

Course Structure
for
2-Years M.Tech. in Electrical Engineering
(Control, Power and Electric Drives)

Effective from 2019-2020 Academic Session



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)
1stSemester				
Theory Subjects				
1	EE21101	Power System Analysis and Operation	3-0-0	3
2	EE21102	Advanced Power Electronics	3-0-0	3
3	EE21103	Advanced Control Systems	3-0-0	3
4	EE211**	Elective I	3-0-0	3
5	EE211**	Elective II	3-0-0	3
Practical Subjects				
6	EE21201	Programming Laboratory	0-0-3	2
7	EE21202	Power Systems Laboratory I	0-0-3	2
8	EE21203	Power Electronics Laboratory	0-0-3	2
9	EE21204	Control Systems Laboratory	0-0-3	2
Total Credits			15-0-12	23
2ndSemester				
Theory Subjects				
1	EE22101	Power System Stability and Control	3-0-0	3
2	EE22102	Advanced Electric Drives	3-0-0	3
3	EE22103	Intelligent Control Systems	3-0-0	3
4	EE221**	Elective III	3-0-0	3
5	EE221**	Elective IV	3-0-0	3
Practical Subjects				
6	EE22201	Power Systems Laboratory II	0-0-3	2
7	EE22202	Drives Laboratory	0-0-3	2
8	EE22203	Intelligent Control Systems Laboratory	0-0-3	2
9	EE22204	Laboratory I	0-0-3	2
Total Credits			15-0-12	23
3rd Semester				
1	EE23101	Literature Review and Report Writing	0-0-2	4
2	EE231**	Dissertation Related Tools and Technologies	0-0-2	3
3	EE23201	Dissertation Part I		6
Total Credits			----	13
4th Semester				
1	EE24201	Dissertation Part II	-	16
Total Credits			-	16

- Laboratory I will be assigned in accordance to the elective subjects offered in respective semester or may be related to some advanced software/ hardware tools/ techniques as decided by the department.
- Literature Review will be based on research papers / selected topics from books, etc as directed by the supervisor(s).
- Evaluation of the Dissertation consists of two parts, 1) internal evaluation- by the departmental committee, 2) external evaluation- the department committee shall consist of at least one external member. There should be at least two mid-term evaluations by the department and one external evaluation.

Tentative List of Electives**				
Sl. No.	Subject Code	Subject	L-T-P	Credit(s)
1.	EE2*111	Optimization Techniques and Algorithms	3-0-0	3
2.	EE2*112	Flexible AC Transmission Systems	3-0-0	3
3.	EE2*113	Power System Deregulation	3-0-0	3
4.	EE2*114	Machine Learning and Robotics	3-0-0	3
5.	EE2*115	Electric Vehicles	3-0-0	3
6.	EE2*116	System Identification and Parameter Estimation	3-0-0	3
7.	EE2*117	High Voltage Direct Current Transmission	3-0-0	3
8.	EE2*118	Optimal and Adaptive Control	3-0-0	3
9.	EE2*119	Power Quality	3-0-0	3
10.	EE2*120	Switched Mode Power Supplies	3-0-0	3
11.	EE2*121	Wide Area Monitoring and Control of Power Systems	3-0-0	3
12.	EE2*122	Digital Control Systems	3-0-0	3
13.	EE2*123	Soft Computing Techniques	3-0-0	3
14.	EE2*124	Nature Inspired Optimization Techniques	3-0-0	3
15.	EE2*125	Internet of Things and Applications	3-0-0	3
16.	EE2*126	Deep Learning	3-0-0	3
17.	EE2*127	Renewable Energy Systems and Applications	3-0-0	3
18.	EE2*128	Research Methodology	3-0-0	3

* The semester number in which the subject is offered.

** May be taken from department/institute and/or online resources e.g. MOOCS, SWAYAM, NPTEL as advised by the Department. Final evaluation will be at NIT Sikkim.

**More electives may be offered on advanced and recent topics as per availability of resources.