Branch Code: EE1

M.Tech. in ELECTRICAL ENGINEERING
STREAM: COMMUNICATIONS AND SIGNAL PROCESSING
2018 Batch

Semester 1

S.No	Course No	Course Name	L	T	E	P	O	C
1		MTech core I^	4	0	0	0	8	12
2		MTech core II^	4	0	0	0	8	12
3		MTech core III^	4	0	0	0	8	12
4		MTech core IV^	4	0	0	0	8	12
		Total	**16**	**0**	**0**	**0**	**32**	**48**

^ Total number of core credits must be at least 48. Core courses are to be taken from the following basket of core courses (courses can be added to this basket with HOD approval):

No.	Course No.	Title	L	T	E	P	O	C
1	EE5110	Probability Foundations for Electrical Engineers	4	0	0	0	8	12
2	EE5120	Applied Linear Algebra I for EE	4	0	0	0	8	12
3	EE5130	Digital signal processing	4	0	0	0	8	12
4	EE5151	Communication techniques	4	0	0	0	8	12
5	EE5140	Digital modulation and coding	4	0	0	0	8	12
6	EE5150	Communication Networks	4	0	0	0	8	12
7	EE5505	Wave propagation in communications	4	0	0	0	8	12
8	EE5500	Introduction to photonics	4	0	0	0	8	12
9	EE5142	Introduction to Information Theory and Coding	4	0	0	0	8	12
10	EE5153	Foundations of Optical Networking	4	0	0	0	8	12

Semester 2

S.No	Course No	Course Name	L	T	E	P	O	C
1		Electives**	0	0	0	0	0	0

SUMMER

S.No	Course No	Course Name	L	T	E	P	O	C
1	EE6901	Project I	0	0	0	0	25	25

Semester 3

S.No	Course No	Course Name	L	T	E	P	O	C
1	EE6902	Project II	0	0	0	0	30	30
2		Electives**						

Semester 4

S.No	Course No	Course Name	L	T	E	P	O	C
1	EE6903	Project III	0	0	0	0	30	30
		Total						**30**

Semester	I	II	Summer	III	IV	Total
Credits	48	0**	25	30**	30	190

** Indicated credits are only for core programme. In addition, 57 credits of electives have to be taken. Of these 57 elective credits, 45 credits of electives have to be taken from Elec. Engg. (or equivalent) at the 5000 level or higher, and 12 credits can be taken in any department at the 5000 level or higher. All elective lab courses will also be eligible. Courses from the core basket can also be taken as electives after the minimum requirement for core courses are satisfied.

The EE Department proposes to split the M.Tech project into two phases --- Project Phase-1 carrying 55-credits (to be carried out usually over the summer and the odd semester), and Project Phase-2 carrying 30-credits (to be carried out in the even semester).

Project Phase-1 is mandated for all students. On the other hand, Project Phase-2, which is the continuation of Phase-1, can be pursued only if it is approved by the evaluation committee.

At the end of Project Phase-1, the student should submit a report and make a presentation. The committee will then recommend whether or not the student is eligible to pursue Project Phase-2. If the student is not found eligible, additional course work has to be done so as to meet the total credit requirements for obtaining the M.Tech degree.

EE1 Communication and Signal Processing

Core credits: 48

Courses from the following list have to be taken to satisfy core credit requirements. Courses from this list can also be taken to satisfy elective credits once the core requirements are met.

Number	Name	Credits
EE5110	Probability Foundations for Electrical Engineers	12
EE5120	Applied Linear Algebra I for EE	12
EE5130	Digital Signal Processing	12
EE5140	Digital Modulation and Coding	12
EE5143	Information Theory	9
EE5150	Communication Networks	12
EE5151	Communication Techniques	12
EE5153	Foundations of Optical Networking	12
EE5500	Introduction to Photonics	12
EE5505	Wave Propagation in Communication	9

Elective credits: 57

Courses from the following list can be taken to satisfy elective credit requirements.

Number	Name	Credits
EE5111	Estimation Theory	12
EE5112	Detection Theory	12
EE5113	Detection and Estimation Theory	12
EE5121	Convex Optimization	12
EE5131	Selected Topics in Digital Signal Processing	9
EE5141	Introduction to Wireless & Cellular Communication	12
EE5152	Broadband Communication Systems	9
EE5154	Complex Network Analysis	12
EE5155	Wireless Networks	12
EE5156	Internet of Things and Management of Discrete Entities	6
EE5160	Error Control Coding	9
EE5161	Modern Coding Theory	9
EE5162	Topics in Information Theory	9

EE5163	Digital Signal Compression	9
EE5170	Speech Signal Processing	12
EE5175	Image Signal Processing	12
EE6110	Adaptive Signal Processing	12
EE6111	Spectral Estimation	12
EE6112	Topics in Random Processes and Concentrations	9
EE6130	Advanced Topics in Signal Processes	9
EE6131	Digital Filter Design	12
EE6132	Advanced Topics in Signal Processing	9
EE6133	Multirate Digital Signal Processing	9
EE6140	Multi-Antenna Digital Communications	12
EE6141	Multicarrier Communications	12
EE6142	Advanced Topics in Communications	9
EE6143	Advanced Topics in Communications	9
EE6150	Stochastic Modeling and the Theory of Queues	12
EE6151	Advanced Topics in Networks	9
EE6152	Advanced Topics in Networks	9
EE6180	Advanced Topics in Artificial Intelligence	9