



Maulana Azad

NATIONAL INSTITUTE OF TECHNOLOGY, Bhopal-462003

DEPARTMENT OF ELECTRICAL ENGINEERING

M. Tech. in Electrical Engineering

*With Specialization in: Power Systems*

SCHEME OF STUDY (Revised April 2020)

**First Semester**

Course No.	Subjects	Scheme of studies period per week			Total Credits
		L	T	P	
PS 101	Soft Computing Techniques in Power System	3	1	-	4
PS 102	Power System Analysis	3	1	-	4
PS 103	Advanced Power System Protection	3	1	-	4
PS 104	Reactive Power Compensation	3	1	-	4
	Elective 1(A)	3	1	-	4
	Elective 2 (B)	3	1	-	4
PS 105	Soft Computing Lab.	-	-	2	1
PS 106	Seminar-1	-	-	2	1
PS 107	Communications Skill NPTEL/MOOC/Hum Dept.	2	-	-	2
<b>Total Hours 30</b>		<b>Total Credits</b>			<b>28</b>
<b>Total Credits (Cumulative) 28</b>					

**Second Semester**

Course No.	Subjects	Scheme of studies period per week			Total Credits
		L	T	P	
PS 201	Modern Control System	3	1	-	4
PS 202	Modern trends in power system operations	3	1	-	4
PS 203	Power System Stability	3	1	-	4
	Elective-3(A)	3	1	-	4
	Elective-4(A)	3	1	-	4
	Elective-5(C)	3	1	-	4
PS 204	Advanced Power System Lab	-	-	2	1
PS 205	Research Methodology, Technical Report and Paper Writing	-	2	-	2
PS 206	Seminar-2	-	-	2	1
<b>Total Hours 30</b>		<b>Total Credits</b>			<b>28</b>
<b>Total Credits (Cumulative) 56</b>					

**Third Semester**

<b>Course No.</b>	<b>Subjects</b>	<b>Scheme of studies period per week</b>			<b>Total Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	
<b>PS 301</b>	Dissertation Phase-I	-	-	24	12
<b>Total Hours 24</b>		<b>Total Credits</b>			<b>12</b>
<b>Total Credits (Cumulative) 68</b>					

**Fourth Semester**

<b>Course No.</b>	<b>Subjects</b>	<b>Scheme of studies period per week</b>			<b>Total Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	
<b>PS 401</b>	Dissertation Phase-II	-	-	24	12
<b>Total Hours 24</b>		<b>Total Credits</b>			<b>12</b>
<b>Total Credits (Cumulative) 80</b>					

## List of Electives

### **Group 'A' Program Electives**

PS 501 Computer Applications in Power Systems.  
PS 502 Power System Economics  
PS 503 Modeling of Power System components  
PS 504 Power System Planning and Management  
PS 505 Smart Grid Technologies  
PS 506 Power Quality Control Technologies  
PS 507 High Voltage Engineering  
PS 508 Integrated Energy System  
PS 509 EHV AC and DC Transmission  
PS 510 Power System Transients  
PS 511 Optimization in Renewable Energy System  
PS 512 Economics of regulation and restructuring of energy industry

### **Group 'B' Department Electives (for other programs of same department only)**

PS 601 Traction Drives  
PS 602 Special Machines  
PS 603 Hybrid Electric Vehicle  
PS 604 Digital Signal Processor

### **Group 'C' Institute Electives (for other departments only)**

PS 701 Special Machines  
PS 702 Adaptive Control System  
PS 703 Electronics Instrumentation  
PS 704 Optimization in Renewable Energy Systems  
PS 705 Soft Computing Techniques



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DEPARTMENT OF ELECTRICAL ENGINEERING

M. Tech. in Electrical Engineering

*With Specialization in: Electrical Drives*

SCHEME OF STUDY (Revised April 2020)

**First Semester**

Course No.	Subjects	Scheme of studies period per week			Total Credits
		L	T	P	
ED 101	Evolutionary Techniques (Computational Course)	3	1	-	4
ED 102	Power Electronics Convertors	3	1	-	4
ED 103	Advanced Electrical Drives	3	1	-	4
ED 104	Modeling & Analysis of Electrical Machines	3	1	-	4
	Elective 1(A)	3	1	-	4
	Elective 2 (B)	3	1	-	4
ED 105	Digital Controller Lab.	-	-	2	1
ED 106	Seminar-1	-	-	2	1
ED 107	Communications Skill NPTEL/MOOC/Hum Dept.	2	-	-	2
<b>Total Hours 30</b>		<b>Total Credits</b>			<b>28</b>
<b>Total Credits (Cumulative) 28</b>					

**Second Semester**

Course No.	Subjects	Scheme of studies period per week			Total Credits
		L	T	P	
ED 201	Advanced Power Electronics	3	1	-	4
ED 202	Advanced Control System	3	1	-	4
ED 203	DSP Application to Drives	3	1	-	4
	Elective 3 (A)	3	1	-	4
	Elective 4 (A)	3	1	-	4
	Elective 5 (C)	3	1	-	4
ED 204	Machines & Drives Lab.	-	-	2	1
ED 205	Research Methodology, Technical Report and Paper Writing	-	2	-	2
ED 206	Seminar-2	-	-	2	1
<b>Total Hours 30</b>		<b>Total Credits</b>			<b>28</b>
<b>Total Credits (Cumulative) 56</b>					

**Third Semester**

<b>Course No.</b>	<b>Subjects</b>	<b>Scheme of studies period per week</b>			<b>Total Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	
<b>ED 301</b>	Dissertation Phase-I	-	-	24	12
<b>Total Hours 24</b>		<b>Total Credits</b>			<b>12</b>
<b>Total Credits (Cumulative) 68</b>					

**Fourth Semester**

<b>Course No.</b>	<b>Subjects</b>	<b>Scheme of studies period per week</b>			<b>Total Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	
<b>ED 401</b>	Dissertation Phase-II	-	-	24	12
<b>Total Hours 24</b>		<b>Total Credits</b>			<b>12</b>
<b>Total Credits (Cumulative) 80</b>					

## **List of Electives**

### **Group 'A' Program Electives**

ED 501 Traction Drives  
ED 502 FACTS  
ED 503 Non-conventional Energy Sources  
ED 504 Special Machines  
ED 505 Micro-Grid Technologies  
ED 506 Adaptive and Robust Control  
ED 507 EHV AC & DC  
Transmission  
ED 508 Hybrid Electric Vehicle  
ED 509 Power quality control of electrical Drives  
ED 510 Electronics Instrumentation

### **Group 'B' Department Electives (for other programs of same department only)**

ED 601 Computer Applications in  
power systems  
ED 602 Power System Economics  
ED 603 Power System Planning & Management  
ED 604 High Voltage Engineering  
ED 605 Optimization in Renewable Energy  
System

### **Group 'C' Institute Electives (for other departments only)**

ED 701 Special Machines  
ED 702 Adaptive Control System  
ED 703 Electronics Instrumentation  
ED 704 Optimization in Renewable Energy  
system  
ED 705 Soft Computing Techniques