Curriculum of M. Tech Degree Programme in Electronics and Communication Engineering

Effective from Admission year 2021 - 22 onwards

Department of Electronics & Communication Engineering

National Institute of Technology Sikkim

South Sikkim 737 139

Sl. No.	Subject Code	Subject Name	L-T-P	Credit
1st Semester				
		Theory Subjects		
1	EC 21101	Linear Algebra, Stochastic Process and Optimization Techniques	3-0-0	3
2	EC 21102	Advanced Communication Systems	3-0-0	3
3	EC 21103	Advanced Digital Signal Processing	3-0-0	3
4	EC 21104	Machine Learning	3-0-0	3
5	EC 21105	Analog MOS Integrated Circuits Design	3-0-0	3
6		Elective I	3-0-0	3
		Practical Subjects		
7	EC21202	Advanced Communication Systems Lab	0-0-3	2
8	EC21203	Advanced Digital Signal Processing Lab	0-0-3	2
9	EC 21204	Machine Learning & Optimization Techniques Lab	0-0-3	2
		Total Credits	**15-0-12**	**24**
2nd Semester				
		Theory Subjects		
1	EC22101	Artificial Intelligence	3-0-0	3
2		Elective II	3-0-0	3
3		Elective III	3-0-0	3
4		Elective IV	3-0-0	3
5		Elective V	3-0-0	3
6		Technical Writing	2-0-0	Audit
		Practical Subjects		
7		Artificial Intelligence Lab	0-0-3	2
8		Lab corresponding to Elective III	0-0-3	2
9		Lab corresponding to Elective IV	0-0-3	2
10		Lab corresponding to Elective V	0-0-3	2

		Total Credits	**15-0-12**	**23**
3rd Semester				
		Practical & Sessional Subjects		
1	EC 23201	Dissertation related Simulators and Technologies	0-0-3	2
2	EC 23202	Literature Review, Report Writing and Seminar Presentation	0-0-3	2
3	EC 23203	Dissertation Part-I	-	12
		Total Credits	-	**16**
4th Semester				
1	EC 24201	Dissertation Part-II	-	15
		Total Credits	-	**15**
		Total Credits of All Semesters		**78**

Sl. No.	Subject Code	Subject Name	L-T-P	Credit
Electives				
Category: Communication Engineering				
1		Advanced Communication Networks	3-0-0	3
2		Information Theory and Coding	3-0-0	3
3		Advanced Digital Communication	3-0-0	3
4		Satellite Communication	3-0-0	3
5		Wireless Adhoc and Sensor Networks	3-0-0	3
6		Mobile Communication	3-0-0	3
7		Advanced Optical Communication Systems	3-0-0	3
8		Cryptography & Network Security	3-0-0	3
9		Ultra-Wideband Communication	3-0-0	3
10		Quantum Computation	3-0-0	3
11		Internet of Things	3-0-0	3
Category: VLSI Technology				

1		Introduction to VLSI Design	3-0-0	3
2		Device Modelling	3-0-0	3
3		Testing and Verification of VLSI Circuits	3-0-0	3
4		Mixed Signal RF IC design	3-0-0	3
5		CMOS RF circuit design	3-0-0	3
6		VLSI Signal Processing	3-0-0	3
7		Semiconductor Materials and Device characterization	3-0-0	3
8		VLSI Technology and Processing	3-0-0	3
9		Compound Semiconductors: Properties & Applications	3-0-0	3
10		MEMS and Microsystems and NEMS	3-0-0	3
11		Embedded System	3-0-0	3
12		Nanoelectronics	3-0-0	3
13		Biomedical Instrumentation	3-0-0	3
14		III-V semiconductors and High-Speed electronic Devices	3-0-0	3
Category: Signal Processing				
1		Speech Signal Processing and Coding	3-0-0	3
2		Biomedical Signal Processing	3-0-0	3
3		Natural Language Processing	3-0-0	3
4		Deep Learning and Applications	3-0-0	3
5		Image Processing	3-0-0	3
6		Computer Vision	3-0-0	3
7		Pattern Recognition	3-0-0	3
8		Automatic Speech Recognition	3-0-0	3
9		Estimation and Detection Theory	3-0-0	3
Category: RF and Microwave Engineering				
1		Advanced Electromagnetics	3-0-0	3
2		Advanced RF and Microwave Engineering	3-0-0	3

3		Microwave Devices and Circuits	3-0-0	3
4		Radar Engineering	3-0-0	3
5		Modern Antennas and Applications	3-0-0	3
6		Computational Electromagnetics	3-0-0	3
7		EMI and EMC	3-0-0	3
8		Millimeter Wave Technology[#]	3-0-0	3
9		Antenna Analysis and Synthesis	3-0-0	3
10		Advanced Microwave Guided-Structures and Analysis	3-0-0	3
11		Electromagnetic Waves in Guided and Wireless Media[#]	3-0-0	3
12		Microwave Integrated Circuits	3-0-0	3
13		Advanced Antenna Systems	3-0-0	3
14		Antennas, Radiation and Propagation	3-0-0	3

#: NPTEL Courses

***: Minimum two electives in the 2nd semester should be taken from any specific category based on the broad area of Major Project and suggestion of project supervisor.**

Major Project will be allotted before the registration of 2nd semester. The project distribution should be students interest based, however priority will be given based on the 1st Sem GPA and availability in the domain of interest.