

Course Structure for
4-Years B.Tech.
in
Electrical and Electronics Engineering

**Effective from 2018-2019 Academic Session for 2017-
21 Batch onwards**



Department of Electrical and Electronics Engineering
National Institute of Technology Sikkim
South Sikkim - 737 139

Sl. No.	Subject Code	Subject	L-T-P	Credit(s)
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 Sessional Subjects				
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 Sessional Subjects				
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	0-1-2	2
11	ZZ12201	Professional Practice I	0-0-2	Audit
12	ZZ12202	Behavior and Discipline	-	Audit
Total Credits			15-4-10	23
3rd Semester				
Theory Subjects				
1	MA13101	Computational Mathematics	3-1-0	4
2	EE13101	Circuit Theory	3-0-0	3
3	EE13102	Analog Electronic Circuits and Systems	3-0-0	3
4	EE13103	Electrical and Electronics Measurements	3-0-0	3
5	EE13104	Digital Electronics	3-0-0	3
6	EE13105	Electrical Machines I	3-0-0	3
Practical and Sessional Subjects				
7	EE13201	Basic Electrical Engineering Laboratory	0-0-2	1
8	EE13202	Electronics Laboratory	0-0-2	1
9	EE13203	Measurements Laboratory	0-0-2	1
10	EE13204	Electrical Machines Laboratory I	0-1-2	2
11	ZZ13201	Professional Practice II	0-0-2	Audit
Total Credits			18-2-10	24
4th Semester				
Theory Subjects				
1	EE14101	Numerical Analysis and Programming	3-0-0	3

2	EE14102	Network Analysis and Synthesis	3-0-0	3
3	EE14103	Engineering Materials	3-0-0	3
4	EE14104	Microprocessor and Microcontroller	3-0-0	3
5	EE14105	Power Transmission and Distribution	3-0-0	3
6	EE14106	Electrical Machines II	3-0-0	3
Practical and Sessional Subjects				
7	EE14201	Numerical Analysis and Programming Laboratory I	0-0-2	1
8	EE14202	Computer System Design Laboratory	0-0-2	1
9	EE14203	Power Systems Laboratory I	0-0-2	1
10	EE14204	Electrical Machines Laboratory II	0-1-2	2
11	ZZ14201	Professional Practice III	0-0-2	Audit
12	ZZ14202	Behavior and Discipline	-	Audit
Total Credits			18-1-10	23
5th Semester				
Theory Subjects				
1	HS15101	Engineering Economics	2-0-0	2
2	EE15101	Digital Signal Processing	3-0-0	3
3	EE15102	Power Generations and Economics	3-0-0	3
4	EE15103	Control Systems	3-0-0	3
5	EE15104	Power Electronics	3-0-0	3
6	EE15105	Power Systems Protection and Switchgear	3-0-0	3
Practical and Sessional Subjects				
7	EE15201	Numerical Analysis and Programming Laboratory II	0-0-2	1
8	EE15202	Power Systems Laboratory II	0-0-2	1
9	EE15203	Control Systems Laboratory I	0-0-2	1
10	EE15204	Power Electronics Laboratory	0-0-2	1
11	ZZ15201	Professional Practice IV	0-0-2	Audit
Total Credits			17-0-10	21
6th Semester				
Theory Subjects				
1	HS16101	Principles of Management	2-0-0	2
2	EE16101	Electric Drives	3-0-0	3
3	EE16102	Advanced Control Systems/ Recent Developments in EE	3-0-0	3
4	EE16103	Power Systems Stability and Control	3-0-0	3
5	EE16104	Communication Systems	3-0-0	3
6	EE16105	Electric Power Utilization	3-0-0	3
Practical and Sessional Subjects				
7	EE16201	Drives Laboratory	0-0-2	1
8	EE16202	Power Systems Laboratory III	0-0-2	1
9	EE16203	Control Systems Laboratory II	0-0-2	1
10	EE16204	Renewable Energy Systems Laboratory	0-0-2	1
11	ZZ16201	Professional Practice V	0-0-2	Audit
12	ZZ16202	Behavior and Discipline	-	Audit
Total Credits			17-0-10	21
7th Semester				
Theory Subjects				
1	EE171**	Elective I (Project Related Subject)	3-0-0	3

2	EE171**	Elective II	3-0-0	3
3	EE171**	Elective III	3-0-0	3
4	EE171**	Elective IV	3-0-0	3
Practical and Sessional Subjects				
5	EE172**	Laboratory I	0-0-2	1
6	EE172**	Laboratory II	0-0-2	1
7	EE172**	Laboratory III	0-0-2	1
8	EE17201	Practical Training Evaluation	0-0-2	2
9	EE17202	Project Part I	0-0-2	4
Total Credits			12-0-10	21
8th Semester				
Theory Subjects				
1	EE181**	Elective V (Project Related Subject)	3-0-0	3
2	EE181**	Elective VI	3-0-0	3
3	EE181**	Elective VII	3-0-0	3
Practical and Sessional Subjects				
4	EE182**	Laboratory IV	0-0-2	1
5	EE182**	Laboratory V	0-0-2	1
6	EE18201	Project Part II	0-0-4	6
7	ZZ18201	Behavior and Discipline	-	Audit
Total Credits			9-0-8	17

- Any elective subject may be offered as an open elective (for specific department(s))
- 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 the online mode, if available.
- For Elective-I and Elective-V, course contents / online course will be suggested by the supervisor(s) and evaluation will be done by the supervisor(s).
- Laboratory I to Laboratory V will be assigned in accordance to the elective subjects offered in respective semester.
- Practical Training carried out after the sixth semester will be evaluated in the seventh semester. This also covers internship carried out at industries/ R&D organizations/ reputed academic institutions.

List of Electives			
EE1*111	Power Plant Engineering	3-0-0	3
EE1*112	Special Machines and Applications	3-0-0	3
EE1*113	Applications of Analog Integrated Circuits	3-0-0	3
EE1*114	Digital Control Systems	3-0-0	3
EE1*115	Soft Computing Techniques	3-0-0	3
EE1*116	Distribution Systems	3-0-0	3
EE1*117	Fundamentals of Photovoltaics and Semiconductor Devices	3-0-0	3
EE1*118	Machine Learning and Robotics	3-0-0	3
EE1*119	Hybrid Electric Vehicles	3-0-0	3
EE1*120	Advanced DC – AC Power Conversion	3-0-0	3
EE1*121	Power System Deregulation	3-0-0	3
EE1*122	Wide Area Monitoring and Control of Power Systems	3-0-0	3
EE1*123	Applications of Power Electronics in Power Systems	3-0-0	3
EE1*124	Optimal and Adaptive Control	3-0-0	3
EE1*125	System Identification and Parameter Estimation	3-0-0	3
EE1*126	Flexible AC Transmission Systems	3-0-0	3
EE1*127	Power Quality	3-0-0	3
EE1*128	High Voltage Direct Current Transmission	3-0-0	3
EE1*129	Biomedical Instrumentation	3-0-0	3
EE1*130	Illumination Engineering	3-0-0	3
EE1*131	Advanced Processor Architecture and System Organization	3-0-0	3
EE1*132	Control and Guidance Engineering	3-0-0	3
EE1*133	Computer-aided Power Systems	3-0-0	3
EE1*134	High Voltage Engineering	3-0-0	3
EE1*135	Energy Auditing, Conservation and Management	3-0-0	3
EE1*136	Digital Protective Relaying	3-0-0	3
EE1*137	Internet of Things and Applications	3-0-0	3
EE1*138	Advanced Control Systems/ Recent Developments in EE	3-0-0	3
EE1*139	Renewable Energy Systems and Applications	3-0-0	3
EE1*140	Optimization Techniques and Algorithms	3-0-0	3
EE1*141	Wireless Sensor Network	3-0-0	3
EE1*142	Electric Vehicles	3-0-0	3
EE1*143	Nature Inspired Optimization Techniques	3-0-0	3
EE1*144	Deep Learning	3-0-0	3
EE1*145	Switched Mode Power Supplies	3-0-0	3

* The semester number in which the subject is offered.