

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE**

Program Code: **XXX M.Tech. (Terahertz Communication and Sensing)**
 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-501	Electromagnetic Field Theory and Scattering	PCC	3	3	0	0	3	0
2.	ECC-503	THz Electronics	PCC	3	3	0	0	3	0
3.	ECC-505	Linear Algebra and Random Processes	PCC	4	3	1	0	3	0
4.	ECC-507	Essential Concepts in THz Communication	PCC	4	3	1	0	3	0
5.	ECC-509	THz Design Lab.	PCC	2	0	0	3	0	3
6.		Social Science Course	SSC	2	-	-	-	-	-
		Total		18					
Semester-II (Spring)									
1.		Program Elective-I	PEC	4	-	-	-	-	-
2.	ECC-751A	Thesis Stage-I	THESIS	13	-	-	-	-	-
		Total		17					

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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	18	-	-	-	-	-
		Total		18					

Summary				
Semester	1	2	3	4
Semester-wise Total Credits	18	17	15	18
Total Credits	68			

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M.Tech. (Terahertz Communication and Sensing)

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-503	Terahertz Communication Systems	PEC	4	3	1	0	3	0
2.	ECL-504	Millimeter Wave and Terahertz Antenna Design	PEC	4	3	1	0	3	0
3.	ECL-514	Detection and Estimation Theory	PEC	4	3	1	0	3	0
4.	ECL-505	High Speed Semiconductor Devices	PEC	4	3	1	0	3	0
5.	ECL-506	Surface Electromagnetics	PEC	4	3	1	0	3	0
6.	ECL-507	High-Frequency Dielectric Guides	PEC	4	3	1	0	3	0
7.	ECL-508	Terahertz Sensing and Imaging	PEC	4	3	1	0	3	0
8.	ECL-509	Microwave and Millimeter Wave Circuits	PEC	4	3	1	0	3	0
9.	ECL-510	Nonionizing Radiations and Health Risks	PEC	4	3	1	0	3	0
10.	ECL-511	Microwave Photonic ICs	PEC	4	3	1	0	3	0
11.	ECL-618	Wireless Technologies: 5G and Beyond	PEC	4	3	1	0	3	0
12.	ECL-620	Advanced Wireless Communication	PEC	4	3	1	0	3	0
13.	ECL-564	Industry Oriented THz Lab.	PEC	2	0	0	3	0	3
14.	ECL-565	THz-CAD Lab.	PEC	2	0	0	3	0	3
15.	ECL-566	6G Communication Lab.	PEC	2	0	0	3	0	3

