DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

Program Code : **XXX M.Tech. (Communication Systems)**
Department : **Department of Electronics and Communication Engineering**
Year : **I**
Model : **2**

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	**Subject Code**	**Course Title**	**Subject Area**	**Credits**	**L**	**T**	**P**	**Theory**	**Practical**
Semester-I (Autumn)									
1.	ECC-505	Linear Algebra and Random Processes	PCC	4	3	1	0	3	0
2.	ECC-511	Digital Signal Processing and Communication Techniques	PCC	4	3	0	2	3	0
3.	ECC-513	Principles of Wireless Communication	PCC	4	3	1	0	3	0
4.	ECC-515	Information and Coding Theory	PCC	4	3	1	0	3	0
5.		Program Elective-I	PEC	2	0	0	3	0	3
6.		Social Science Course	SSC	2	-	-	-	-	-
		Total		**20**					
Semester-II (Spring)									
1.		Program Elective-II	PEC	4	-	-	-	-	-
2.		Program Elective-III	PEC	4	-	-	-	-	-
3.		Program Elective-IV	PEC	4	-	-	-	-	-
4.		Science, Technology, and Advanced Research-tools	STAR	3	-	-	-	-	-
5.	ECC-700	Seminar	SEM	2	-	-	-	-	-
		Total		**17**					

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INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

Program Code : **XXX M.Tech. (Communication Systems)**
Department : **Department of Electronics and Communication Engineering**
Year : **II**
Model : **2**

Teaching Scheme					**Contact Hours/Week**			**Exam Duration**	
S.No.	**Subject Code**	**Course Title**	**Subject Area**	**Credits**	**L**	**T**	**P**	**Theory**	**Practical**
Semester-I (Autumn)									
1.	ECC-691	Internship Social Activity	ISA	3-5	-	-	-	-	-
2.	ECC-701A	Thesis Stage-I	THESIS	10	-	-	-	-	-
		Total		**13-15**					
Semester-II (Spring)									
1.	ECC-701B	Thesis Stage-II	THESIS	14	-	-	-	-	-
		Total		**14**					

Summary				
Semester	**1**	**2**	**3**	**4**
Semester-wise Total Credits	20	17	13-15	14
Total Credits	**64-66**			

M.Tech. (Communication Systems)

Program Elective Courses

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
1.	ECL-554	Communication Laboratory	PEC	2	0	0	3	0	3
2.	ECL-555	Signal Processing Laboratory	PEC	2	0	0	3	0	3
3.	ECL-514	Detection and Estimation Theory	PEC	4	3	1	0	3	0
4.	ECL-614	Adaptive Signal Processing Techniques	PEC	4	3	1	0	3	0
5.	ECL-556	5G Standards and 6G Wireless Technologies	PEC	4	3	1	0	3	0
6.	ECL-557	Principles of Sparse Recovery and Compressed Sensing	PEC	4	3	1	0	3	0
7.	ECL-558	Wireless Communication: Advanced Concepts and Applications	PEC	4	3	1	0	3	0
8.	ECL-562	Optical Wireless Communication	PEC	4	3	1	0	3	0
9.	ECL-563	Machine Learning and Signal Processing for Neuroinformatics	PEC	4	3	1	0	3	0

M.Tech. (Communication Systems)

Science, Technology, and Advanced Research-tools Basket

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	**Subject Code**	**Course Title**	**Subject Area**	**Credits**	**L**	**T**	**P**	**Theory**	**Practical**
1.	ECT-501	Inference and Learning Algorithms	STAR	3	3	0	0	3	0
2.	ECT-502	Semiconductor Technology and its Applications	STAR	3	3	0	0	3	0
3.	ECT-503	5G/6G Technology and its Societal Applications	STAR	3	3	0	0	3	0
4.	ECT-504	Applications of RF Technology in Defence and Space Applications	STAR	3	3	0	0	3	0

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

Program Code : **XXX Master of Science (by Research) in Communication Systems**
Department : **Department of Electronics and Communication Engineering**
Year : **I**
Model : **3**

Teaching Scheme					**Contact Hours/Week**			**Exam Duration**	
S.No.	**Subject Code**	**Course Title**	**Subject Area**	**Credits**	**L**	**T**	**P**	**Theory**	**Practical**
Semester-I (Autumn)									
1.	ECC-505	Linear Algebra and Random Processes	PCC	4	3	1	0	3	0
2.	ECC-511	Digital Signal Processing and Communication Techniques	PCC	4	3	0	2	3	0
3.	ECC-513	Principles of Wireless Communication	PCC	4	3	1	0	3	0
4.	ECC-515	Information and Coding Theory	PCC	4	3	1	0	3	0
5.		Program Elective-I	PEC	2	0	0	3	0	3
6.		Social Science Course	SSC	2	-	-	-	-	-
		Total		**20**					
Semester-II (Spring)									
1.		Program Elective-II	PEC	4	-	-	-	-	-
5.	ECC-751A	Thesis Stage-I	THESIS	13	-	-	-	-	-
		Total		**17**					

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INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

Program Code : **XXX Master of Science (by Research) in Communication Systems**
Department : **Department of Electronics and Communication Engineering**
Year : **II**
Model : **3**

Teaching Scheme					**Contact Hours/Week**			**Exam Duration**	
S.No.	**Subject Code**	**Course Title**	**Subject Area**	**Credits**	**L**	**T**	**P**	**Theory**	**Practical**
Semester-I (Autumn)									
1.	ECC-751B	Thesis Stage-II	THESIS	15	-	-	-	-	-
		Total		**15**					
Semester-II (Spring)									
1.	ECC-751C	Thesis Stage-III	THESIS	16	-	-	-	-	-
		Total		**16**					

Summary				
Semester	**1**	**2**	**3**	**4**
Semester-wise Total Credits	20	17	15	16
Total Credits	**68**			

Master of Science (by Research) in Communication Systems

Program Elective Courses

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
1.	ECL-554	Communication Laboratory	PEC	2	0	0	3	0	3
2.	ECL-555	Signal Processing Laboratory	PEC	2	0	0	3	0	3
3.	ECL-514	Detection and Estimation Theory	PEC	4	3	1	0	3	0
4.	ECL-614	Adaptive Signal Processing Techniques	PEC	4	3	1	0	3	0
5.	ECL-556	5G Standards and 6G Wireless Technologies	PEC	4	3	1	0	3	0
6.	ECL-557	Principles of Sparse Recovery and Compressed Sensing	PEC	4	3	1	0	3	0
7.	ECL-558	Wireless Communication: Advanced Concepts and Applications	PEC	4	3	1	0	3	0
8.	ECL-562	Optical Wireless Communication	PEC	4	3	1	0	3	0
9.	ECL-563	Machine Learning and Signal Processing for Neuroinformatics	PEC	4	3	1	0	3	0