

### 13. Courses of Study and Scheme of Assessment ME POWER ELECTRONICS & DRIVES

(2015 REGULATIONS)  
(Minimum No. of credits to be earned: 75)

Course Code	Course Title	Hours/Week			Credits	Maximum Marks			CAT
		Lecture	Tutorial	Practical		CA	FE	Total	
<b>I SEMESTER</b>									
15ED01	Systems Engineering Mathematics	2	2	-	3	50	50	100	FC
15ED02	Fundamentals of Power Semiconductor Devices and Electrical Machines	3	-	-	3	50	50	100	FC
15ED03	Power Converters and Analysis	3	-	-	3	50	50	100	PC
15ED04	Microcontrollers and Applications	3	-	-	3	50	50	100	PC
15ED05	Object Computing and Data Structures	3	2	-	4	50	50	100	PC
15ED51	Power Converters Laboratory	-	-	4	2	100	-	100	PC
15ED61	Industry Visit and Technical Seminar	-	-	4	2	100	-	100	EEC
<b>Total 26 hrs</b>		<b>14</b>	<b>4</b>	<b>8</b>	<b>20</b>	<b>450</b>	<b>250</b>	<b>700</b>	
<b>II SEMESTER</b>									
15ED06	Linear Systems	3	-	-	3	50	50	100	PC
15ED07	Modeling and Analysis of Electrical Machines	3	-	-	3	50	50	100	PC
15ED08	Electric Drives and Control	3	-	-	3	50	50	100	PC
15ED09	Simulation of Power Electronic Systems	3	-	-	3	50	50	100	PC
15ED10	Switched Mode Power Converters	3	-	-	3	50	50	100	PC
15ED__	Elective 1	3	-	2	4	50	50	100	PE
15ED52	Drives and Controls Laboratory	-	-	4	2	100	-	100	PC
<b>Total 24 hrs</b>		<b>18</b>	<b>-</b>	<b>6</b>	<b>21</b>	<b>400</b>	<b>300</b>	<b>700</b>	
<b>III SEMESTER</b>									
15ED__	Elective 2	3	-	-	3	50	50	100	PE
15ED__	Elective 3	3	-	-	3	50	50	100	PE
15ED__	Elective 4	3	-	-	3	50	50	100	PE
15ED__	Elective 5	3	-	-	3	50	50	100	PE
15ED__	Elective 6	3	-	-	3	50	50	100	PE
15ED53	Power Electronic Systems Design Laboratory	-	-	4	2	100	-	100	PC
15ED71	Project Work I	-	-	6	3	100	-	100	EEC
<b>Total 25 hrs</b>		<b>15</b>	<b>-</b>	<b>10</b>	<b>20</b>	<b>450</b>	<b>250</b>	<b>700</b>	
<b>IV SEMESTER</b>									
15ED72	Project Work II	-	-	28	14	50	50	100	EEC
<b>ELECTIVE I (One to be opted)</b>									
15ED21	Robotics and Factory Automation Centre for Advanced CNC & Robotics / PSG ADEPT Centre for Robotics / PSG Siemens Centre for Excellence in Automation	3	0	2	4	50	50	100	PE
15ED22	SCADA & DCS – PSG Siemens Centre for Excellence in Automation	3	0	2	4	50	50	100	PE
15ED23	Computer Numerical Control - Centre for Advanced CNC & Robotics	3	0	2	4	50	50	100	PE
<b>ELECTIVE (Five to be opted)</b>									
15ED24	Power Electronics in Wind and Solar Power Conversion	3	-	-	3	50	50	100	PE
15ED25	Special Machines and Controllers	3	-	-	3	50	50	100	PE
15ED26	Digital Controllers In Power Electronic Applications	3	-	-	3	50	50	100	PE
15ED27	Advanced Control of Electric Drives	3	-	-	3	50	50	100	PE
15ED28	Soft Computing Techniques for Renewable Energy System	3	-	-	3	50	50	100	PE
15ED29	Flexible AC Transmission system	3	-	-	3	50	50	100	PE
15ED30	Power Quality Management	3	-	-	3	50	50	100	PE
15ED31	Power Electronics Applications to Power Systems	3	-	-	3	50	50	100	PE
15ED32	Advanced Topics in Power Electronics	3	-	-	3	50	50	100	PE
15ED33	HVDC Transmission	3	-	-	3	50	50	100	PE
15ED34	Optimization Techniques	3	-	-	3	50	50	100	PE
15ED35	Digital Signal Processing	3	-	-	3	50	50	100	PE
15ED36	Advanced Virtual Instrumentation	3	-	-	3	50	50	100	PE
15ED37	Wavelets and Applications	3	-	-	3	50	50	100	PE
15ED38	Personal Computer Systems	3	-	-	3	50	50	100	PE
15ED39	Smart Grid Technologies	3	-	-	3	50	50	100	PE
15ED40	Distributed Generation and Micro grids	3	-	-	3	50	50	100	PE
15ED41	Hybrid Electric Vehicles	3	-	-	3	50	50	100	PE
15ED42	Internet of Things	3	-	-	3	50	50	100	PE

\* Indicated is the minimum number of credits to be earned by a student.

**CAT – Category; FC – Foundation Course; PC – Professional Core; PE - Professional Elective;  
EEC – Employability Enhancement Course**

### **ONE CREDIT COURSES**

15EK03	Low Voltage Switchgear
15EK04	Energy Auditing and Conservation Techniques
15EK05	IGBT in Power Electronic Circuits
15EK06	Power Electronics in More Electric Aircraft
15EK07	Power Quality in Industries
15EK09	Solar PV Systems – Design, Simulation and Monitoring and Control
15EK10	Industrial Drives for Automation
15EK11	Field Programmable Analog Array for Analog System Design
15EK12	Automotive Software Testing

### **SCIENCE ELECTIVES**

15ID01	Micro Electro Mechanical Systems (MEMS)
15ID02	Sensors for Engineering Applications
15ID03	Laser Processing of Materials
15ID04	Plasma Technology
15ID05	Nanosensor and its Applications
15ID06	Nano Magnetism and Spintronics
15ID07	Corrosion Science and Engineering
15ID08	Instrumental Methods of Chemical Analysis
15ID09	Polymer Science and Technology
15ID10	Nanomaterials and Nanotechnology
15ID11	Thin Film Technology

### **HUMANITIES AND LANGUAGES ONE CREDIT COURSES**

15OK01	Research Writing in Engineering Sciences
15OK02	Indian Ethos and Human Values
15OK03	Personality Development
15OK04	Financial Accounting and Cost Accounting