

HIMACHAL PRADESH NAAC ACCREDITED

Report on PO Attainment

Bachelor of Engineering

Batch 2018

Department of Electronics & Communication Engineering



Report on PO Attainment

Batch 2018

Department of Electronics & Communication Engineering

Overview

An outcome is a result of learning that reveals what the student should be able to do at the end of a course. Outcome-based curriculum is a performance-based education system which is crucial in determining the type of graduates we want. In this approach, the desired educational outcomes should be clearly specified. Having an unequivocal outcome facilitates the nature of course offered, its content and also the teaching plans. Constructive alignment is a principle used for devising teaching and learning activities and assessment tasks that directly address the course outcomes (COs) intended. The outcome-based approach provides a mechanism to ensure the accountability and quality assurance to an educational programme.

Course mapping shows the educational relationship (Level of Learning achieved) between Course Outcomes and Program Outcomes for a Course. The result strongly indicates whether the students are able to achieve the course learning objectives. The method can be used for any course and is a good way to evaluate a course syllabus.

The below mentioned steps shall address the procedure for assessing the percentage achievement of Program Outcomes.

Program Outcome

The Program Outcomes for the Electronics & Communication Engineering Program are the following:

- **PO-01:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization for the solution of complex engineering problems.
- **PO-02:** Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

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- **PO-03:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and cultural, societal, and environmental considerations.
- **PO-04:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- **PO-05:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex.
- **PO-06:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- **PO-07:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- **PO-08:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- **PO-09:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- **PO-010:** Communicate effectively on complex engineering activities with the engineering community and with the society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- **PO-011:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- **PO-012:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Course Outcomes mapping with Program Outcomes:

The course outcomes were mapped with the program outcomes on the scale of High, Medium and Low. Thereafter, the mapped values were allocated with weights i.e., High: 3; Medium: 2; and Low: 1.

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Subject	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
PH101	67	67	-	-	67	-	67	-	-	-	-	67
AM101	54	54	-	54	54	-	54	-	-	-	-	-
ME102	71	-	-	-	-	-	-	71	71	-	-	7'
EC101	63	63	63	63	-	63	63	-	-	-	-	-
PH103	-	-	79	-	-	-	-	-	-	79	79	-
EC102	92	92	92	92	92	-	-	92	-	-	92	92
ME153	100	-	-	-	-	-	-	100	100	-	-	-
EE102	92	92	92	92	-	92	-	-	92	-	-	-
CL101	-	-	-	-	-	-	-	-	-	100	-	100
EE101	74	74	-	74	-	74	74	-	-	74	-	-
AM102	71	-	71	71	71	-	-	71	-	71	-	-
AS101	92	-	92	-	-	92	92	-	92	92	92	92
CS101	42	42	42	-	42	42	-	-	-	-	-	-
CS201	-	-	75	-	-	75	-	-	75	75	75	75
ES101	-	65	-	-	-	-	65	-	-	-	-	-
GW	-	-	-	83	83	-	-	83	-	-	-	83
ME152	-		92	-	-	-	92	-	-		-	-
EC124	100	100	100	100	100	100	100	-	-	100	-	-
EC123	83	83	83	83	83	83	83	-	83	-	-	-
EC113	-	-	0	0	0	-	-	-	-	-	-	-
EC105	79	79	-	79	-	-	-	-	-	-	-	79
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EC106	100	100	100	100	-	-	-	-	-	-	-	-
EC107	75	75	75	-	75	-	-	-	-	-	-	-
EC111	75	75	75	-	-	-	-	-	-	-	-	-
EC120	58	-	-	-	58	-	-	-	-	-	-	58
EC108	100	100	-	. 100	-	-	-	-	-	-	-	
EC112		100	100	100	-	-	-	-	-	-		100
EC119	-	-	-	100	100	-	-	-	-	-	-	100
Ec117	100	100	100	100	100	-	100	-	-	-	-	-
EC115	100	100	-	100	100	-	100	-	100	100	-	
EC110	-	100	100	-	100	-	-	-		-	-	-
EC116	100	100	100	-	-	-	-	-	-	-	-	-
CS501	-		-	100	-	100	-	-	100	-	- ,	
EC114	100	-	100	100	100	-	-	-	-	-	-	-
EC109.	100	-	-	-	100	-	-	-	-		100	-
EC118	100	100	100	-	100	-	-	-	-	-	-	-
CS114	88	88	88	88	88	-	-	-	Ā	-	-	88
EC126	-	-	100	100	100	-	-	-	-	-	-	-
EC237	-	-	-	100	100	-	-	-	-	-	-	-
EC127	100	100	-	100	100	-	-	-	-	-	-	-
EC125	-	96	-	96	96		-	-	-	-	-	96
EC129	-	83	-	83	-	-	-	-	-	-	-	83
CL601	-	-	-	-	-	93	-	-	93	93	93	-



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EC131	100	-	-	-	100	-	100	100	-	100	100	-
EC139	100	100	100	100	100	100	100	-	-	-	-	-
EC217	100	100	100	100	-	-	100	-	-	-	-	-
EC249	73	73	73	73	73	-	-	-		-	-	-
GI101	100	-	100	100	100	-	-	100	-	-	-	-
EC128	54	54	54	54	54	54	54	-	54	54	54	54
EC236	-	58	58	58	-	-	58	58	-	-	-	-
EC241	-	42	42	42	-	-	42	42	-	-	42	-
EC235	-	-	-	-	48	-	-	-	-	-	-	48
EC234	48	48	-	-	48	-	-	-	-	-	-	48
EC134	67	67	67	-	67	67	-	67	67	67	-	67
EC132	. 58	58	-	-	58	-	-	-	-	58	-	-
EC136/EC 133	100	100	-	-	100	100	-	100	100	100	-	100
POA	83.08	80.74	83.73	86.58	82.97	81.07	79	80.27	85.58	83	80.78	78.95

PO Attainment of subjects: B.E. Electronics & Communication Engineering

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Representation of PO attainment:

Analysis -

The representation shows that the students of batch 2018 have successfully attained a minimum of 75% in all of the program outcomes. However, the achieved attainment is lying between 79% to 86% in all of the program outcomes.

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Department of ECE

Head of Department Department of Electronics & Department or Electronics & Communication Engineering & Technology School of Engineering & Technology Chitkara University, Hiniachal Pradesh

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Course Outcome Attainment Report

Programme B.E [Electronics & Communication Enginering]						Batch 2018										
Subje	ect	Analog and Digi	tal Communication						Co	de EC	123		S	Semeste	r 3	
Subject	t Assessment: Analog	g and Digital Comn	nunication													
	Tests	Task	Taalu lal	March			18/4	(0/)				Maiak	ated Ma	-teo (9/)		
#	loois	Task	Task-Id	Mark	s		vvt	(70)				weigi	nted Ma	arks (%)		
1	Internal	1	453	40			10	0					40			
2	External	1	455	60			10	0					Ud			
Course	Outcome: Analog an	id Digital Commun	ication													
SNo	Course Outcome													Wt(%)		
CO1	The students would u disadvantages and ap	nderstand various m oplications as used i	nodulation concepts a n analog and digital v	nd distinguish betwe vireless communicati	en vario ion sys	ius moc	Iulation	schem	es on ti	ne basi	s of adv	antages	8 2	0		
CO2	The students would b and TV transmissions	e skilled to analyze	design aspects of ge	neration and detection	on techi	niques c	of AM a	nd FM s	signals	as use	d in bro	adcast	radic 20	0		
CO3	The students would be baseband transmission	e able to select app on systems.	ropriate method to co	nvert an analog signa	al to dig	ital sign	al with	suitable	e line co	oding te	ichniqui	a for	20	9		
CO4	They would possess a communication system	an ability to apply kr	nowledge of various d	gital modulation sch	emes to	improv	e perfo	mance	of adva	inced d	igital ce	Ilular	20)		
		ing doning cripic fin	en.													
CO5	Skill of various schem	ies to improve perfor	mance of communica	ation systems									20)		
CO5 CO-PO	Skill of various schem Map: Analog and Dig	tes to improve perfor	mance of communica	ation systems									20)		
CO5 CO-PO	Skill of various schem Map: Analog and Dig	ues to improve perfor	mance of communica	ation systems									20)		
CO5 CO-PO	Skill of various schem Map: Analog and Dig Outcome	ies to improve perfor	mance of communica	ition systems	P01	P02	P03	P04	P05	P06	.P07	P08	2(P09) PO10	P011	P01
CO5 CO-PO Course of The studen schemes of communic	Skill of various schem Map: Analog and Dig Outcome nts would understand various on the basis of advantages di attion systems	nies to improve perfor nital Communicatio s modulation concepts an sadvantages and applici	mance of communica m nd distinguish batween va ations as used in analog a	ntion systems nous modulation nd digital wireless	PO1 H	PO2 M	PO3	PO4 M	PO5 M	P06	PO7 L	PO8	20 P09 M) PO10 -	P011	P01:
CO5 CO-PO Course of The stude schemes o communic The stude signals as	Skill of various schem Map: Analog and Dig Outcome Ints would understand various on the basis of advantages di cation systems. Ints would be skilled to analy, used in broadcast radio and	ital Communicatio smodulation concepts a sadvantages and applica ze design aspècts of gen TV transmissions.	mance of communica m nd distinguish between va ations as used in analog a eration and detection tect	tion systems nous modulation nd digital wireless aniques of AM and FM	Р01 Н	PO2 M	PO3 H	PO4 M	PO5 M	РО6 - Н	PO7 L M	P08 -	20 PO9 M	P010	P011	P01:
CO5 CO-PO Course I The stude: schemes o communic The stude: signals as: The stude: sitable line	Skill of various schem Map: Analog and Dig Outcome Ints would understand variour on the basis of advantages di cation systems. Ints would be skilled to analy, used in broadcast radio and ints would be able to select a ne coding technique for base	ies to improve perfor ital Communicatio smodulation concepts al sadvantages and applica ze design aspects of gen TV transmissions, ppropriate method to co band transmission syster	ent, mance of communica nd distinguish between va ations as used in analog a eration and detection tech nvert an analog signal to ms.	nious modulation nd digital wireless uniques of AM and FM digital signal with	РО1 Н	PO2 M -	PO3 H M	PO4 M H	PO5 M - L	РО6 - Н	PO7 L M L	P08 - -	20 P09 M	P010 - -	P011	P01:
CO5 CO-PO Course of The stude: schemeso communic The stude: signals as: The stude: suitable liir They woul of advance	Skill of various schem Map: Analog and Dig Outcome Ints would understand various on the basis of advantages di cation systems. Ints would be skilled to analy, used in broadcast radio and ints would be skilled to select a ne coding technique for base id possess an ability to apply digital cellular communic	ies to improve perfor <i>stal Communicatio</i> smodulation concepts and sadvantages and application te design aspects of gen TV transmissions. Upropriate method to co- sband transmission syster knowledge of various during emi- knowledge of various during emi- station systems	mance of communica mance of communica nd distinguish between va titions as used in analog a eration and detection tech nvert an analog signal to in s. gital modulation schemes ployment.	nion systems nous modulation nd digital wireless uniques of AM and FM digital signal with to improve performance	Р01 Н -	PO2 M - M	РО3 - Н М	PO4 M H H	PO5 M L L	РОб - Н -	PO7 L M L	P08 - -	20 P09 M -	P010 - - -	P011	P01:
CO5 CO-PO Course of The stude: schemes of communic The stude: signals as: The stude: signals as: The stude: signals as: Skill of vari	Skill of various schem Map: Analog and Dig Outcome Ints would understand various on the basis of advantages di cation systems. Ints would be abiled to analy, used in broadcast radio and nts would be abile to select a ne coding technique for base Id possess an ability to apply ed digital cettular communic fous schemes to improve per	tes to improve perfor ital Communicatio smodulation concepts al sadvantages and applica ze design aspects of gen TV transmissions. uppropriate method to co seband transmission syster knowledge of various dig ation systems during em formance of communica	mance of communica mance of communica of addistinguish batween va ations as used in analog a ations as used in analog a ations as used in analog a ation and detection tech nvent an analog signal to ms. gital modulation schemes ployment. tion systems	tion systems nous modulation nd digital wireless Iniques of AM and FM digital signal with to improve performance	Р01 Н - Н	P02 M - M	Р03 Н М	PO4 M H M	P05 M L L	РОб - - -	PO7 L L L	P08 - - -	20 P09 M	P010	P011	P01:
CO5 CO-PO Course (The stude: schemeso communic The stude: signals as: The stude: signals as: The stude: signals as: State of the stude: signals as: The stude: signals as: State of the stude: Skill of van Course (Skill of various schem Map: Analog and Dig Outcome Ints would understand various on the basis of advantages di cation systems. Ints would be skilled to analy, used in broadcast radio and ints would be able to select a ne coding technique for base id possess an ability to apply ad digital celtular communic focus schemes to improve per Outcome Contribution	ins dowing employments to improve perfor initial Communicatio smodulation concepts an sadvantages and applicat ze design aspects of gen TV transmissions. poropriate method to co- sband transmission syster knowledge of various dij atjion systems during emp formance of communicat	ent, mance of communica of nd distinguish between va ations as used in analog a eration and detection tech nvert an analog signal to ms gital modulation schemes ployment, tion systems	nion systems nous modulation nd digital wireless uniques of AM and FM digital signal with to improve performance	РО1 Н - Н	PO2 M -	РО3 Н М	РО4 М Н	POS M L L	РОб - - -	PO7 L M L	P08 - - -	20 P09 M	P010	P011	P01)
CO5 CO-PO The stude: schemes o communic The stude: signals as: The stude: sitable lin They woul of advance Skill of van Course (Skill of various schem Map: Analog and Dig Outcome Ints would understand various on the basis of advantages di cation systems. Ints would be skilled to analy, used in broadcast radio and ints would be able to select a ne coding technique for basis di posses an ability to apply di digital cellular communic faus schemes to improve per Outcome Contribution	tes to improve perfor inital Communicatio smodulation concepts and sadvantages and applicit ze design aspects of gen TV transmissions. toppopriate method to co- seband transmission syster knowledge of various dis- ation systems during emi- diomance of communica- n in Each Question	mance of communica mance of communica nd distinguish between va ations as used in analog a eration and detection tech nvert an analog sgnal to in s gital modulation schemes ployment. tion systems	nious modulation nd digital wireless uniques of AM and FM digital signal with to improve performance	Р01 Н М	PO2 M -	Р03 Н М	РО4 М Н	PO5 M L L	P06 - H	P07 L M L	P08	20 P09 M	P010	P011	P01;
CO5 CO-PO Course (The stude schemes o communic The stude signals as: The stude signals as: The stude signals as: The stude signals as: The stude signals as: Course (Course (Course (Skill of various schem Map: Analog and Dig Outcome Ints would understand various on the basis of advantages di cation systems. Ints would be abile to select a ne coding technique for base did possess an ability to apply ad digital cettular communic tous schemes to improve per Outcome Contribution Task No.	ins down gen poyn is to improve perfor intal Communicatio smodulation concepts an sadvantages and applica ze design aspects of gen TV transmissions. ppropriate method to co reband transmission syster knowledge of various di ation systems during em formance of communica n in Each Question QNo Mar	mance of communica mance of communica m diditinguish between va ations as used in analog a eration and detection tech nivert an analog signal to in ms gital modulation schemes ployment. tion systems ks DL	tion systems flous modulation and digital wireless aniques of AM and FM digital signal with to improve performance BT Leve	Р01 Н Н М	P02 M	PO3 H M Pet	PO4 M H M	POS M L L	PO6 H	PO7 L M L	PO8	20 P09 M -	P010	P011	P01:
CO5 CO-PO Course (The stude schemes o communic The studer sitable lir The studer suitable lir The studer Skill of var Course (Tool Internal	Skill of various schem Map: Analog and Dig Outcome Ints would understand various on the basis of advantages di zation systems. Ints would be able to select a ne coding technique for basis Id posses an ability to apply digital cethnique for basis de digital cethnique for basis do posses an ability to apply fous schemes to improve per Outcome Contribution Task No.	ins dowing employments to improve perfor initial Communication is modulation concepts and sadvantages and application to transmission system would ge of various displayments during em- iformance of communication systems during em- iformance of communication in Each Question QNo Mar 1 40	In ance of communication and distinguish between va- ations as used in analog a eration and detection tech nvert an analog signal to in sital modulation schemes ployment. tion systems ks DL Easy	nion systems nous modulation nd digital wireless uniques of AM and FM digital signal with to improve performance BT Leve Remembe	PO1 H H M	P02 M	Pos H M Per	PO4 M H M centag [20].CC	PO5 M L L S S S S S S S S S S S S S S S S S	PO6 H		P08	20 P09 M - - - - - - - - - - - - - - - - - -	P010	P011	P01:

CO-Assessment-Marks: Analog and Digital Communication

We would consider 40% weightage for Internal Marks and 60% weightage for external marks for calculating attainment level of Student Course Outcome. In case of either only internal or external components, we would consider 100%.

CO1: The students would understand various modulation concepts and distinguish between various modulation schemes on the basis of advantages disadvantages and applications as used in analog and digital wireless communication systems.

#	RollNo	Internal-1[8]	External-1[12]	Total [20]	MO(%) Scale
1	1811982002	3.8	6.2	10	. 50 2 .
2	1811982009	4,4	5.8	10.2	51 2
3	1811982003	. 4.6	7.2	11.8	60 3
4	1811982004	4.6	8.6	13.2	66 3
5	1811982010	4.2	5.4	9.6	48 2
6	1811982005	4.6	5.6	10.2	51 2
	1811982006	6.8	10.8	17:6	89 3
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CO Attainment on Scale of 3

50

CO2: The students would be skilled to analyze design aspects of generation and detection techniques of AM and FM signals as used in broadcast radio and TV transmissions.

#	RollNo	Internal-1[8]	External-1[12]	Total [20]	MO(%)	Scale
1	1811962002	3.8	6.2	10	50	2
2	1811982009	4.4	5.8	• 10.2	51	. 2
3	1811982003	4.6	7.2 -	11.8	60	3
4	1811982004	4.6	8.ô	13.2	66	3
5	1811982010	4.2	5.4	9.6	48	2
6	1811982005	4.6	5.6	10.2	51	2
7	1811982006	6.8	10.8	17.6	89	3
8	1811982008	6.2	9.6	15.8	79	3
	CO Attainme	ent on Scale of 3		Percentage of Students Sco	red above 60%	
		2.5		50		

CO3: The students would be able to select appropriate method to convert an analog signal to digital signal with suitable line coding technique for baseband transmission systems.

#	RollNo	Internal-1[8]	External-1[12]	Total [20]	MO(%)	Scale
1	1811982002	3.8	6.2	10	50	2
2	1811982009	4.4	.5.8	10.2	51	2
3	1811982003	4.6	7.2	11.8	60	3
4	1811982004	4.6	. 8.6	13.2	66	3
5	1811982010	4.2	5.4	9.6	48	2
6	1811982005	4.6	5.6	10.2	51	2
7	1811982006	6.8	10.8	17.6	89	3
8	1811982008	6.2	9.6	15.8	79	3
	CO Aftainm	ent on Scale of 3		Percentage of Students Sco	red above 60%	
		2.5		50		

CO4: They would possess an ability to apply knowledge of various digital modulation schemes to improve performance of advanced digital cellular communication systems during employment.

#	RollNo	Internal-1[8]	External-1[12]	Total [20]	MO(%)	Scale
1	1811982002	3.8	. 6.2		50	2
2	1811982009	4,4	5.8	10.2	51	2
3	1811982003	4.6	. 7.2	11.8	60	3
4	1811982004	4.6	8.6	13.2	66	3
5	1811982010	4.2	5.4	9.6	48	2
6	1811982005	4,6	5.6	10.2	51	2
7	1811982006	6.8	10.8	17.6	89	3
8	1811982008	6.2	9.6	15.8	79	3
	CO Attainn	nent on Scale of 3		Percentage of Students Scon	ed above 60%	

2.5

CO5: Skill of various schemes to improve performance of communication systems

#	RollNo	Internal-1[8]	External-1[12]
1	1811982002	3.8	6.2
2	1811982009	4,4	5.8
3	1811982003	4.6	7.2

Tota	[20]	MO(%)	Scale
	10	. 50	2
	10.2	51	2
\bigcirc	11.8	60	3

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4	1811982004	4.6	9.8	
5	1811982010	4.2	5.4	
6	1811982005	4.6	5.6	
7	1811982006	6.8	10.8	
8	1811982008	6.2	9.6	
	CO Attainment on S	Scale of 3		Percentage of S
	2.5			

Attainment on Scale of 3

2.50

Percentage of Students Scored above 60%

9.6

10.2

17.6

15.8

50

Percentage Attainment

66

48

51

89

79

2

2

3

3

83.33

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