



**INDIAN INSTITUTE OF TECHNOLOGY MADRAS  
CHENNAI 600 036**

**Curriculum for  
M.Tech. Degree Programme  
2023 Batch**



# Branch Code: EE1

## M.Tech. in ELECTRICAL ENGINEERING STREAM: COMMUNICATIONS AND SIGNAL PROCESSING 2023 Batch

### Semester 1

S.No	Course No	Course Name	L	T	E	P	O	C
1		MTech core I <sup>^</sup>	4	0	0	0	8	12
2		MTech core II <sup>^</sup>	4	0	0	0	8	12
3		MTech core III <sup>^</sup>	4	0	0	0	8	12
4		MTech core IV <sup>^</sup>	3	0	0	0	6	9
5	GN5003	Personal and Professional Growth	1	0	0	0	2	0
		<b>Total</b>	<b>15</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>30</b>	<b>45</b>

<sup>^</sup> Total number of core credits must be at least 45. 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
11	EE5143	Information Theory	3	0	0	0	6	9

**Note: Only one of the two courses EE5142 and EE5143 can be taken to meet the credit requirement.**

### 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
		<b>Total</b>						<b>30</b>

Semester	I	II	Summer	III	IV	Total
<b>Credits</b>	<b>45</b>	<b>0**</b>	<b>25</b>	<b>30**</b>	<b>30</b>	<b>190</b>

\*\* Indicated credits are only for core programme. In addition, 60 credits of electives have to be taken. Of these 60 elective credits, 48 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.

- *M.Tech. students who go on an internship in the summer after their (2nd semester) must do EE6901 in the summer after their (4th semester). For these students, grading will be done for 30 credits (EE6902) at the end of their (3rd semester).*
- *For M.Tech. students who do EE6901 in the summer after their 2nd semester, grading will be done for 55 credits (EE6901 and EE6902) at the end of their 3rd semester.*
- *Students who receive a grade of 'D', 'E', 'U' or 'W' in the project at the end of their 3rd semester will have to take EE electives for 30 credits in their final semester in lieu of EE6903.*

# Branch Code: EE2

## M.Tech. in ELECTRICAL ENGINEERING STREAM: Power Systems and Power Electronics 2023 Batch

### Semester 1

S.No	Course No	Course Name	L	T	E	P	O	C
1	EE5200	Power Converter Analysis and Design	3	0	0	0	6	9
2	EE5201	Modeling and Analysis of Electric Machines	3	0	0	0	6	9
3	EE5253	Computer Method in Power System Analysis	3	0	0	0	6	9
4		Electives **						**
5	GN5003	Personal and Professional Growth	1	0	0	0	2	0
		<b>Total</b>						<b>27**</b>

### Semester 2

S.No	Course No	Course Name	L	T	E	P	O	C
1	EE5254	High Voltage Engineering	3	0	0	0	6	9
2	EE5702	Laboratory (Power)	0	0	0	3	3	6
3		Electives **						**
		<b>Total</b>						<b>15**</b>

### 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

### Semester 4

S.No	Course No	Course Name	L	T	E	P	O	C
1	EE6903	Project III	0	0	0	0	30	30
		<b>Total</b>						<b>30</b>

Semester	I	II	Summer	III	IV	Total
Credits	27**	15**	25*	30*	30*	190

\*\* Indicated credits are only for core programme. In addition, a minimum of **63 credits of electives** have to be taken either from the list of electives added in the next page or from the electives offered by any Department of the Institution at the 5000 level or higher.

• M.Tech. students who go on an internship in the summer after their (2nd semester) must do EE6901 in the summer after their (4th semester). For these students, grading will be done for 30 credits (EE6902) at the end of their (3rd semester).

• For M.Tech. students who do EE6901 in the summer after their 2nd semester, grading will be done for 55 credits (EE6901 and EE6902) at the end of their 3rd semester.

• Students who receive a grade of 'D', 'E', 'U' or 'W' in the project at the end of their 3rd semester will have to take EE electives for 30 credits in their final semester in lieu of EE6903.

## SUGGESTED LIST OF ELECTIVES

S.No	Course No	Course Name	L	T	E	P	O	C
1.	EE5202	Computer Aided Design of Electrical Machines	3	0	0	0	6	9
2.	EE5203	Switched mode power conversion	3	0	0	0	6	9
3.	EE5212	Digital Control of Power Electronics	3	0	0	0	6	9
4.	EE5256	Computer Applications in power system operation and planning	3	0	0	0	6	9
5.	EE5257	Energy Management Systems and SCADA	3	0	0	0	6	9
6.	EE5258	Power System Optimization	3	0	0	0	6	9
7.	EE5260	Power Quality	3	0	0	0	6	9
8.	EE5261	FACTS	3	0	0	0	6	9
9.	EE6010	Smart Power Grids	3	0	0	0	6	9
10.	EE6200	Power electronic control of electrical machines	3	0	0	0	6	9
11.	EE6201	Digital simulation of power electronic circuits & systems	3	0	0	0	6	9
12.	EE6253	Power System Stability and Control	3	0	0	0	6	9
13.	EE6254	Advanced topics in Insulation	3	0	0	0	6	9
14.	EE6255	Power system protection	3	0	0	0	6	9
15.	EE6258	DC Power Transmission	3	0	0	0	6	9
16.	EE6259	Distributed Power systems	3	0	0	0	6	9
17.	EE6261	Restructured Power Systems	3	0	0	0	6	9
18.	EE6262	Advanced motor control	3	0	0	0	6	9
19.	EE7201	Directed study on Research Topics	4	0	0	0	8	12

**Branch Code: EE3**  
**M.Tech. in ELECTRICAL ENGINEERING**  
**STREAM: Microelectronics and VLSI Design**  
**2023 Batch**

**Semester 1**

S.No	Course No	Course Name	L	T	E	P	O	C
1		MTech core I <sup>^</sup>	4	0	0	0	8	12
2		MTech core II <sup>^</sup>	4	0	0	0	8	12
3		MTech core III <sup>^</sup>	4	0	0	0	8	12
4		MTech core IV <sup>^</sup>	4	0	0	0	8	12
5	GN5003	Personal and Professional Growth	1	0	0	0	2	0
		<b>Total</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>32</b>	<b>48</b>

<sup>^</sup> 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	EE5311	Digital IC design	4	0	0	0	8	12
2	EE5310	Analog electronic circuits	4	0	0	0	8	12
3	EE5190	Analog IC Design	4	0	0	0	8	12
4	EE5313	Semiconductor device modelling	4	0	0	0	8	12
5	EE5312	VLSI technology	4	0	0	0	8	12
6	EE5341	MOS device modeling	3	0	0	0	6	9
7	EE5340	Micro electro mechanical systems	3	0	0	0	6	9
8	EE5130	Digital signal processing	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
		<b>Total</b>						<b>30</b>

Semester	I	II	Summer	III	IV	Total
<b>Credits</b>	<b>48</b>	<b>0**</b>	<b>25</b>	<b>30</b>	<b>30</b>	<b>190</b>

\*\* Indicated credits are only for core programme. In addition, **57 credits of electives** have to be taken. Of these 57 credits, 39 credits of electives have to be taken from a specified basket of EE3 electives in Elec. Engg. (or equivalent) at the 5000 level or higher, and 18 credits can be taken from any course in Elec. Engg. (or equivalent) 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.

- M.Tech. students who go on an internship in the summer after their (2nd semester) must do EE6901 in the summer after their (4th semester). For these students, grading will be done for 30 credits (EE6902) at the end of their (3rd semester).
- For M.Tech. students who do EE6901 in the summer after their 2nd semester, grading will be done for 55 credits (EE6901 and EE6902) at the end of their 3rd semester.
- Students who receive a grade of 'D', 'E', 'U' or 'W' in the project at the end of their 3rd semester will have to take EE electives for 30 credits in their final semester in lieu of EE6903.

# Branch Code: EE4

## M.Tech. in ELECTRICAL ENGINEERING STREAM: Electronic System Design and Instrumentation 2023 Batch

### Semester 1

S.No	Course No	Course Name	L	T	E	P	O	C
1	EE5400	Analog and Digital Systems	2	0	0	3	7	12
2	EE5401	Measurements and Instrumentation	4	0	0	0	8	12
3		Core I #						12
4		Core II #						12
5		Electives **						**
6	GN5003	Personal and Professional Growth	1	0	0	0	2	0
		<b>Total</b>						<b>48**</b>

#Core-I and II shall be selected from the core baskets I and II respectively

### Core Basket-1

S.No	Course No	Course Name	L	T	E	P	O	C
1	EE5413	Linear Dynamical Systems	4	0	0	0	8	12
2	EE5411	Synthesis of Control Systems	4	0	0	0	8	12
3	EE5412	Mathematical Methods in Systems Engg.	4	0	0	0	8	12
4	EE6415	Nonlinear Systems Analysis	3	1	0	0	8	12

### Core Basket-II

S.No	Course No	Course Name	L	T	E	P	O	C
1	EE5410 <sup>(note-2)</sup>	Introduction to Digital Signal Processing	3	1	0	0	8	12
2	EE5130 <sup>(note-2)</sup>	Digital Signal Processing	4	0	0	0	8	12
3	EE5120	Applied Linear Algebra I for EE	4	0	0	0	8	12
4	EE5011	Computer Methods in Electrical Engineering	2	0	0	3	7	12
5	EE5110	Probability Foundations for Electrical Engineers	3	1	0	0	8	12
6	EE5500	Introduction to Photonics	3	0	0	0	6	9

(note-2): One can register for either EE5130 or EE5410 but not both.

### Semester 2

S.No	Course No	Course Name	L	T	E	P	O	C
1		Electives						
		<b>Total</b>						<b>0**</b>

### 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**						**
								<b>30**</b>

### Semester 4

S.No	Course No	Course Name	L	T	E	P	O	C
1	EE6902	Project III	0	0	0	0	30	30

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

\*\* Indicated credits are only for core programme. In addition, 60 credits of electives have to be taken. Of these elective credits, 40 credits of electives have to be taken from Elec. Engg. (or equivalent) at the 5000 level or higher. The remaining 20 elective 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, from Elec. Engg., after the minimum requirement for core courses are satisfied.

• M.Tech. students who go on an internship in the summer after their (2nd semester) must do EE6901 in the summer after their (4th semester). For these students, grading will be done for 30 credits (EE6902) at the end of their (3rd semester).

• For M.Tech. students who do EE6901 in the summer after their 2nd semester, grading will be done for 55 credits (EE6901 and EE6902) at the end of their 3rd semester.

• Students who receive a grade of 'D', 'E', 'U' or 'W' in the project at the end of their 3rd semester will have to take EE electives for 30 credits in their final semester in lieu of EE6903.

#### List of Electives (EE)

Course No	Course Name
EE6403	Transducers
EE6402	Biomedical Electronic Systems
EE5340	Micro Electro Mechanical Systems
EE6404	Power System Instrumentation
EE6407	Instrumentation for Ocean Technology
EE6491	Advanced Topics in Instrumentation
EE6412	Optimal Control
EE5130	Digital Signal Processing
EE5002	Analysis of Networks & Systems
EE5331	DSP Architectures & Embedded Systems
EE6501	Optical Sensors
EE5311	Digital IC Design
EE5200	Power Converter Analysis and Design
EE5203	Switched Mode Power Conversion
EE5179	Deep Learning for Imaging
EE5180	Introduction to Machine Learning
EE6506	Computational Electromagnetics
EE5131	Selected Topics in Digital Signal Processing
EE5175	Image Signal Processing
EE7401	Directed Study on Research Topics

#### Suggested list of Electives (Outside EE)

Course No	Course Name
ED5052	Electromagnetic Compatibility for Product Design
ED5080	Mechatronics System Design
ED5160	Fundamentals of Automotive Systems
ED5314	Design, Analysis and Control of Robot Manipulators
ED5235	Power Electronics and Motor Drives for Electrified Vehicles
ED6001	Medical Image Analysis
ED5070	Design of Monitoring and Diagnostic System (L&P)
CH5350	Applied Time Series Analysis
CH5230	Data-driven Modelling of Process System
ED5340	Data Science: Theory and practice
ID6015	Advances in Machine Learning Solutions for Engineering Problems



# Branch Code: EE5

## M.Tech. in ELECTRICAL ENGINEERING STREAM: RF and Photonics 2023 Batch

### Semester 1

S.No	Course No	Course Name	L	T	E	P	O	C
1	EE5500	Introduction to photonics	3	1	0	0	5	9
2	EE5505	Wave propagation in communication	3	1	0	0	5	9
3	EE5400	Analog and Digital Circuits	2	0	0	3	7	12
4	EE5501	Photonics Laboratory	0	0	0	3	3	6
5	GN5003	Personal and Professional Growth	1	0	0	0	2	0
		<b>Total</b>						<b>36</b>

### Semester 2

S.No	Course No	Course Name	L	T	E	P	O	C
1	EE5507	RF Systems Laboratory	0	0	0	3	3	6
2	EE6000	Seminar	1	0	0	0	2	3
		<b>Total</b>						<b>9</b>

### 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

### Semester 4

S.No	Course No	Course Name	L	T	E	P	O	C
1	EE6903	Project III	0	0	0	0	30	30
		<b>Total</b>						<b>30</b>

Semester	I	II	Summer	III	IV	Total
<b>Credits</b>	<b>36**</b>	<b>9**</b>	<b>25</b>	<b>30**</b>	<b>30</b>	<b>190</b>

\*\* Indicated credits are only for core programme. In addition, **60 credits of electives** have to be taken. All elective credits should be at the 5000 level or higher- courses of the institute, subject to the approval of the faculty advisor. Suggested list of elective courses are given below.

• M.Tech. students who go on an internship in the summer after their (2nd semester) must do EE6901 in the summer after their (4th semester). For these students, grading will be done for 30 credits (EE6902) at the end of their (3rd semester).

• For M.Tech. students who do EE6901 in the summer after their 2nd semester, grading will be done for 55 credits (EE6901 and EE6902) at the end of their 3rd semester.

• Students who receive a grade of 'D', 'E', 'U' or 'W' in the project at the end of their 3rd semester will have to take EE electives for 30 credits in their final semester in lieu of EE6903.

## Suggested List of Elective Courses

Course No.	Course Name	Credits
EE5502	Optical Engineering	12
EE5504	Fibre Optic Communication Technology	12
EE5410/ EE5130	Introduction to DSP/Digital Signal Processing	11
EE6500	Integrated Optoelectronic Devices and Circuits	12
EE6501	Optical Sensors	9
EE6700	Advanced Photonics Laboratory	9
EE6505	Waveguides, microwave circuits and antennas	12
ED5316	Antenna Theory and Design	10
	Radar and Signal Processing/ Radar Systems	
EE6320	RF Integrated Circuits	9
ED5052	Electromagnetic Compatibility for Product Design	11
EE8007	Microwave Photonics- Technologies, Systems and Networks	6
EE5153	Foundations of Optical Networking	12
EE5011	Computer Methods in EE	9
EE5312	VLSI Technology	12
PH5814	Laser Theory (Physics Dept)	9
EE5110	Probability Foundations for Signal Processing	11
EE5150	Communication Networks	12
EE5340	Micro Electro Mechanical Systems	9
EE5182	Computational Electromagnetics	12
PH5620	Coherent and Quantum Optics	9
PH6360	Nonlinear optical proc and devices	9
PH5890	Ultrafast Laser and Applications	9
EE6420	Optical Communication Networks	9
EE6502	Optical Signal Processing and Quantum Comm	9
EE7500	Advanced topics in RF and Photonics	9
EE7001	Directed Study on Research Topics	9

Remaining elective credits can be any 5xxx/6xxx/7xxx courses with the approval of faculty advisor.

**Branch Code: EE6**  
**M.Tech. in ELECTRICAL ENGINEERING**  
**STREAM: Integrated Circuits & Systems**  
**2023 Batch**

**Semester 1**

S.No	Course No	Course Name	L	T	E	P	O	C
1	EE5310	Analog Electronic Circuits	4	0	0	0	8	12
2	EE5311	Digital IC Design	4	0	0	0	8	12
3		Elective Courses						**
4	GN5003	Personal and Professional Growth	1	0	0	0	2	0
		<b>Total</b>						<b>24**</b>

**Semester 2**

S.No	Course No	Course Name	L	T	E	P	O	C
		Elective Courses						**

**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

**Semester 4**

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

Semester	I	II	Summer	III	IV	Total
<b>Credits</b>	<b>24**</b>	<b>0**</b>	<b>25</b>	<b>30**</b>	<b>30</b>	<b>190</b>

\*\* Only core credits are shown. In the EE6 curriculum, **81 credits of electives** have to be taken. Of these 81 credits, 48 credits of electives have to be taken from the specified basket of EE6 electives, and 24 credits can be taken from any course in Elec. Engg. (or equivalent) at the 5000 level or higher. All elective lab courses will also be eligible. All course credits should be finished in the first two semesters. EE6 students will be allowed to register only for project credits in the second year (including summer between second and third semesters).

• M.Tech. students who go on an internship in the summer after their (2nd semester) must do EE6901 in the summer after their (4th semester). For these students, grading will be done for 30 credits (EE6902) at the end of their (3rd semester).

• For M.Tech. students who do EE6901 in the summer after their 2nd semester, grading will be done for 55 credits (EE6901 and EE6902) at the end of their 3rd semester.

• Students who receive a grade of 'D', 'E', 'U' or 'W' in the project at the end of their 3rd semester will have to take EE electives for 30 credits in their final semester in lieu of EE6903.

**Elective courses in the EE6 area are to be taken from the following basket of courses (courses can be added to this basket with HOD approval):**

- 1) EE5130 Digital Signal Processing
- 2) EE5410 Introduction to DSP
- 3) EE5110 Probability Foundations for Electrical Engineers
- 4) EE5330 Computer-Aided Design and Analysis of Digital ICs
- 5) EE5331 DSP Architectures & Embedded Systems
- 6) EE5332 Mapping Signal Processing Algorithms to DSP Architectures
- 7) EE5320 Analog IC Design
- 8) EE5321 Active Filter Design
- 9) EE5323 Advanced Electrical Networks
- 10) EE5325 Power Management Integrated Circuits
- 11) EE5350 Linear algebra techniques for data analysis and modelling
- 12) EE6320 RF Integrated Circuits
- 13) EE6321 VLSI Data Conversion Circuits
- 14) EE6322 VLSI Broadband Communication Circuits
- 15) EE6323 Wireless System Design
- 16) EE6324 Phase-Locked Loops
- 17) EE6325 Advanced Power Management Systems
- 18) EE6350 Analysis of noise in systems
- 19) EE6360 Advanced topics in VLSI
- 20) EE6361 Advanced topics in VLSI
- 21) EE7301 Directed Study on Research Topics
- 22) CS6330 Digital System Testing & Testable Design
- 23) CS6230 CAD for VLSI
- 24) EE5313 Semiconductor Device Modelling
- 25) EE5200 Power converter analysis and design
- 26) EE5140 Digital modulation and coding
- 27) EE6402 Biomedical Electronic Systems
- 28) EE6402 Transducers for Instrumentation
- 29) EE5401 Measurements and Instrumentation
- 30) EE5203 Switched mode power conversion

**Branch Code: EE7**  
**M.Tech. in ELECTRICAL ENGINEERING**  
**STREAM: Control and Optimization**  
**2023 Batch**

**Semester 1**

S.No	Course No	Course Name	L	T	E	P	O	C
1		MTech Core 1	4	0	0	0	8	12
2		MTech Core 2	4	0	0	0	8	12
3		MTech Core 3	3	0	0	0	6	9
4	GN5003	Personal and Professional Growth	1	0	0	0	2	0
5		Elective**						
		<b>Total</b>						<b>39</b>

**Semester 2**

S.No	Course No	Course Name	L	T	E	P	O	C
1	EE5419	Advanced Control Laboratory	0	0	0	3	3	6
2		Elective **						

**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

**Semester 4**

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

Semester	I	II	Summer	III	IV	Total
<b>Credits</b>	<b>39**</b>	<b>0**</b>	<b>25</b>	<b>30**</b>	<b>30</b>	<b>190</b>

\*\*Indicated credits are only for the core courses. Total number of credits to be earned is 190. At least 33 credits have to be earned from the courses in the core basket. In addition to the 33 credits from the core basket, at least 48 credits have to be earned from the courses in the core basket and the suggested lists of electives. Up to 18 elective credits can be taken in any department at the 5000 level or higher, subject to the approval of the Faculty Advisor.

• *M.Tech. students who go on an internship in the summer after their (2nd semester) must do EE6901 in the summer after their (4th semester). For these students, grading will be done for 30 credits (EE6902) at the end of their (3rd semester).*

• *For M.Tech. students who do EE6901 in the summer after their 2nd semester, grading will be done for 55 credits (EE6901 and EE6902) at the end of their 3rd semester.*

• *Students who receive a grade of 'D', 'E', 'U' or 'W' in the project at the end of their 3rd semester will have to take EE electives for 30 credits in their final semester in lieu of EE6903.*

**Core basket**

No	Course No	Course Name	Credits
1	EE5413	Linear Dynamical Systems	12
2	EE5412	Mathematical Methods in Systems Engineering	12
3	EE6412	Optimal Control	12
4	EE6415	Nonlinear Systems Analysis	12
5	EE6430	Fundamentals of Linear Optimization	9
6	EE5411	Synthesis of Control Systems	12

**Suggested List of Electives (From EE)**

S No	Course No	Course Name	Credits
1	EE6432	Stochastic Control	12
2	EE6433	Distributed Optimization for Control	12
3	EE6417	Allied topics in Control Systems	9
4	EE6419	Geometric Nonlinear Control Theory	9
5	EE6418	Dynamic Games - Theory and Applications	9
6	EE6431	Nonsmooth Analysis in Control and Optimization	9
7	EE5110	Probability Foundations for Electrical Engineers	12
8	EE5121	Convex Optimization	12

**Suggested List of Electives (Outside EE)**

S No	Course No	Course Name	Credits
1	CH5120	Modern Control Theory	9
2	CH5115	Parameter and State Estimation	10
3	CS6700	Reinforcement Learning	12
4	ED6007	Mechanics and Control of Serial Robots	12
5	CH5350	Applied Time Series Analysis	9
6	CH 5230	Data-driven Modelling of Process Systems	9