

**DEPARTMENT OF ELECTRICAL ENGINEERING  
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE**

Program Code : **XXX M.Tech. (Electric Drives and Power Electronics)**  
 Department : **Department of Electrical Engineering**  
 Year : **I**  
 Model : **2**

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
<b>Semester-I (Autumn)</b>									
1.	EEC-511	Advanced Power Electronics	PCC	4	3	1	2/2	3	0
2.	EEC-513	Modeling and Analysis of Electrical Machines	PCC	4	3	0	2	3	0
3.	EEC-515	Power Electronic Controlled Drives	PCC	4	3	0	2	3	0
4.	EEC-517	Power Converters for Sustainable Energy	PCC	4	3	0	2	3	0
5.		Social Science Course	SSC	2	-	-	-	-	-
		<b>Total</b>		<b>18</b>					
<b>Semester-II (Spring)</b>									
1.		Program Elective-I	PEC	4	-	-	-	-	-
2.		Program Elective-II	PEC	4	-	-	-	-	-
3.		Program Elective-III	PEC	4	-	-	-	-	-
4.		Program Elective-IV	PEC	4	-	-	-	-	-
5.		Science, Technology, and Advanced Research-tools	STAR	3	-	-	-	-	-
6.	EEC-700	Seminar	SEM	2	-	-	-	-	-
		<b>Total</b>		<b>21</b>					

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 Model : **2**

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
<b>Semester-I (Autumn)</b>									
1.	EEC-691	Internship Social Activity	ISA	3	-	-	-	-	-
2.	EEC-701A	Thesis Stage-I	THESIS	10	-	-	-	-	-
		<b>Total</b>		<b>13</b>					
<b>Semester-II (Spring)</b>									
1.	EEC-701B	Thesis Stage-II	THESIS	14	-	-	-	-	-
		<b>Total</b>		<b>14</b>					

Summary				
Semester	1	2	3	4
Semester-wise Total Credits	18	21	13	14
<b>Total Credits</b>	<b>66</b>			

**M.Tech. (Electric Drives and Power Electronics)**

**Program Elective Courses**

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
1.	EEL-543	FACTS Devices	PEC	4	3	1	0	3	0
2.	EEL-641	Microcontroller and Its Applications to Power Converters	PEC	4	3	0	2	3	0
3.	EEL-647	Control Techniques in Power Electronics for AC Drives	PEC	4	3	0	2	3	0
4.	EEL-648	Pulse Width Modulation for Power Converters	PEC	4	3	1	0	3	0
5.	EEL-649	Enhanced Power Quality AC-DC Converters	PEC	4	3	0	2	3	0
6.	EEL-650	Switch Mode Power Supply	PEC	4	3	1	0	3	0
7.	EEL-651	Power Quality Improvement Techniques	PEC	4	3	0	2	3	0
8.	EEL-653	Selected Topics in Machines and Transformers	PEC	4	3	0	2	3	0
9.	EEL-654	Synchronous Machines and System Stability	PEC	4	3	1	0	3	0
10.	EEL-655	Special Machines	PEC	4	3	1	0	3	0
11.	EEL-673	Design of WBG Device based Power Converters	PEC	4	3	0	2	3	0
12.	EEL-634	High Power Converters for EV	PEC	4	3	1	0	3	0
13.	EEL-635	Digital Implementation for Power Electronics Systems	PEC	4	3	0	2	3	0
14.	EEL-502	Communication Techniques in Smart Grid	PEC	4	3	1	0	3	0
15.	EEL-542	Advanced Electric Drives	PEC	4	3	0	2/2	3	0
16.	EEL-506	Mathematical Modeling and Control of Power Converters	PEC	4	3	1	0	3	0
17.	EEL-643	Electric Drives for Hybrid Vehicles	PEC	4	3	1	0	3	0

**M.Tech. (Electric Drives and Power Electronics)**

**Science, Technology, and Advanced Research-tools Basket**

<b>Teaching Scheme</b>					<b>Contact Hours/Week</b>			<b>Exam Duration</b>	
<b>S.No.</b>	<b>Subject Code</b>	<b>Course Title</b>	<b>Subject Area</b>	<b>Credits</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Theory</b>	<b>Practical</b>
1.	EET-501	Electric Drive for Modern Transport Systems	STAR	3	3	0	0	3	0

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Program Code : **XXX Master of Science (by Research) in Electric Drives and Power Electronics**  
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 Year : **I**  
 Model : **3**

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
<b>Semester-I (Autumn)</b>									
1.	EEC-511	Advanced Power Electronics	PCC	4	3	1	2/2	3	0
2.	EEC-513	Modeling and Analysis of Electrical Machines	PCC	4	3	0	2	3	0
3.	EEC-515	Power Electronic Controlled Drives	PCC	4	3	0	2	3	0
4.	EEC-517	Power Converters for Sustainable Energy	PCC	4	3	0	2	3	0
5.		Social Science Course	SSC	2	-	-	-	-	-
<b>Total</b>				<b>18</b>					
<b>Semester-II (Spring)</b>									
1.		Program Elective-I	PEC	4	-	-	-	-	-
2.	EEC-751A	Thesis Stage-I	THESIS	14	-	-	-	-	-
<b>Total</b>				<b>18</b>					

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 Year : **II**  
 Model : **3**

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
<b>Semester-I (Autumn)</b>									
1.	EEC-751B	Thesis Stage-II	THESIS	15	-	-	-	-	-
		<b>Total</b>		<b>15</b>					
<b>Semester-II (Spring)</b>									
1.	EEC-751C	Thesis Stage-III	THESIS	16	-	-	-	-	-
		<b>Total</b>		<b>16</b>					

<b>Summary</b>				
Semester	1	2	3	4
<b>Semester-wise Total Credits</b>	18	18	15	16
<b>Total Credits</b>	<b>67</b>			

**Master of Science (by Research) in Electric Drives and Power Electronics**

**Program Elective Courses**

Teaching Scheme					Contact Hours/Week			Exam Duration	
S.No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical
1.	EEL-543	FACTS Devices	PEC	4	3	1	0	3	0
2.	EEL-641	Microcontroller and Its Applications to Power Converters	PEC	4	3	0	2	3	0
3.	EEL-647	Control Techniques in Power Electronics for AC Drives	PEC	4	3	0	2	3	0
4.	EEL-648	Pulse Width Modulation for Power Converters	PEC	4	3	1	0	3	0
5.	EEL-649	Enhanced Power Quality AC-DC Converters	PEC	4	3	0	2	3	0
6.	EEL-650	Switch Mode Power Supply	PEC	4	3	1	0	3	0
7.	EEL-651	Power Quality Improvement Techniques	PEC	4	3	0	2	3	0
8.	EEL-653	Selected Topics in Machines and Transformers	PEC	4	3	0	2	3	0
9.	EEL-654	Synchronous Machines and System Stability	PEC	4	3	1	0	3	0
10.	EEL-655	Special Machines	PEC	4	3	1	0	3	0
11.	EEL-673	Design of WBG Device based Power Converters	PEC	4	3	0	2	3	0
12.	EEL-634	High Power Converters for EV	PEC	4	3	1	0	3	0
13.	EEL-635	Digital Implementation for Power Electronics Systems	PEC	4	3	0	2	3	0
14.	EEL-502	Communication Techniques in Smart Grid	PEC	4	3	1	0	3	0
15.	EEL-542	Advanced Electric Drives	PEC	4	3	0	2/2	3	0
16.	EEL-506	Mathematical Modeling and Control of Power Converters	PEC	4	3	1	0	3	0
17.	EEL-643	Electric Drives for Hybrid Vehicles	PEC	4	3	1	0	3	0