, NITs. Short term academic visits programs are in place with the following universities:-

  - Glasgow Caledonian University - UK,
  - Qilu University of Technology - China,
  - Binus University - Indonesia,
  - Vancouver Island University - Canada,
  - Deakin University - Australia,
  - Soongsil University - Korea,
  - Korea University (Sejong Campus) - Korea
7. ***Details of programmes discontinued, if any, with reasons:*** Nil
8. ***Examination System: Annual/Semester/Trimester/Choice Based Credit System***

At present continuous evaluation based semester system is adopted. However, as directed by the UGC from next Academic Year the University will adopt Choice Based Credit System.

**9. Participation of the department in the courses offered by other departments**

Teaching courses like Basics of Electrical Engineering, Basics of Electronics Engineering, Digital Electronics & Logic Design, Microprocessor Theory and Applications and Computer Networks to the other departments.

**10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/others)**

	<b><i>Sanctioned</i></b>	<b><i>Filled</i></b>	<b><i>Actual including CAS&amp; MPS</i></b>
<b><i>Electronics &amp; Communication Engineering</i></b>	<b><i>60</i></b>	<b><i>52</i></b>	<b><i>52</i></b>

**11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance**

<b>Sr. No.</b>	<b>Name</b>	<b>Qualification</b>	<b>Designation</b>	<b>Specialization</b>	<b>Experience (in years)</b>	<b>No. of Ph.D. / M.phil. Students guided for last four years</b>
1.	RAJNISH SHARMA	• Ph.D. in Electronic Science from Kurukshetra University	Professor cum Dean	Microelectronics	15	Guiding 1Ph.D., 2 M.E Students
2.	INDERJIT SINGH HUDIARA	• Ph.D. • ME	Professor	Microelectronics	32	
3.	ARCHANA MANTRI	• Ph.D. • M Tech	Professor	Analog Electronics	23	
4.	SHEIFALI GUPTA	• Ph.D. • M Tech	Professor	Communication System	14	
5.	NITIN KUMAR SALUJA	• Ph.D. • ME	Associate Professor	Microelectronics	6	

6.	ANKIT KHURANA	<ul style="list-style-type: none"> <li>• ME</li> <li>• B Tech</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Signal Processing and Automation</li> </ul>	8	
7.	HARSH SOHAL	<ul style="list-style-type: none"> <li>• PhD.</li> <li>• M Tech</li> </ul>	Associate Professor	Microelectronics	9	
8.	LIPIKA GUPTA	<ul style="list-style-type: none"> <li>• Pursuing PhD</li> <li>• ME- ECE</li> <li>• B Tech</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Digital Signal Processing</li> </ul>	12.5	
9.	MAMATHA SANDHU	<ul style="list-style-type: none"> <li>• Pursuing PhD</li> <li>• ME- ECE</li> <li>• B Tech</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Electromagnetism</li> </ul>	12	
10.	ANU SINGLA	<ul style="list-style-type: none"> <li>• Pursuing PhD</li> <li>• ME- ECE</li> <li>• B Tech</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Electronics and Electrical Engineering</li> </ul>	15	
11.	AARTI BANSAL	<ul style="list-style-type: none"> <li>• Pursuing PhD</li> <li>• ME</li> <li>• B Tech-ECE</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Microprocessors</li> <li>• Computer System Architecture</li> <li>• Digital System Design</li> <li>• Optical Fiber Communication</li> <li>• Image Processing</li> </ul>	10	
12.	ARRIK KHANNA	<ul style="list-style-type: none"> <li>• Pursuing PhD</li> <li>• ME</li> <li>• B Tech-ECE</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Electronics and Electrical Machines</li> </ul>	5	
13.	AJAYPAL SINGH DHILLON	<ul style="list-style-type: none"> <li>• ME in VLSI &amp; CAD from Thapar University Patiala.</li> <li>• B Tech- ECE</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• VLSI &amp; CAD</li> </ul>	3.5	
14.	AMIT MONGA	<ul style="list-style-type: none"> <li>• ME in Electronics &amp; Communication Engineering from University Institute Of Engineering &amp; Technology, Panjab University</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Control System &amp; Digital Design</li> </ul>	4.5	

15.	ANSHU SHARMA	<ul style="list-style-type: none"> <li>• M.Tech in Micro-Electronics &amp; VLSI Design from Kurukshetra University</li> <li>• B Tech-ECE</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• MEMS</li> <li>• Microelectronics &amp; VLSI Design</li> </ul>	4.5	
16.	ASHU TANEJA	<ul style="list-style-type: none"> <li>• M Tech-ECE from Thapar University</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Wireless Communication</li> <li>• Signal processing</li> </ul>	4	
17.	DHRITI DUGGAL	<ul style="list-style-type: none"> <li>• ME</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• VLSI design</li> </ul>	1.5	
18.	HARPREET KAUR	<ul style="list-style-type: none"> <li>• M E-ECE</li> <li>• Post Graduate in Microelectronic s Engineering</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• VLSI &amp; Microelectronics</li> </ul>	14.5	
19.	HIMANI	<ul style="list-style-type: none"> <li>• M E- ECE</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Wireless Communication</li> </ul>	9.5	
20.	JASMINE KAUR BOPARAI	<ul style="list-style-type: none"> <li>• M Tech from Guru Nanak Dev Engineering College, Ludhiana</li> <li>• B Tech-ECE</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Communication</li> </ul>	3.5	
21.	LUBNA RAIS	<ul style="list-style-type: none"> <li>• ME – ECE</li> <li>• B Tech-ECE from UPTU</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• ECE</li> </ul>	4	
22.	MANISHA AGGARWAL	<ul style="list-style-type: none"> <li>• M Tech in Nano Science and Technology</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Nano-electronics</li> </ul>	2.5	
23.	MINAXI DASSI	<ul style="list-style-type: none"> <li>• M E</li> <li>• BE</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• RF Microelectronics &amp; microprocessors</li> </ul>	12	



24.	MONIKA PARMAR	<ul style="list-style-type: none"> <li>• ME in Communication Systems Engineering from GNDU, Amritsar</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Communication Systems</li> </ul>	6.5	
25.	NEERAJ KUMAR	<ul style="list-style-type: none"> <li>• ME Electronics and Communication Engineering from UIET</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Embedded Systems</li> <li>• Microcontrollers</li> </ul>	4.5	
26.	PARUL SAINI	<ul style="list-style-type: none"> <li>• ME in Electrical and Electronics Engineering from National Institute of Technology, Hamirpur</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• DSP</li> <li>• Biomedical Instrumentation</li> </ul>	4.5	
27.	RUPINDER JAWANDA	<ul style="list-style-type: none"> <li>• ME - Instrumentation and Control from NITTR, Chandigarh</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Microcontrollers, Computer Networks</li> </ul>	3.5	
28.	SANDHYA SHARMA	<ul style="list-style-type: none"> <li>• ME - ECE</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Analog and Digital Communication</li> </ul>	5.5	
29.	DEEPTI PRIT KAUR	<ul style="list-style-type: none"> <li>• ME - ECE</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Wireless Communication</li> </ul>	9	
30.	HARSIMRAN JIT KAUR	<ul style="list-style-type: none"> <li>• Pursuing Ph.D</li> <li>• ME - ECE</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Wireless Communication</li> </ul>	7	
31.	GURJINDER KAUR	<ul style="list-style-type: none"> <li>• ME - ECE</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Wireless Communication</li> </ul>	5	
32.	RUPINDER KAUR	<ul style="list-style-type: none"> <li>• M Tech</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• VLSI design</li> </ul>	2	

33.	SUKHRAJ SINGH	<ul style="list-style-type: none"> <li>• Masters in Instrumentation Engineering from Panjab University Chandigarh</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Instrumentation and control</li> </ul>	3.5	
34.	VARUN PATIAL	<ul style="list-style-type: none"> <li>• M Tech</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• VLSI design</li> </ul>	5	
35.	TAPAS SHARMA	<ul style="list-style-type: none"> <li>• ME</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• ECE</li> </ul>	7	
36.	GARIMA TURAN	<ul style="list-style-type: none"> <li>• ME – ECE</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Micro Electronics</li> </ul>	1	
37.	SWATI SINGH	<ul style="list-style-type: none"> <li>• M Tech</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Micro Electronics</li> </ul>	1	
38.	GUNJEET KAUR	<ul style="list-style-type: none"> <li>• ME - ECE</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Micro Electronics</li> </ul>	1	
39.	ISHA GUPTA	<ul style="list-style-type: none"> <li>• ME - ECE</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Micro Electronics</li> </ul>	1	
40.	TAJINDER PAL SINGH	<ul style="list-style-type: none"> <li>• ME - ECE</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Wireless Communication</li> <li>• Digital Image Processing/ VHDL</li> </ul>	1	
41.	NISHTHA ATLAS	<ul style="list-style-type: none"> <li>• ME - ECE</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Micro Electronics</li> </ul>	1	
42.	RAKESH KUMAR	<ul style="list-style-type: none"> <li>• ME - ECE</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Micro Electronics</li> </ul>	1	
43.	SAKSHI RANA	<ul style="list-style-type: none"> <li>• ME - ECE</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Wireless Communication</li> </ul>	1	
44.	AMIT KUMAR	<ul style="list-style-type: none"> <li>• ME - ECE</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Micro Electronics</li> </ul>	1	

45.	DIVYA SHARMA	<ul style="list-style-type: none"> <li>• ME - ECE</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Micro Electronics</li> </ul>		
46.	KAVITA GOSWAMI	<ul style="list-style-type: none"> <li>• ME - ECE</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Micro Electronics</li> </ul>		
47.	KRITI ARORA	<ul style="list-style-type: none"> <li>• ME - ECE</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Micro Electronics</li> </ul>		
48.	PARAMVIR SINGH	<ul style="list-style-type: none"> <li>• ME - ECE</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Micro Electronics</li> </ul>		
49.	RUBINA DUTTA	<ul style="list-style-type: none"> <li>• ME - ECE</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Micro Electronics</li> </ul>		
50.	SARTAJVIR SINGH	<ul style="list-style-type: none"> <li>• ME - ECE</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Digital and satellite Image Processing</li> </ul>	3.5	
51.	SHAMINDER KAUR	<ul style="list-style-type: none"> <li>• ME - ECE from NITTR, Chandigarh</li> <li>• B Tech</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Electronics devices</li> <li>• Microprocessors</li> <li>• Microcontrollers</li> <li>• Microprocessors</li> <li>• Microcontrollers</li> </ul>	3.5	
52.	SHIVENDU PRASHAR	<ul style="list-style-type: none"> <li>• M Tech</li> <li>• B Tech</li> </ul>	Assistant Professor	Fibre Optics Communication & sensors	5.5	

**12. List of senior Visiting Fellows, adjunct faculty, emeritus professors**

Dr. C. P. Ravi Kumar, Texas Instruments

Mr. Hitesh Garg, nXP Semiconductors

Mr. Sadanand Gulwadi, ARM Technologies

Mr. Pradeep Kumar, nVidia Technologies

**Faculty who visited and engaged a full fledged course under GEW –**

Prof. Mike JOHNSTONE from Edith Cowan University, Perth, Australia

Prof. Arja Ristola from Helsinki Metropolia, Helsinki, Finland

Prof. Lenin Gopal from Curtin University, Sarawak Malaysia

Prof. Alin Tissan from Anglia Ruskin University, UK

Prof. Romain Rossi from ESIGELEC, France

Prof. Thierry Baills from Helsinki Metropolia, Finland

Prof. Raji Sundararajan from Purdue University, USA

**13. Percentage of classes taken by temporary faculty – programme-wise information**

4%

**14. Programme-wise Student Teacher Ratio**

1:15

**15. Number of academic support staff (technical) and administrative staff: sanctioned, filled and actual**

Staff	Sanctioned	Filled	Actual
Administrative staff (Technical)	10	10	10
Administrative support staff	30	30	30

**16. Research thrust areas as recognized by major funding agencies**

- Assessment of Seasonal snow cover changes using CVA based on change detection algorithm over topographically corrected North Indian Himalayan.
- Deposition and Characterization of DLC thin films for low K Dielectric applications
- Design of Low Frequency LNA for neurological applications

**17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise.**

There is no ongoing funded research project. However, a DST project worth grant of about Rs. 11 Lacs completed in 2011.

Proposals for following research projects have been submitted:

- Security in wireless networks
- Memory customization in MPSoC

**18. Inter-institutional collaborative projects and associated grants received**

**a) National collaboration** - Nil

**b) International collaboration** - Nil at present, however, a case for funding of a research project has been applied under DST – ANR scheme in collaboration with Prof. Constant Nieman from ESIGELEC, France

**19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received.**

As explained earlier one DST sponsored project, entitled “Investigations aimed at producing DLC films with broad range of dielectric constant and extremely low stress values” has been completed. Further, projects for grants which have been completed / are in the advance stage of sanction are given below;

<b>Name of Project</b>	<b>Sponsoring Agency</b>	<b>Grant Sought</b>
Assessment of Seasonal snow cover changes using CVA based on change detection algorithm over topographically corrected North Indian Himalayan	ISRO	Being submitted.

**20. Research facility / centre with**

- a. state recognition -** Nil
- b. national recognition -** Nil
- c. international recognition-** Nil

**21. Special research laboratories sponsored by / created by industry or corporate bodies**

- Texas Instruments Laboratory
- ARM Laboratory
- NXP Semiconductors Laboratory
- RS Components Design Laboratory

**22. Publications:**

- \* Number of papers published in peer reviewed journals (national / international):** 27
- \* Monographs:** - Nil
- \* Chapters in Books:** - Nil
- \* Edited Books** -
  - Book of Innovation Electronic System Design Projects, edited by Dr. C P Ravikumar, Texas Instruments

- Proceedings of VDAT 2010, edited by Dr. C P Ravikumar
- \* ***Books with ISBN with details of publishers -***
  - Text book on Solid State Electronic Devices, by Dr. Rajnish Sharma,  
Publisher - Oxford University Publications
- \* ***Number listed in International Database (For e.g. Web of Science, Scopus, Humanities International Complete, Dare Database - International Social Sciences Directory, EBSCO host, etc.)***
- \* ***Citation Index – range / average***
- \* ***SNIP***
- \* ***SJR***
- \* ***Impact Factor – range / average***     1-5
- \* ***h-index (individual maximum)***     4
- 23. ***Details of patents and income generated:***                      Nil
- 24. ***Areas of consultancy and income generated:*** Nil
- 25. ***Faculty selected nationally / internationally to visit other laboratories / institutions / industries in India and abroad***

Dr. Rajnish Sharma participated in various conferences organized by ASEE, GEDC and IUCEE in years 2009, 2012, 2013 and 2014. During 2013 he visited various US universities like Michigan State University, Purdue University, University of Wisconsin Milwaukee, Rose Hulman Institute of Technology and Northern Illinois University, Chicago.

In addition to above faculty visits other laboratories / institutions / industries in India and abroad regularly. Some of the Universities /Institutions / Industries visited by the faculty during the last few years are;

- IITs at Mumbai, Delhi, Roorkee, Mandi
- Thapar University, Patiala
- NITTR Chandigarh
- PEC University of Technology

**26. Faculty serving in**

**a) National committees b) International committees c) Editorial Boards d) any other (please specify)**

S.No.	Faculty Name	Journal / Committee Name	Capacity
1.	Dr. Rajnish Sharma	Journal On Today's Ideas - Tomorrow's Technologies	Editor
2.	Dr. Rajnish Sharma	Global Engineering Deans' Council	Member
3.	Dr. Rajnish Sharma	Applied Surface Science	Reviewer
4.	Dr. Rajnish Sharma	Thin Solid Films	Reviewer
5.	Dr. Rajnish Sharma	Surface Coatings and Technologies	Reviewer
6.	Dr. Rajnish Sharma	Journal of Non Crystalline Solids	Reviewer
7.	Dr. Rajnish Sharma	Journal of Physics and Chemistry of Solids	Reviewer
8.	Ms. Minaxi Dassi	ISTE	Member
9.	Mr. Sartajvir Singh	ISTE	Member
10.	Mr. Sartajvir Singh	Punjab Science Congress	Member

**27. Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs).**

Faculty development programs are conducted regularly by the Department which encompasses the following

- Presentation by own faculty who had opportunity to attend any such type of workshop / training programme within the country or abroad.
- Outside experts are also invited to train the faculty on latest updates in the field of Civil Engineering.
- Any faculty who presents a research paper / article at any national / international forum has to present the same to all faculty of the Department.
- Department sponsors faculty to attend summer / winter school being organised by other institutions to keep themselves abreast with the latest know-how related to their fields.

Following events have been held:-

- Faculty development program on “Microelectronics Circuits”, organized by Chitkara University on 10<sup>th</sup> Feb 2012.

- FDP on “ABET Processes” by Dr. R.S. Grewal organized Chitkara University, Himachal Pradesh on 1<sup>st</sup> February, 2012.
- 3<sup>rd</sup> General Orientation Program organized by Chitkara University, Punjab during 18<sup>th</sup> July to 22<sup>nd</sup> July 2011.
- Faculty Interaction Program on ‘Patents filling Discussion with Patent Attorney’s’ by Chitkara University, Himachal Pradesh on 12<sup>th</sup> November, 2014.
- Faculty Interaction Program with Dr. Pramod Vohra from Norther Illinois University, USA on ‘Research areas and opportunities in US’ by Chitkara University, Himachal Pradesh on 11<sup>th</sup> November, 2014.
- Faculty Interaction Program with Dr. C.P. Ravi kumar from Texas Instruments, India at Chitkara University, Punjab on 31<sup>st</sup> May, 2014.
- Faculty development program on “Writing an effective Research Proposal”, organized by Chitkara University at HP campus on 19<sup>th</sup> may 2012.
- Faculty development program on “Reading, Writing and Reviewing a Research Paper”, organized by Chitkara university on 19<sup>th</sup> May 2012.
- National Workshop on ‘MATLAB : An Interactive environment for signal processing’ organized by Chitkara University, H.P during 25th July,2011 to 26th July, 2011
- Workshop on “VLSI Design using Cadence tools” by Chitkara University, H.P on 5<sup>th</sup> June- 8<sup>th</sup> June 2011
- Workshop on “ARM NXP Processor” by ARM Bangalore by Chitkara University, H.P in December 2011.
- Workshop on ‘Big Data by Prof. Sumit Dua organized by Chitkara University, Baddi(H.P) during 14th July- 17th July, 2014
- Workshop on “embedded Linux on Beagle Board” organized by Chitkara University, H.P from 18<sup>th</sup> June to 20<sup>th</sup> June 2012.
- 14<sup>th</sup> VLSI Design and Test Symposium (VDAT-2010) held at Chitkara University, HP from 7<sup>th</sup> july to 9<sup>th</sup> july, 2010.
- Workshop on ‘Globally relevant Electrical and Computer Technology Curriculum’ at Chitkara University, Himachal Pradesh from 8<sup>th</sup> to 9<sup>th</sup> August, 2011
- ARM workshop on NxpLPCxpresso cortex microcontrollers on 22<sup>nd</sup> February, 2014, CU, HP.
- Short Term course on “VLSI thorough ICT” organized by NITTTR from 10<sup>th</sup> March to 14<sup>th</sup> March 2014.



### *Student projects*

- a. *percentage of students who have done in-house projects including inter-departmental projects:* 100%
- b. *percentage of students doing projects in collaboration with other universities industry / institute:* 100%

### *28. Awards / recognitions received at the national and international level by*

#### *(a) Faculty*

<b>Sr. No.</b>	<b>Name of Award</b>	<b>Faculty Name</b>	<b>Awarding Organization</b>	<b>Year</b>
1.	“1 <sup>st</sup> position in best paper presentation” for the research paper (RPP-37) entitled ‘Proceedings’ of RAMEMS-2011: National Workshop on Advances in Micro-Electro-Mechanical Systems, March 07-09, 2011	Ms Anshu Sharma	National Workshop on Advances in Micro-Electro-Mechanical Systems, March 07-09, 2011	2011
2.	Best paper for “Advanced Computing and Communication Technologies” (ICACCT-2012).	Ms Himani Chugh	IEEE Computer Society Chapter Delhi Section and IETE-India at Asia Pacific Institute of Information Technology SD India, Panipat (Haryana) on 3rd November 2012	2012

#### *(b) Doctoral / post doctoral fellows:* Nil

#### *(c) Students:*

- **Kartikey Manchanda, Himani Guleria, Parul Bhutani, Ankita Malhotra, Pooja, Nupur, Karan Sharma** won 1st prize in satellite designing by NASA, at IIT Delhi in 2012.
- **Kartikey Manchanda** a brilliant student got various merit positions. His achievements are listed below:
  - Won 3rd Prize in Robotron, IIT Bombay, 2011
  - Won 2nd Prize with Karan Sharma in Robotryst, IIT DELHI 2012
  - Won Certification by Cypress Semiconductor in PSOC Development, IIT Bombay, 2013

- **Nilesh Khanna** won Consolation Prize In PCB Design Competition Organized By RS Components, Bangalore
- **Daksh Raj Chopra, Akshay Ahuja, Phalguni** won 3<sup>rd</sup> Prize in Metalmine Competition held at IIT, Delhi in Year 2013

**29. Seminars / Conferences/Workshops organized and the source of funding (national international) with details of outstanding participants, if any.**

S. No.	Name of the Event	Conference /Workshop / Seminar	Date	Resource Person
1	14th VLSI design and Test Symposium (VDAT 2010)	Conference	7th to 9th July, 2010	1. Dr. C.P. Ravikumar, Secretary, VLSI, Texas Instruments India. 2. Bhanu Kapoor, 3. Dr. N.S.Murty, Director of New Business Initiatives, NXP Semiconductors, Bangalore. 4. Santanu Chattopadhyay, Associate Professor, Electronics & Electrical Communication Engineering, IIT Kharagpur 5. Milind Phadtare, Principal Engineer at NXP Semiconductor, Bangalore.
2	“MATLAB: An interactive environment for Signal Processing”	Seminar & Workshop	25 <sup>th</sup> to 26 <sup>th</sup> July, 2011	Dr. Kulbir Singh & Dr. Swapna Devi
3	Globally relevant Electrical and Computer Technology Curriculum	Seminar & Workshop	8 <sup>th</sup> to 9 <sup>th</sup> August, 2011	
4	IETE Vertical Seminar on GSM Technologies	Seminar	27th Jan 2012	
5	IETE Workshop on DSP	Workshop	9th to 10th Feb 2012	
6	ABET Processes	Workshop	11th Feb, 2012	

7	VLSI Design Using Cadence tools	Workshop	5th to 8th June 2012	Mr. Suresh Kumar, Mr. Arpit Midha
8	Embedded Linux on Beagleboard	Workshop	18th to 20th June 2012	Prof. Mark Yoder
9	ARM Architecture and Design	Workshop	4th to 5th July 2012	
10	Workshop on PSOC	Workshop	8th to 10th Aug 2012	
11	ICT based Workshop on Robotics	Workshop	26-30 <sup>th</sup> August, 2013	Faculty from NITTTR Chandigarh
12	Nxp LPCxpresso Workshop	Workshop	22nd Feb, 2014	
13	ICT Based online Program on VLSI Design	Workshop	10-14 <sup>th</sup> March, 2014	Faculty from NITTTR Chandigarh

### **30. Code of ethics for research followed by the departments**

Department takes due care to ensure that researchers follow research ethics and avoid plagiarism at all cost. There is a University Research Ethics Committee (UREC) that reports to Doctoral Research Committee. Salient feature of the policy pertaining to abiding by ethics in research as laid down by UREC are as follows:-

#### **Ethical behaviour: general guidance**

- Ethical behaviour includes openness as the norm, including information about methodology and findings, except on occasions when the funder or sponsor of the research lays down conditions about dissemination to which the researcher and his/her institution give their assent in advance.
- The principal investigators have a key stake in maintaining ethical conduct in their own research and in that of staff and students in their charge, including discipline-specific expertise and judgement of what is ethically appropriate in the field concerned.
- The research undertaken must be lawful, must comply with national legislation, and should seek to comply with all relevant national and international Codes of ethical practice, and with the Human Rights Act.

- The dissemination of research findings must be transparent and open to peer review and public comment where applicable. The findings must be presented honestly and accurately, should avoid the withholding of any material information, and should wherever possible be made accessible to non-specialists.
- Agreement by staff to enter into confidentiality clauses in whole or in part should be given only where strictly necessary; for example when commercial, security or personal data are involved, should wherever possible be time-limited, and should not lead to damage to the careers or lives of research workers or research participants.

### **Research misconduct**

The University, while anticipating that all its members will act ethically, nevertheless has safeguards in place for use in the event of alleged or actual research misconduct or malpractice, and to prevent corrupt practices and professional misconduct.

Misconduct and malpractice may include but is not limited to the following:

#### **(a) *Fabrication***

This may include the creation of (fictitious) data or other aspects of research, including documentation and participant consent.

#### **(b) *Falsification***

This may include inappropriate manipulation and/or selection of data, imagery and/or consent.

#### **(c) *Misrepresentation***

This may include:

- misrepresentation of data, including undisclosed suppression of findings or data, or knowingly or negligently presenting flawed interpretation of data;
- undisclosed duplication of publication, including undisclosed duplicate submission of publications;
- misrepresentation of interests, including failure to declare interests of either the researcher or the funders of the research;
- misrepresentation of qualifications or experience which is not held;
- misrepresentation of involvement, such as inappropriate claims to authorship and/or attribution of work, or the denial of the same to others.

***(d) Plagiarism***

This is the unacknowledged and deceitful use of someone else's work. The offense is not confined to literary work but extends to artistic, musical, mechanical and other forms of publication. The definition includes:

- collusion, where a piece of work is prepared by a group (e.g. a research group) with the intention or expectation that it will be represented as if it were the exclusive work of only some members of the group (e.g. a principal investigator, a junior researcher);
- commissioning of work by a member of staff that is not his or her own but representing it as if it were, e.g. written by another person, whether a colleague, or a student whose work is submitted to the member of staff, or a person who is not a member of the university;
- misappropriation of work, including copying or paraphrasing, by a member of staff from another source (literary, artistic, musical, mechanical, etc.), whether in unpublished or published form (including electronic sources) of another person, without appropriate acknowledgement or, where appropriate, approval;
- duplication of existing or almost identical work by the staff member that is already in the public domain and claiming it to have a measure of originality that justifies further publication. The offence of plagiarism does not occur under this category where due acknowledgement of previous publication is made when the work is first submitted to be considered for publication, and in the subsequent publication.

***(e) Failure to manage and/or preserve data and primary materials***

This may include failing to ensure that relevant primary data and research evidence are preserved and accessible to others for reasonable periods after the completion of the research. Such conditions should also be applied where ownership of the data rests with third parties, for instance where there is commercial sponsorship of research.

***(f) Breach of duty of care in carrying out responsibilities for:***

- humans;
- animals used in research; and
- the environment.

This may involve deliberately, recklessly or by gross negligence:

- disclosing improperly the identity of individuals or groups involved in research without their consent or other breach of confidentiality;
- placing those involved in research in danger, whether as researchers, subjects, participants or associated individuals, including reputational danger where that

can be anticipated, without their consent and without appropriate safeguards even with their consent;

- not taking all reasonable care to ensure that the risks and dangers, the broad objective and the sponsors of research are known to participants, or their legal representatives, to ensure appropriate informed consent and that this is obtained explicitly and transparently;
- failing to observe legal and reasonable requirements or obligations of care for animal subjects of research;
- failing to observe legal and reasonable requirements or obligations of care for the protection of the environment;
- improper conduct in peer review of applications or publications, including gross misrepresentation of the content of material, inadequate disclosure of clearly limited competence, or abuse of the material provided in confidence for peer review.

For the avoidance of doubt misconduct in research includes acts of omission as well as acts of commission.

Complaints and Disclosures, in conjunction with the procedures give safeguards to employees of the University who make a complaint or disclosure, including in matters relating to research.

**31. Student profile programme-wise:**

<i>Name of the Programme</i>  <i>(refer to question no. 4)</i>	<i>Applications Received</i>	<i>Selected</i>		<i>Pass percentage</i>	
		<i>Male</i>	<i>Female</i>	<i>Male</i>	<i>Female</i>
B.E.(ECE)	150	33	10	-	-

**32. Diversity of students**

<i>Name of the Programme</i> <i>(refer to question no. 4)</i>	<i>% of students from the same university</i>	<i>% of students from other universities within the State</i>	<i>% of students from universities outside the State</i>	<i>% of Students From Other Countries</i>
B.E.(ECE)	Nil	40	60	Nil

33. *How many students have cleared Civil Services and Defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise.*

**GATE-13**

Vishal Narula  
Akshdeepika  
Anirudh  
Mansi  
Amardeep  
Rupali  
Gandham Sneha Sai  
Kanika Bindal  
Akhilesh Pakhloo  
Varul Jain  
Jyoti Rani  
Sahil Bhusri  
Garima Gupta

**GRE, IELTS and TOEFEL – 23**

Deepak Kumar	IELTS
Sahil Walia	GRE, IELTS
Dhiraj Kumar	IELTS
Arshdeep Singh	TOEFL
Kushal Sood	IELTS
Tarun Mahani	IELTS
Surbhi Devgan	GRE, TOEFL
Nishant Saini	IELTS
Sahil Kapoor	GRE
Juhi Arora	IELTS
Aakarshan	IELTS
Harmanjot Kaur	IELTS
Chirag Sharma	GRE, IELTS
Amandeep Singh Hira	IELTS
Avichal Chum	GRE, TOEFL
Meru	IELTS
Jitin Gambhir	GRE
Naina Khanna	GRE, IELTS, TOEFL
Surmeet Singh	IELTS
Jatin Tiwari	GRE

Kartikey Manchanda	GRE, IELTS, TOEFL, VCE-CIA
Akshay Suri	GRE, TOEFL
Chitvan Raja	IELTS

#### **CAT - 14**

Megha Bajaj  
 Rohan Kapoor  
 Ankur Madaan  
 Rajat Sachar  
 Rohit Dhanda  
 Akash Attri  
 Nikhil Jassal  
 Gaurav Chawla  
 Kanika Gargish  
 Manila Gupta  
 Akanksha Sharma  
 Shalin Garg  
 Garima Gupta  
 Harshita

#### **34. Student progression**

<i>Student progression</i>	<i>Percentage against enrolled</i>
UG to PG	5
PG to M.Phil.	-
PG to Ph.D.	-
Ph.D. to Post-Doctoral	-
Employed	
Campus selection	70
Other than campus recruitment	10
Entrepreneurs	2

#### **35. Diversity of staff**

Percentage of faculty who are graduates of the same university	5
From other universities within the State	3%
From universities from other States	92%
From universities outside the country	Nil



36. *Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period :* Nil
37. *Present details of departmental infrastructural facilities with regard to*
- a) *Library:* State of the art departmental library with selected reference books and e-learning material. Total number of books - 600
  - b) *Internet facilities for staff and students:* Available to all round the clock
  - c) *Total number of class rooms:* 12
  - d) *Class rooms with ICT facility:* All 12 classrooms are equipped with state of the art audio video facilities
  - e) *Students' laboratories:* Fully equipped 11 Laboratories
  - f) *Research laboratories:* 1
38. *List of doctoral, post-doctoral students and Research Associates from the host institution/university: 01*  
 Ms. Lipika Gupta (Doctoral)
- from other institutions/universities: 02*  
 Mr. Sartajvir Singh  
 Mr. Shivendu Prashar
39. *Number of post graduate students getting financial assistance from the university:*  
 Nil
40. *Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology:* NA
41. *Does the department obtain feedback from faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?*
- (a) *Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?*
- Obtaining feedback from the faculty is ongoing process. The feedback is discussed in the faculty meetings and recommendations arrived at are put up before the Board of Studies for consideration. The Board of Studies, after discussions, places its recommendations before the Academic Council for further action.
- A record of teaching-learning-evaluation for each course is maintained by the course coordinators. The same is analysed and suitable measures are instituted, if required.

***(b) Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?***

A formal system of obtaining feedback from the students has been instituted. The format for the same has already been explained and is attached at Annexure 3. The analyses from the feedback are discussed in the faculty meetings. In case required, suitable measures are taken within the Department. Issues related to policy matters are placed before the Board of Studies.

***(c) Alumni and employers on the programmes offered and how does the department utilize the feedback?***

The department is in constant touch with its alumni and their employers. All efforts are made to obtain the feedback from the alumni right from the day they attend convocation. The industries / companies who visit the campus for recruitment also form one of the major sources of feedback on the programmes offered by the department and need, if any, for modifications / refinement in the contents of the programmes. Representatives from the industry are members of the Board of Studies and also the Academic Council. They are regularly contacted to obtain their feedback. The feedback is discussed at length in the department before forwarding the recommendations to the Dean (Academics) for placing it before the authorities based on merit.

***42. List the distinguished alumni of the department (maximum 10)***

Mr. Kartikey Manchanda

Mr. Nitish Parnami

Mr. Paras Gosain

Ms. Neena Virdi

Mr. Pradeep Kumar

Mr. Anirudh Sharma

Mr. Rajat Goel

Mr. Anant Yadhuvanshi

Mr. Jaideep Chaudhary

Ms. Manisha Kansal

Ms. Shivya Pathania

43. Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts.

Sr.No	Expert Person	Date	Name of faculty attended the Special lecture/expert lecture
1	Workshop/ Talk by HCL	December 3, 2011 from 11 AM - 12:30 PM	All Faculty members & Students
2	Expert talk on Digital Signal Processing by Dr. Amod Kumar	9th-10th Feb, 2012	ECE 2nd and 3rd Year students
3	A Session with Patent Attorney	12th November, 2014	<b>Batch-2012</b> 1. Abhishek sharma 2. Navneet Arora 3. Himanshu gupta 4. Geetika Sood 5. Abhijit Singh 6. Karandeep singh 7. Rohit pathania 8. Sai ganesh 9. Munish verma 10. Ishita 11. Priyanka Mittal 12. Aarti kanwar 13. Tushar Tathgur 14. Chetan kataria
			<b>Batch-2013</b> 1. Nilesh Khanna 2. Sourabh Awasthi 3. Punit Jain 4. Aniket Bhardwaj 5. Raghav 6. Ranjan 7. Abhijit 8. Aprajita 9. Atish 10. Nishesh Mehta 11. Sajal 12. Ridhi Jain 13. Vivek Khanna 14. Pulkit

4	Drug De-Addiction by Dr. Sanidhya Verma from P.G.I.M.E.R.	17th September, 2014	All students
5	Expert talk on “RS Design Spark Community” By Mandeep Goel (IETE Student club activity)	5th September, 2014	Open for all
6	Industry professionals from Bangalore	1st Feb, 2014	Batch-2011 CSE & ECE
7	Interactive Session with Mr. Pardeep Kumar (Nxp Semiconductors) and Ms. Neena Viridi (ON semiconductors)	8th July, 2014	Batch 2011 ECE & Batch 2013 ECE

**44. List the teaching methods adopted by the faculty for different programmes.**

- Lectures and tutorials
- Project based learning
- Discussions: through chat forums and also in classrooms
- Seminars
- Practical involving problem solving techniques
- Industrial Training
- Internships
- Educational Tours

**45. How does the department ensure that programme objectives are constantly met and learning outcomes are monitored?**

- The programme educational objectives are aligned with the programme outcomes.
- Evaluation components are so designed that programme outcomes are achieved. The process is monitored continuously and documented as explained in Para 2.6.4 above.
- Continuous evaluation is put in place to evaluate the understanding of various aspects of Computer Science and Engineering.
- Result analysis is performed after every evaluation components to identify scope of improvement / refinement in the curriculum.

**46. *Highlight the participation of students and faculty in extension activities.***

In order to serve the humanity and alleviate suffering through counseling and good works, students are encouraged to participate in outreach programs conducted by the Department such as visits to Orphanage, Old Age Home, activities carried by NSS Unit etc.

Students are involved in various NSS activities which involve:

- Encouraging citizens to dig Rain Water Harvesting Pit to increase the level of ground water table,
- Encouraging and facilitating the planting of trees to reduce the pollution
- Designing the bio-waste pit for facilitating the Bio-Waste Management
- Discourage plastic usage.

Apart from regular studies, students actively participate in co-curricular and extra-curricular activities and are always in forefront in organizing the events time to time. Following events are held every year where students from the department participate with enthusiasm

- Techelone (Technical Fest)
- Algorythm (Cultural Fest)

Students also participate in other activities related to Institutional Social Responsibilities in nearby villages.

**47. *Give details of “beyond syllabus scholarly activities” of the department.***

- Courses on soft skills, general aptitude and technical aptitude are taught to all students.
- Add on programs are conducted by the Department to equip the students with skills required by Industries.
- Seminars and workshops are arranged to improve the technical skills of the students and to make them aware of current technology.
- Through the MoUs with Industries, Eminent Personalities from Industry are brought to give hands – on training on the technologies the Industries presently uses.
- Participation of students and faculty mentors in Design Contests by different Industries
- Organizing Quiz Technical/General under the student chapter of IETE

- Seminars on the latest technology topics of Electronics and Communication engineering
- Hands on training and Workshops for students as well as faculty.

**48. *State whether the programme/ department is accredited/ graded by other agencies? If yes, give details.***

The Department has just become eligible to apply for accreditation. It has, thus, applied for NAAC accreditation.

**49. *Briefly highlight the contributions of the department in generating new knowledge, basic or applied.***

The Department has made a beginning to engage in serious research activities. Suitably equipped laboratories have been established to help in this direction. The laboratories have been sponsored by various industries and we hope to get some projects sponsored by them. Ms. Lipika Gupta is working on a topic "Comparative Analysis of Area-Efficient, Noise-Adaptive and Low Power Neural Amplifier using various Topologies".

**50. *Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.***

#### **Strengths**

- Qualified, committed and motivated faculty members
- Excellent ambience with state-of-art equipment in a sprawling campus.
- Pro-active approach of learning-by-doing. Emphases on higher order learning
- Good research culture having linkage with R&D organizations.
- Well established library with online access to journals and learning resources.
- Good campus placement record
- Excellent infrastructure with Campus-Wide-Networking through ERP solution (provided by Chalkpad) and wi-fi connectivity to the hostels.
- Well placed alumni in reputed industry and academic institutions across the globe.
- Increased availability of resources from advanced research labs.
- Memoranda of Understanding (MOUs) with industry, R&D centres, foreign universities.
- Centre for English Language Training (CELT) rendering services to students of rural background and the community at large.

- Established Industry-Institute hub enabling interaction between the Institute and Industry
- Research oriented faculty members who have submitted research project proposal to various funding agencies like DST.
- Faculties are having research publications in international and national journals
- Students are encouraged to pursue innovative projects.
- Ample opportunity for the students to participate and organise co-curricular activities.
- Award of scholarships to meritorious students

### **Weaknesses**

- Shortage of senior and experienced faculty
- Limited financial support from funding agencies.
- Lack of good quality research scholars for doctoral programmes.
- Lack of fellowships and scholarships to attract eminent research scholars to promote research environment.
- University is located in the rural area, where the connectivity is limited. There is lack of essential amenities like good schools, shopping complex etc., which is discouraging for the faculty to stay on campus.

### **Opportunities**

- Faculty Development Programmes and other measures to enhance the skills and qualifications of the faculty
- Availability of industry base in surrounding areas, implying scope for collaboration in respect of staff exchange, student internships, joint consultancy and projects.
- Establishment of Incubation Centre.
- Improving quality of instruction by supplementing with e-learning.
- Institutionalizing services to community by making use of technology.
- Transforming research & development into patentable product.
- Utilizing strong alumni network in Institution building.
- Starting industry specific PG programmes.
- Availability of abundant space for horizontal expansion.

### **Challenges**

- Grooming the faculty to switch over from a teacher and examination centric approach to a learning centric approach.
- Generating adequate funds for research activities.
- Competition with the vast number of Universities/Colleges which have mushroomed in the recent years.
- Slow down of economy resulting in lesser employment opportunities in infrastructure sector.

#### **51. *Future plans of the department.***

To develop centre of excellence in VLSI design and microelectronics that are of value to modern industries and research.



## ***Evaluative Report of the Department - Applied Sciences & Humanities***

**1. *Name of the Department:***

Department of Applied Sciences & Humanities

**2. *Year of establishment:***

2008

**3. *Is the Department part of a School/Faculty of the university?***

Yes

**4. *Names of programmes offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., D.Sc., D.Litt., etc.)***

UG: Fundamental Sciences Courses for BE programmes

Soft Skill Development Programmes

Ph.D. in Applied Sciences

The Department is going to offer PG programme, M.Sc. in Physics and Mathematics from Academic Year 2015-16.

**5. *Interdisciplinary programmes and departments involved:***

At present only the programmes mentioned in Para 4 above are being conducted. However, an interdisciplinary flair is provided in research activities by carrying out research on topics related to Atmospheric Sciences, Air Pollution, Environmental Chemistry, Environmental Sciences, Pharmaceutical Chemistry, Atomic Physics, Nuclear Physics, Material Science, Nano-Physics, Laser & Plasma Physics.

**6. *Courses in collaboration with other universities, industries, foreign institutions, etc.***

Nil

**7. *Details of programmes discontinued, if any, with reasons***

Nil

**8. *Examination System: Annual/Semester/Trimester/Choice Based Credit System***

At present continuous evaluation based semester system is adopted. However, as directed by the UGC from next Academic Year the University will adopt Choice Based Credit System.

**9. *Participation of the department in the courses offered by other departments***

Applied Sciences Department offers courses like Applied Mathematics, Applied Physics, Applied Chemistry, Environmental Sciences, Disaster Management, Numerical Methods for BE courses in CE, ECE and CSE Departments.

In addition, soft skills programmes are run for all departments.

**10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/others)**

	<i>Sanctioned</i>	<i>Filled</i>	<i>Actual including CAS&amp; MPS</i>
<i>Applied Sciences</i>	<i>36</i>	<i>31</i>	<i>31</i>

**11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance**

<b>Sr. No.</b>	<b>Name</b>	<b>Qualification</b>	<b>Designation</b>	<b>Specialization</b>	<b>Experience (in years)</b>	<b>No. of Ph.D. / M.phil. Students guided in last four years</b>
1.	SANGEET JAURA	<ul style="list-style-type: none"> <li>• MBA</li> <li>• MA</li> </ul>	Professor	<ul style="list-style-type: none"> <li>• General Management &amp; English</li> </ul>	30	
2.	JYOTSNA KAUSHAL	<ul style="list-style-type: none"> <li>• Ph.D</li> <li>• M.Sc</li> </ul>	Professor	<ul style="list-style-type: none"> <li>• Chemistry</li> </ul>	21	
3.	SOVIA R.J.SINGH	<ul style="list-style-type: none"> <li>• Pursing PhD</li> <li>• MA</li> </ul>	Professor	<ul style="list-style-type: none"> <li>• English</li> </ul>	18	
4.	AJAY SHARMA	<ul style="list-style-type: none"> <li>• Ph.D. in Nuclear Science Laboratories, Punjabi University, Patiala</li> <li>• M. Phil</li> </ul>	Professor	<ul style="list-style-type: none"> <li>• Atomic and Radiation Physics</li> </ul>	11	
5.	AARTI SHARMA	<ul style="list-style-type: none"> <li>• Pursing PhD</li> <li>• MA</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• English</li> </ul>	10	
6.	SUSHIL KUMAR	<ul style="list-style-type: none"> <li>• Ph.D.</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Areas related to alpha and cluster-decay studies of various nuclei, from light mass region to super heavy mass region in the nuclear chart</li> </ul>	13	
7.	ISHWAR DUTT	<ul style="list-style-type: none"> <li>• Ph. D</li> <li>• CSIR-UGC (JRF) qualified</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Heavy-ion reaction at low energies, especially fission, fusion and decay.</li> </ul>	5	

8.	MADHU GUPTA	<ul style="list-style-type: none"> <li>• Ph.D. in Theory of Inequalities from Himachal Pradesh University, Shimla.</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Theory of Inequality, Applied Mathematics, and Statistics</li> </ul>	6	
9.	SUNIL KUMAR	<ul style="list-style-type: none"> <li>• Ph.D.</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Study of x-ray emission processes and X-ray studies based analytical applications.</li> </ul>	7	
10.	NIRANKAR SINGH	<ul style="list-style-type: none"> <li>• Ph.D. degree from Thapar University, Patiala</li> <li>• M.Sc. degree from M.J.P. Rohilkhand University, Bareilly.</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Air quality monitoring specially aerosols, associated metals and organic compounds, trace gases and renewable energy resources.</li> </ul>	9	
11.	RAVI DUTT	<ul style="list-style-type: none"> <li>• Pursuing Ph.D.</li> <li>• M.Tech.</li> <li>• M.Phil.</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Mathematics</li> </ul>	12	
12.	HITAKSHI DUTTA	<ul style="list-style-type: none"> <li>• Pursuing Ph.D.</li> <li>• MFC</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• General Management</li> <li>• E Commerce</li> </ul>	8	
13.	SATYENDRA KUMAR SINGH	<ul style="list-style-type: none"> <li>• MBA</li> <li>• B Tech</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• General Management &amp; CSE</li> </ul>	12	
14.	SITA RAM	<ul style="list-style-type: none"> <li>• Ph.D. in Mathematics from Himachal Pradesh University, Shimla.</li> <li>• M Phill</li> </ul>	Associate Professor	<ul style="list-style-type: none"> <li>• Theory of inequalities/matrix analysis.</li> </ul>	13	
15.	ANIL RANA	<ul style="list-style-type: none"> <li>• M Phil – Physical education</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Physical education</li> </ul>	7	
16.	RITU MALHOTRA	<ul style="list-style-type: none"> <li>• Pursuing Ph.D.</li> <li>• M.Phill</li> <li>• M.Sc (Mathematics)</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Applied Mathematics</li> </ul>	9	

17.	KANIKA SONI	<ul style="list-style-type: none"> <li>• M. Sc. (Hons.) in Chemistry from Panjab University, Chandigarh</li> <li>• CSIR/UGC NET qualified</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Physical Chemistry</li> </ul>	3	
18.	MANISH RANDHAVA	<ul style="list-style-type: none"> <li>• Master of Science (Hons.) in Environmental Sciences from Guru Nanak Dev University, Amritsar.</li> <li>• UGC-NET and HP SLET for Lectureship in Environmental Sciences qualified</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Environmental Monitoring and Auditing</li> <li>• Ecological changes due to Degradation of Environment</li> <li>• Environmental Ecology</li> </ul>	3	
19.	NEHA KUMRA	<ul style="list-style-type: none"> <li>• Pursuing PhD in Mathematics.</li> <li>• M. Sc. in Mathematics from DAV College, Jalandhar (G.N.D.U. Amritsar)</li> <li>• B. Ed. from Innocent Hearts College of Education, Jalandhar (G.N.D.U. Amritsar)</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Applied Mathematics</li> <li>• Differential Equations</li> <li>• Numerical Methods and Non Linear Dynamics.</li> </ul>	4	
20.	POOJA DHIMAN	<ul style="list-style-type: none"> <li>• M. Sc in Industrial Chemistry with specialization in Pharmaceuticals</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Physical Chemistry</li> </ul>	3	
21.	RAJNI SHARMA	<ul style="list-style-type: none"> <li>• Pursuing PhD in Mathematics.</li> <li>• M. Phil. in Mathematics</li> <li>• M. Sc. in Mathematics from Panjab University, Chandigarh</li> <li>• GATE qualified</li> </ul>	Assistant Professor	<ul style="list-style-type: none"> <li>• Applied Mathematics and Image Processing.</li> </ul>	6	

22.	SANDEEP SINGH	<ul style="list-style-type: none"> <li>• M.Phil - Chemistry from Maharisi Markandeshwar University, Ambala</li> <li>• M. Sc - Organic Chemistry from Punjabi University, Patiala</li> </ul>	Assistant Professor	• Organic chemistry	4	
23.	JAGMOHAN	<ul style="list-style-type: none"> <li>• M.Tech in Nano Science and NanoTechnology</li> </ul>	Assistant Professor	• Polymer nano composites & material science	6	
24.	SHEFALI BATRA	<ul style="list-style-type: none"> <li>• Pursuing PhD in Mathematics.</li> <li>• M. Phil. in Mathematics from C.D.L.U. Sirsa.</li> <li>• M. Sc. in Mathematics from Kurukshetra University</li> </ul>	Assistant Professor	• Applied Mathematics and Reliability Modeling and Analysis.	6	
25.	CHINKY JAGGI	<ul style="list-style-type: none"> <li>• M.Sc</li> </ul>	Assistant Professor	• Physics	8	
26.	NAVNEET KAUR	<ul style="list-style-type: none"> <li>• M.Sc</li> </ul>	Assistant Professor	• Chemistry	7	
27.	DEEPIKA GOYAL	<ul style="list-style-type: none"> <li>• M.Sc.</li> <li>• GATE</li> </ul>	Assistant Professor	• Applied Mathematics	7	
28.	SANGEET PATHAK	<ul style="list-style-type: none"> <li>• Pursuing Ph.D</li> <li>• M.Sc</li> <li>• UGC NET</li> </ul>	Assistant Professor	• Applied Mathematics	8	
29.	POOJA MAHAJAN	<ul style="list-style-type: none"> <li>• M.Sc</li> </ul>	Assistant Professor	• Chemistry	9	
30.	TARUNA	<ul style="list-style-type: none"> <li>• M. Phil.</li> <li>• M.Sc</li> </ul>	Assistant Professor	• Chemistry	10	
31.	JASDEV BHATTI	<ul style="list-style-type: none"> <li>• Pursuing Ph.D</li> <li>• M.Sc</li> <li>• M.Phill</li> </ul>	Assistant Professor	• Mathematics	9	

**12. List of senior Visiting Fellows, adjunct faculty, emeritus professors**

Nil

**13. Percentage of classes taken by temporary faculty – programme-wise information**

0%

**14. Programme-wise Student Teacher Ratio**

1:15

**15. Number of academic support staff (technical) and administrative staff: sanctioned, filled and actual**

Staff	Sanctioned	Filled	Actual
Administrative staff (Technical)	5	5	5
Administrative support staff	5	5	5

**16. Research thrust areas as recognized by major funding agencies**

- Atmospheric Sciences
- Air Pollution
- Environmental Chemistry
- Environmental Sciences
- Organic Chemistry
- Pharmaceutical Chemistry
- Atomic Physics
- Nuclear Physics
- Material Science
- Condensed Matter Physics
- Nano-Physics
- Laser & Plasma Physics
- Algebra
- Theory of Inequalities
- Information Theory
- Reliability Theory

- 17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise.**

<b>Sr. No</b>	<b>Title of the Project</b>	<b>Principal Investigator</b>	<b>Name of Funding Agency</b>	<b>Duration of the project</b>	<b>Budget</b>	<b>Status</b>
1.	A Systematic Investigation of Fusion-Fission Reactions and Decay Properties of Compound Nucleus	Dr. Sushil Kumar	SERB-DST, New Delhi	One Year	Rs.6 Lacs	Sanctioned
2.	Study the effects of multiple ionization and nuclear spin in X-ray production cross-sections of high-Z elements by heavy ions.	Dr. Sunil Kumar	SERB-DST, New Delhi	Three Years	Rs.9.68 Lacs	Sanctioned
3.	Analytical Parametrization of Fusion Barriers and Cross Sections Using Various Microscopic / Macroscopic Approaches and Experimental Data as a Guideline	Dr. Ishwar Dutt	SERB-DST, New Delhi	Three Years	Rs. 11 Lacs	Sanctioned

- 18. Inter-institutional collaborative projects and associated grants received**

**a) National collaboration - Nil**

**b) International collaboration - Nil**

- 19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received.**

At present nil, however, projects for grants which are in the advance stage of sanction are given below;

Sr. No.	Name of Project	Sponsoring Agency	Grant Sought
1.	A Systematic Investigation of Fusion-Fission Reactions and Decay Properties of Compound Nucleus	SERB-DST, New Delhi	Rs.6 Lacs
2	Study the effects of multiple ionization and nuclear spin in X-ray production cross-sections of high-Z elements by heavy ions.	SERB-DST, New Delhi	Rs.9.68 Lacs
3	Analytical Parametrization of Fusion Barriers and Cross Sections Using Various Microscopic / Macroscopic Approaches and Experimental Data as a Guideline	SERB-DST, New Delhi	Rs.11 Lacs

**20. Research facility / centre with**

- a. state recognition - Nil
- b. national recognition - Nil
- c. international recognition - Nil

**21. Special research laboratories sponsored by / created by industry or corporate bodies**

Nil at present

**22. Publications:**

- \* Number of papers published in peer reviewed journals (national / international): 65
- \* Monographs - Nil
- \* Chapters in Books - 1
- \* Edited Books – 1
- \* Books with ISBN with details of publishers – (12)

S.No.	Title	ISBN No.	Publisher
1.	The Engineering Chemistry, Vol 2 (2014)	ISBN: 978-93-82782-05-6	Chitkara University
2.	The Basics of Environmental Sciences	ISBN: 978-81-920249-1-2	Chitkara University



3.	Vacancy alignment in atomic inner shells	ISBN-10: 3838376234 ISBN-13: 978-3838376233	LAP Lambert Academic Publishing, Germany
4.	Systematic study of fusion barriers and cross sections at low energies	ISBN- 978-3-659-17635-7	LAP Lambert Academic Publishing, Germany
5.	The Engineering Physics	978-93-82782-04-9	Chitkara University
6.	The Engineering Physics and Material Science	978-93-82782-08-7	Chitkara University
7.	The Engineering Mathematics Volume-I	978-93-82782-06-3	Chitkara University
8.	The Engineering Mathematics Volume-II	978-93-82782-12-4	Chitkara University
9.	Discrete Mathematics	978-81-920249-3-6	Chitkara University
10.	Organization Climate and Job Satisfaction of Self Financing Engineering Colleges	13:978-3848431274	Lambert Academic Publication Germany
11.	Inequalities between first four moments and standard power means	978-3-639-66478-2	Scholar's Press Germany
12.	Advances in inequality from probability theory and statistics- Some bounds on the sample variance in terms of mean and extreme values	9781600219436	Nova Science Publication

**\* Number listed in International Database (For e.g. Web of Science, Scopus, Humanities International Complete, Dare Database - International Social Sciences Directory, EBSCO host, etc.) - 38**

**\* Citation Index – range / average (Individual max.) - 57**

**\* SNIP (Individual max.) – 1.807**

**\* SJR (max.) – 2.362**

**\* Impact Factor (Individual max.) – 5.326**

**\* h-index (Individual max.) - 5**

**23. Details of patents and income generated**

Nil

**24. Areas of consultancy and income generated**

Nil

**25. Faculty selected nationally/ internationally to visit other laboratories/ institutions / industries in India and abroad**

<b>S.No.</b>	<b>Name</b>	<b>National/ International</b>	<b>Place</b>	<b>Remarks</b>
1.	Dr. Sushil Kumar	International	Dubna, Russia	India JINR Forum, June 18, 2014-Future collaboration

**26. Faculty serving in**

**a) National committees b) International committees c) Editorial Boards d)  
any other (please specify)**

<b>S.No.</b>	<b>Faculty Name</b>	<b>Journal Name</b>	<b>Capacity</b>
1.	Dr. Nirankar Singh	Journal of Chemistry, Environmental Sciences & Applications	Member of Editorial Board
2.	Dr. Nirankar Singh	Himachal Science Congress Association	Life Member
3.	Dr. Nirankar Singh	Indian Society for Technical Education	Life Member
4.	Mr. Manish Randhawa	Renewable and sustainable energy reviews (Elsevier)	Reviewer
5.	Ms. PoojaDhiman	Himachal Science Congress Association	Life Member
6.	Dr. Sunil Kumar	American Physical Society	Member
7.	Dr. Sunil Kumar	Journal of Nuclear Physics, Material Sciences, Radiation and Applications	Reviewer
8.	Dr. Ishwar Dutt	Journal of Nuclear Physics, Material Sciences, Radiation and Applications	Reviewer

9.	Dr. Ajay Sharma	Journal of Nuclear Physics, Material Sciences, Radiation and Applications	Reviewer
10.	Dr. Sushil Kumar	Journal of Nuclear Physics, Material Sciences, Radiation and Applications	Editor
11.	Dr. Sushil Kumar	Journal of Physics G: Nuclear and Particle Physics, IOP, UK	Referee
12.	Dr. Sushil Kumar	Brazilian Journal of Physics-2011 (Springer)	Referee
13.	Dr. Sushil Kumar	Indian Nuclear Society	Life Member
14.	Dr. Ajay Sharma	Brazilian Journal of Physics-2011 (Springer)	Reviewer
15.	Dr. Ajay Sharma	Journal of quantitative spectroscopy and related phenomena (an Elsevier Publication)	Reviewer
16.	Dr. Ajay Sharma	Indian society for radiation Physics	Life Member
17.	Dr. Ajay Sharma	Indian society for atomic and molecular Physics	Life Member
18.	Dr. Ajay Sharma	Indian Physics Association (IPA)	Life Member
19.	Dr. Ishwar Dutt	Indian Physics Association (IPA)	Life Member
20.	Dr. Sita Ram	Indian Society for Technical Education (ISTE)	Life Member
21.	Dr. Sita Ram	Indian Society for Industrial and Applied Mathematics	Life Member
22.	Dr. Sita Ram	Him Science Congress Association	Life Member \General Secretary
23.	Dr. Sita Ram	Mathematical Journal Of Interdisciplinary Sciences	Reviewer
24.	Dr. Sita Ram	International Journal of Interdisciplinary Sciences & Research	Reviewer

25.	Mr. Ravi Dutt	Him Science Congress Association	Life Member
26.	Mr. Ashok Kumar	Him Science Congress Association	Life Member
27.	Dr. Madhu Gupta	Him Science Congress Association	Life Member
28.	Mr. Ashok Kumar	Indian Science Congress Association	Life Member
29.	Ms. Shefali Batra	Indian Society for Information theory & Application	Life Member

**27. Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs).**

Faculty development programs are conducted regularly by the Department which encompasses the following

- (a) Presentation by own faculty who had opportunity to attend any such type of workshop / training programme within the country or abroad.
- (b) Outside experts are also invited to train the faculty on latest updates in the field of Civil Engineering.
- (c) Any faculty who presents a research paper / article at any national / international forum has to present the same to all faculty of the Department.
- (d) Department sponsors faculty to attend summer / winter school being organised by other institutions to keep themselves abreast with the latest know-how related to their fields.

**28. Student projects**

- *percentage of students who have done in-house projects including inter-departmental projects : 100%*
- *percentage of students doing projects in collaboration with other universities / industry / institute: Nil*

**29. Awards / recognitions received at the national and international level by**

- *Faculty: Nil*
- *Doctoral / post doctoral fellows: Nil*
- *Students: Nil*

**30. Seminars/ Conferences/Workshops organized and the source of funding (national**

- i. international) with details of outstanding participants, if any.**

S. No.	Title of the Conference	Funding Agencies	Amount Received (Rs.)	Participants
1.	International conference on recent trends in nuclear Physics-2012 (ICRTNP-12)	DAE-BRNS DST CSIR INSA DRDO	2 Lacs 45,000/- 1 Lac 40,000/- 50,000/-	Prof. Emanuele Vardaci Dr. Katsuhisa Nishio Prof. R. Shyam Prof. S. Kailas Prof. A.K. Jain Prof. R.K. Puri Prof. S.K. Dhiman Prof. D.K. Srivastava
2.	International conference on Mathematics and Engineering Sciences-2014	Collaborated with IMRF	Nil	Prof. P.P. Shreshta Prof. J.N. Sharma Prof. I.B.S. Passi Prof. Kukreja Prof. P.K. Mahajan
3.	National workshop on Matlab	Oxford Press	20,000/-	Prof. R. Balasubramanian
4.	National workshop on Mathematica	Nil	Nil	Prof. R.C. Verma Prof. Ahluwalia Prof. L.M. Saha

### ***31. Code of ethics for research followed by the departments***

Department takes due care to ensure that researchers follow research ethics and avoid plagiarism at all cost. There is a University Research Ethics Committee (UREC) that reports to Doctoral Research Committee. Salient feature of the policy pertaining to abiding by ethics in research as laid down by UREC are as follows:-

#### **Ethical behaviour: general guidance**

- Ethical behaviour includes openness as the norm, including information about methodology and findings, except on occasions when the funder or sponsor of the research lays down conditions about dissemination to which the researcher and his/her institution give their assent in advance.
- The principal investigators have a key stake in maintaining ethical conduct in their own research and in that of staff and students in their charge, including discipline-specific expertise and judgement of what is ethically appropriate in the field concerned.

- The research undertaken must be lawful, must comply with national legislation, and should seek to comply with all relevant national and international Codes of ethical practice, and with the Human Rights Act.
- The dissemination of research findings must be transparent and open to peer review and public comment where applicable. The findings must be presented honestly and accurately, should avoid the withholding of any material information, and should wherever possible be made accessible to non-specialists.
- Agreement by staff to enter into confidentiality clauses in whole or in part should be given only where strictly necessary; for example when commercial, security or personal data are involved, should wherever possible be time-limited, and should not lead to damage to the careers or lives of research workers or research participants.

### **Research misconduct**

The University, while anticipating that all its members will act ethically, nevertheless has safeguards in place for use in the event of alleged or actual research misconduct or malpractice, and to prevent corrupt practices and professional misconduct.

Misconduct and malpractice may include but is not limited to the following:

#### **(a) *Fabrication***

This may include the creation of (fictitious) data or other aspects of research, including documentation and participant consent.

#### **(b) *Falsification***

This may include inappropriate manipulation and/or selection of data, imagery and/or consent.

#### **(c) *Misrepresentation***

This may include:

- misrepresentation of data, including undisclosed suppression of findings or data, or knowingly or negligently presenting flawed interpretation of data;
- undisclosed duplication of publication, including undisclosed duplicate submission of publications;
- misrepresentation of interests, including failure to declare interests of either the researcher or the funders of the research;
- misrepresentation of qualifications or experience which is not held;
- misrepresentation of involvement, such as inappropriate claims to authorship and/or attribution of work, or the denial of the same to others.

#### ***(d) Plagiarism***

This is the unacknowledged and deceitful use of someone else's work. The offense is not confined to literary work but extends to artistic, musical, mechanical and other forms of publication. The definition includes:

- collusion, where a piece of work is prepared by a group (e.g. a research group) with the intention or expectation that it will be represented as if it were the exclusive work of only some members of the group (e.g. a principal investigator, a junior researcher);
- commissioning of work by a member of staff that is not his or her own but representing it as if it were, e.g. written by another person, whether a colleague, or a student whose work is submitted to the member of staff, or a person who is not a member of the university;
- misappropriation of work, including copying or paraphrasing, by a member of staff from another source (literary, artistic, musical, mechanical, etc.), whether in unpublished or published form (including electronic sources) of another person, without appropriate acknowledgement or, where appropriate, approval;
- duplication of existing or almost identical work by the staff member that is already in the public domain and claiming it to have a measure of originality that justifies further publication. The offence of plagiarism does not occur under this category where due acknowledgement of previous publication is made when the work is first submitted to be considered for publication, and in the subsequent publication.

#### ***(e) Failure to manage and/or preserve data and primary materials***

This may include failing to ensure that relevant primary data and research evidence are preserved and accessible to others for reasonable periods after the completion of the research. Such conditions should also be applied where ownership of the data rests with third parties, for instance where there is commercial sponsorship of research.

#### ***(f) Breach of duty of care in carrying out responsibilities for:***

- humans;
- animals used in research; and
- the environment.

This may involve deliberately, recklessly or by gross negligence:

- disclosing improperly the identity of individuals or groups involved in research without their consent or other breach of confidentiality;

- placing those involved in research in danger, whether as researchers, subjects, participants or associated individuals, including reputational danger where that can be anticipated, without their consent and without appropriate safeguards even with their consent;
- not taking all reasonable care to ensure that the risks and dangers, the broad objective and the sponsors of research are known to participants, or their legal representatives, to ensure appropriate informed consent and that this is obtained explicitly and transparently;
- failing to observe legal and reasonable requirements or obligations of care for animal subjects of research;
- failing to observe legal and reasonable requirements or obligations of care for the protection of the environment;
- improper conduct in peer review of applications or publications, including gross misrepresentation of the content of material, inadequate disclosure of clearly limited competence, or abuse of the material provided in confidence for peer review.

For the avoidance of doubt misconduct in research includes acts of omission as well as acts of commission.

Complaints and Disclosures, in conjunction with the procedures give safeguards to employees of the University who make a complaint or disclosure, including in matters relating to research.

**32. *Student profile programme-wise:***

NA

**33. *Diversity of students***

NA

**34. *How many students have cleared Civil Services and Defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise.***

NA

**35. *Student progression***

NA



36. *Diversity of staff -*

<i>Percentage of faculty who are graduates of</i>	
the same university	0%
from other universities within the State	40%
from universities from other States	60%
from universities outside the country	0%

37. *Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period*

Nil

38. *Present details of departmental infrastructural facilities with regard to*

- a) **Library:** All the required text books, reference books, Journals and other reading material is available in the Central Library. Total number of books: 400.
- b) **Internet facilities for staff and students:** Available at each and every class room, lab and faculty rooms.
- c) **Total number of class rooms:** The faculty for Applied Sciences courses takes classes in classrooms of the departments to which the students belong.
- d) **Class rooms with ICT facility:** All (100%)
- e) **Students' laboratories:** Available with all the necessary facilities
- f) **Research laboratories:** Available (1)

39. *List of doctoral, post-doctoral students and Research Associates*

a) *from the host institution/university* - 1

b) *from other institutions/universities* – Nil

40. *Number of post graduate students getting financial assistance from the university.*

Nil

41. *Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology.*

No

42. *Does the department obtain feedback from*

*(a) Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?*

Obtaining feedback from the faculty is ongoing process. The feedback is discussed in the faculty meetings and recommendations arrived at are put up before the Board

of Studies for consideration. The Board of Studies, after discussions, places its recommendations before the Academic Council for further action.

A record of teaching-learning-evaluation for each course is maintained by the course coordinators. The same is analysed and suitable measures are instituted, if required.

***(b) Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?***

A formal system of obtaining feedback from the students has been instituted. The format for the same has already been explained and is attached at Annexure 3. The analyses from the feedback are discussed in the faculty meetings. In case required, suitable measures are taken within the Department. Issues related to policy matters are placed before the Board of Studies.

***(c) Alumni and employers on the programmes offered and how does the department utilize the feedback?***

The department is in constant touch with its alumni and their employers. All efforts are made to obtain the feedback from the alumni right from the day they attend convocation. The industries / companies who visit the campus for recruitment also form one of the major sources of feedback on the programmes offered by the department and need, if any, for modifications / refinement in the contents of the programmes. Representatives from the industry are members of the Board of Studies and also the Academic Council. They are regularly contacted to obtain their feedback. The feedback is discussed at length in the department before forwarding the recommendations to the Dean (Academics) for placing it before the authorities based on merit.

**43. List the distinguished alumni of the department (maximum 10):** NA

**44. Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts.:**

<b>Sr. No.</b>	<b>Name of the Workshop/Training program</b>
1.	International conference on Mathematics and Engineering Sciences-20 <sup>th</sup> March to 22 <sup>nd</sup> March 2014
2.	FDW on Numerical Methods using C, July 15-19, 2013.

3.	Workshop on “Complex Functions and Partial Differential Equations” 1st July, 2013 to 5th July, 2013
4.	FDW on complex Analysis and Partial Differential equations, July 1-5, 2013.
5.	FDW “Graphs of functions and Inequalities”, July 29, 2012.
6.	Workshop on “Graphs” 29 July, 2012
7.	FDW “Designing multiple choice questions in Higher mathematics”, June 25-29, 2012.
8.	Mathematica: An Integrated Environment For Computer Simulation In Physics And Mathematics, July 28-30, 2011.
9.	Workshop on Matlab, July 24-25, 2010.
10.	Recent Advances in Mathematics, Jan 31- Feb 01, 2009.

**45. *List the teaching methods adopted by the faculty for different programmes.***

- Lectures and tutorials
- Project based learning
- Discussions: through chat forums and also in classrooms
- Seminars
- Practical involving problem solving techniques
- Industrial Training
- Internships
- Educational Tours

**46. *How does the department ensure that programme objectives are constantly met and learning outcomes are monitored?***

- The programme educational objectives are aligned with the programme outcomes.
- Evaluation components are so designed that programme outcomes are achieved. The process is monitored continuously and documented as explained in Para 2.6.4 above.
- Continuous evaluation is put in place to evaluate the understanding of various aspects of Computer Science and Engineering.
- Result analysis is performed after every evaluation components to identify scope of improvement / refinement in the curriculum.

**47. *Highlight the participation of students and faculty in extension activities.***

In order to serve the humanity and alleviate suffering through counseling and good works, students are encouraged to participate in outreach programs conducted by the Department such as visits to Orphanage, Old Age Home, activities carried by NSS Unit etc.

Students are involved in various NSS activities which involve:

- Encouraging citizens to dig Rain Water Harvesting Pit to increase the level of ground water table,
- Encouraging and facilitating the planting of trees to reduce the pollution
- Designing the bio-waste pit for facilitating the Bio-Waste Management
- Discourage plastic usage.

Apart from regular studies, students actively participate in co-curricular and extra-curricular activities and are always in forefront in organizing the events time to time. Following events are held every year where students from the department participate with enthusiasm

- Techelone (Technical Fest)
- Algorythm (Cultural Fest)

Students also participate in other activities related to Institutional Social Responsibilities in nearby villages.

**48. *Give details of “beyond syllabus scholarly activities” of the department.***

- Courses on soft skills, general aptitude and technical aptitude are taught to all students.
- Add on programs are conducted by the Department to equip the students with skills required by Industries.
- Seminars and workshops are arranged to improve the technical skills of the students and to make them aware of current technology.
- Through the MoUs with Industries, Eminent Personalities from Industry are brought to give hands – on training on the technologies the Industries presently uses.
- Participation of students and faculty mentors in Design Contests by different Industries
- Organizing Quiz Technical/General under the student chapter of IETE
- Seminars on the latest topics of Applied Sciences
- Hands on training and Workshops for students as well as faculty.

**49. State whether the programme/ department is accredited/ graded by other agencies?**

*If yes, give details.:* No

**50. Briefly highlight the contributions of the department in generating new knowledge, basic or applied:**

The Department has made a beginning to engage in serious research activities. In that direction a research centre known as Research Centre for Physical and Mathematical Sciences (RCPMS). A dedicated team of researchers well versed with computational, simulations and modeling techniques have been engaged to focus on current research issues synchronous with the latest developments in the fields of Physics, Chemistry and Mathematics. Team members are pursuing both theoretical and application oriented research in diverse disciplines of nuclear, atomic and radiation Physics, atmospheric chemistry and also tackling problems of inequalities from Algebra and Statistics. Recent award of three research projects by the Department of Science and Technology, GOI, New Delhi to RCPMS is a testimony of great research efforts put in by the members.

**Major Research Thrust Areas:**

- Nuclear fission-fusion dynamics
- Drip-line nuclei studies and proton radioactivity
- Synthesis of super heavy elements and their decay studies
- Nuclear reactions and structures
- Analysis of fusion barriers and cross sections
- Electronic structure and energetic of impurities in metals and alloys
- Near-edge processes atomic processes
- Ion-atom interaction study
- Aerosol research
- Regional environmental impact assessment/environmental quality management
- Urban and rural environmental studies
- Waste management
- Biomass Burning Impacts
- Theory of inequalities pure mathematics
- Reliability and cost analysis of industrial system
- Information theoretic measures its applications to data mining
- Chaotic behaviour in biological systems and controlling techniques

**51. *Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.***

**Strengths**

- Qualified, committed and motivated faculty members
- Excellent ambience with state-of-art equipment in a sprawling campus.
- Pro-active approach of learning-by-doing. Emphases on higher order learning
- Good research culture having linkage with R&D organizations.
- Well established library with online access to journals and learning resources.
- Good campus placement record
- Excellent infrastructure with Campus-Wide-Networking through ERP solution (provided by Chalkpad) and wi-fi connectivity to the hostels.
- Well placed alumni in reputed industry and academic institutions across the globe.
- Increased availability of resources from advanced research labs.
- Memoranda of Understanding (MOUs) with industry, R&D centres, foreign universities.
- Centre for English Language Training (CELT) rendering services to students of rural background and the community at large.
- Established Industry-Institute hub enabling interaction between the Institute and Industry
- Research oriented faculty members who have submitted research project proposal to various funding agencies like DST.
- Faculties are having research publications in international and national journals
- Students are encouraged to pursue innovative projects.
- Ample opportunity for the students to participate and organise co-curricular activities.
- Award of scholarships to meritorious students

**Weaknesses**

- Shortage of senior and experienced faculty
- Limited financial support from funding agencies.
- Lack of good quality research scholars for doctoral programmes.
- Lack of fellowships and scholarships to attract eminent research scholars to promote research environment.

- University is located in the rural area, where the connectivity is limited. There is lack of essential amenities like good schools, shopping complex etc., which is discouraging for the faculty to stay on campus.

### **Opportunities**

- Faculty Development Programmes and other measures to enhance the skills and qualifications of the faculty
- Availability of industry base in surrounding areas, implying scope for collaboration in respect of staff exchange, student internships, joint consultancy and projects.
- Establishment of Incubation Centre.
- Improving quality of instruction by supplementing with e-learning.
- Institutionalizing services to community by making use of technology.
- Transforming research & development into patentable product.
- Utilizing strong alumni network in Institution building.
- Starting industry specific PG programmes.
- Availability of abundant space for horizontal expansion.

### **Challenges**

- Grooming the faculty to switch over from a teacher and examination centric approach to a learning centric approach.
- Generating adequate funds for research activities.
- Competition with the vast number of Universities/Colleges which have mushroomed in the recent years.
- Slow down of economy resulting in lesser employment opportunities in infrastructure sector.

### **52. *Future plans of the department.***

Department is planning to offer M.Sc. and Ph.D Program in Physics, Chemistry & Mathematics.

**DECLARATION BY THE**  
**HEAD OF THE INSTITUTION**





*Declaration by the Head of the Institution*

*I certify that the data included in this Self-Study Report (SSR) are true to the best of my knowledge.*

*This SSR is prepared by the institution after internal discussions, and no part thereof has been outsourced.*

*I am aware that the Peer team will validate the information provided in this SSR during the peer team visit.*

*Signature of the Head of the institution*

*with seal:*  
**Vice Chancellor**  
**Chitkara University**

*Place: Dist Solan*  
*Date: 14 Feb 2015*

## **ANNEXURES**

**Annexures Document will be enclosed in the final hard copy reports**

<b>S.No.</b>	<b>Particulars</b>
<b>1</b>	Annexure – 1 & 2 – UGC inspection and compliance report
<b>2</b>	Annexure 3 – Student feedback form
<b>3</b>	Annexure 4 - Faculty recruited in last four years
<b>4</b>	Annexure 5 - List of MOU's- International collaborations
<b>5</b>	Annexure 6 - Examination regulations
<b>6</b>	Annexure 7 - NSS Activities
<b>7</b>	Annexure 8 - List of students who benefited from financial assistance
<b>8</b>	Annexure 9 - List of students placed during campus recruitments for last three years.
<b>9</b>	Annexure 10 - Audited income and expenditure statement of academic and administrative activities of the last four years.