



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

Effective from Admission year 2019-20 Academic Session



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.	MA11101	Mathematics I	3-1-0	4
2.	PH11101	Engineering Physics	3-0-0	3
3.	EE11101	Principles of Electrical Engineering	3-0-0	3
4.	CS11101	Computer Programming and Problem Solving	2-0-0	2
5.	CS11102	Introduction to Computer Systems	2-0-0	2
6.	HS11101	English Language and Literature	2-1-0	3
Practical and Sessionals				
7.	CS11201	Computer Programming Laboratory	0-0-4	2
8.	PH11201	Engineering Physics Laboratory	0-0-2	1
9.	EE11201	Electrical Workshop	0-0-2	1
10	ME11201	Workshop Practice	0-0-3	2
Total Credits			15-2-11	23
2nd Semester				
Theory Subjects				
1.	MA12101	Mathematics II	3-1-0	4
2.	CY12101	Engineering Chemistry	3-0-0	3
3.	EC12101	Electronics Devices and Circuits	3-0-0	3
4.	CS12101	Foundation of Computing	3-0-0	3
5.	CY12102	Health, Safety and Environment	2-0-0	2
6.	HS12101	Human Values and Effective Communication	1-2-0	3
Practical and Sessionals				
7.	CY12201	Engineering Chemistry Laboratory	0-0-2	1

8.	CS12201	Computing Laboratory	0-0-2	1
9.	EC12201	Electronics Workshop	0-0-2	1
10	ME12202	Engineering Graphics	0-0-3	2
11	ZZ12201	Professional Practice I	0-0-2	Audit
12	ZZ12202	Behaviour and Discipline	0-0-0	Audit
Total Credits			15-3-11	23

Semester III

Sl. No.	Course Code	Course Title	L	T	P	Credits
Theory Subjects						
1.	MA13101	Computational Mathematics	3	1	0	4
2.	EC13101	Network Analysis and Synthesis	3	0	0	3
3.	EC13102	Signals and Systems	3	0	0	3
4.	EC13103	Semiconductor Devices	3	0	0	3
5.	EC13104	Probability Theory and Stochastic Processes	3	0	0	3
6.	EC13105	Data Structure and Algorithms	3	0	0	3
Practical and Sessionals						
7.	EC13201	Data structure and algorithm Laboratory	0	0	2	1
8.	EC13202	Network Analysis and Synthesis Laboratory	0	0	2	1
9.	EC13203	Signals and Systems Laboratory	0	0	2	1
10.	EC13204	Semiconductor Devices Laboratory	0	0	2	1
11.	ZZ13201	Professional Practice – II	0	0	2	Audit
Total Credits			17	1	12	23

Semester IV

Sl. No.	Course Code	Course Title	L	T	P	Credits
Theory Subjects						
1.	EC14101	Analog Circuits	3	0	0	3
2.	EC14102	Analog Communication	3	0	0	3
3.	EC14103	Digital Electronics	3	0	0	3
4.	EC14104	Electromagnetic Field Theory	3	0	0	3
5.	EC14105	Microprocessor and Microcontroller	3	0	0	3
6.	EC14106	Control System Engineering	3	0	0	3
Practical and Sessionals						
7.	EC14201	Analog Circuits Laboratory	0	0	2	1
8.	EC14202	Analog Communication Laboratory	0	0	2	1
9.	EC14203	Digital Electronics Laboratory	0	0	2	1
10.	EC14204	Computer System Design Laboratory	0	0	2	1
11.	ZZ14201	Professional Practice III	0	0	2	Audit
12.	ZZ14202	Behavior and Discipline	0	0	0	Audit
Total Credits			18	0	10	22

Semester V

Sl. No.	Course Code	Course Title	L	T	P	Credits
Theory Subjects						
1.	HS15101	Engineering Economics	2	0	0	2
2.	EC15101	Digital Communication	3	0	0	3
3.	EC15102	Linear Integrated Circuits	3	0	0	3
4.	EC15103	Digital Signal Processing	3	0	0	3
5.	EC15104	Microwave Engineering	3	0	0	3

6.	EC15105	Computer Networks	3	0	0	3
		Practical and Sessionals				
7.	EC15201	Digital Communication Laboratory	0	0	2	1
8.	EC15202	Digital Signal Processing Laboratory	0	0	2	1
9.	EC15203	Integrated Circuit Laboratory	0	0	2	1
10.	EC15204	Electromagnetics and Antenna Laboratory	0	0	2	1
11.	ZZ15201	Professional Practice IV	0	0	2	Audit
		Total Credits	17	0	10	21

Semester VI

Sl. No.	Course Code	Course Title	L	T	P	Credits
		Theory Subjects				
1.	HS16101	Principles of Management	2	0	0	2
2.	EC16101	Embedded Systems	3	0	0	3
3.	EC16102	Information Theory and Coding	3	0	0	3
4.	EC16103	Analog MOS Integrated Circuits	3	0	0	3
5.	EC16104	Fundamentals of Wireless Communication	3	0	0	3
6.		Open Elective	3	0	0	3
		Practical and Sessionals				
7.	EC16201	Computer Networks Laboratory	0	0	2	1
8.	EC16202	Analog MOS Design Laboratory	0	0	2	1
9.	EC16203	Microwave Engineering Laboratory	0	0	2	1
10.	EC16204	Wireless Communication Laboratory	0	0	2	1
11.	ZZ16201	Professional Practice V	0	0	2	Audit
12.	ZZ16202	Behaviour and Discipline	0	0	0	Audit
		Total Credits	17	0	10	21

Semester VII

Sl. No.	Course Code	Course Title	L	T	P	Credits
Theory Subjects						
1.		Elective I: Project related subject	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
Practical and Sessionals						
5.		Laboratory I :	0	0	2	1
6.		Laboratory II:	0	0	2	1
7.		Laboratory III:	0	0	2	1
8.	EC17201	Practical Training Evaluation :	0	0	2	2
9.	EC17202	Major Project Part I	0	0	8	4
Total Credits			12	0	16	21

Semester VIII

Sl. No.	Course Code	Course Title	L	T	P	Credits
Theory Subjects						
1.		Elective 5: Project related subject	3	0	0	3
2.		Elective 6	3	0	0	3
3.		Elective 7	3	0	0	3
Practical and Sessionals						
4.		Laboratory IV :	0	0	2	1
5.		Laboratory V :	0	0	2	1
6.	EC18201	Major Project Part II	0	0	12	6
7.	ZZ18201	Behaviour and Discipline	-	-	-	Audit
Total Credits			9	0	16	17

- Any one elective subject may be offered as open elective (for specific departments).
- For all electives except Elective I and Elective V, the course can be selected from the approved list of elective/open elective courses. Students who are doing internship outside the institute will be permitted to opt these courses in online mode, if available. Otherwise, they may select the equivalent subject from the subjects available on the online platform with the permission of the department.
- For Elective I and Elective V, the supervisor has to assign course and also the course contents. The same should bear the approval of the departmental committee constituted by the Head. The committee must consist of minimum three faculty members. The examination and evaluation will be done by the supervisor. It is desirable that the concern supervisor selects the courses available on the online platform as approved by the department.
- Laboratory I to Laboratory V will be assigned in accordance to the elective subjects offered in that semester or may be related to some advanced software/hardware tools/techniques as decided by the department.
- Practical Training shall be carried out after completion of the sixth semester and during the summer vacation. The evaluation of the same will be done in the seventh semester. This includes internship carried out at industries/ R&D organizations/ reputed academic institutions. Any practical training/internship done before the sixth semester shall not be counted against the above.

List of Electives

Code	Course Title	Credit
EC1*111	High Speed Semiconductor Devices	3
EC1*112	Introduction to Nanoscience and Nanotechnology	3
EC1*113	Power Electronics	3
EC1*114	Active Network Synthesis	3
EC1*115	High Speed Digital Circuits	3
EC1*116	Modeling and Testing of Digital Systems	3
EC1*117	Advanced Memory Architecture	3
EC1*118	Wavelet and their Applications	3
EC1*119	Advanced Antenna System	3
EC1*120	Quantum Computation	3
EC1*121	Communication Switching Systems	3
EC1*122	Advanced Communication Networks	3
EC1*123	Opto-electronic Devices and Systems	3
EC1*124	Reliability of Semiconductor Devices	3
EC1*125	Operating Systems	3
EC1*126	Cryptography & Network Security	3
EC1*127	Multirate Systems	3
EC1*128	Digital Image Processing	3
EC1*129	Opto-electronic Communication Systems	3
EC1*130	Radar Engineering	3
EC1*131	Computational Electromagnetics	3
EC1*132	Signal Compression	3
EC1*133	Advanced Wireless Communications	3
EC1*134	Neural Networks and Genetic Algorithms	3
EC1*135	Wireless Adhoc and Sensor Networks	3
EC1*136	Architecture of Advanced Processors	3
EC1*137	Radiation and Propagation	3
EC1*138	VLSI Design	3
EC1*139	Silicon on Insulator & Advanced MOSFET based structures	3
EC1*140	Speech Processing	3
EC1*141	Data Base Management System	3
EC1*142	Ultra Wideband Communication	3
EC1*143	Software Engineering	3
EC1*144	Internet of Things	3
EC1*145	EMI and EMC	3
EC1*146	Satellite Communication	3
EC1*147	MEMS/NEMS	3
EC1*148	Modern Antennas and Applications	3
EC1*149	Electronic Measurement and Instrumentation	3
EC1*150	Computer Organization & Architecture	3
EC1*151	MOS Device Modeling	3
EC1*152	Microelectronics Technology	3
EC1*153	Artificial Intelligent	3
EC1*154	Project related subject 7 th semester	3
EC1*156	Project related subject 8 th semester	3

* The semester number in which the subject is offered.