

## Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur

B.Tech ( Electrical Engineering / Electronics & Power ) – CBCS

SCHEME OF EXAMINATION

### THIRD SEMESTER

Board	Subject Code	Subject	Teaching Scheme				Credit	Marks					Minimum Passing Marks	
			L	P	T/A	Total		Theory		Practical		Total	Theory	Practical
								Internal	Uni	Internal	Uni			
GS	BTCHEE301T	Electrical Engineering Mathematics	3	--	1T	4	4	30	70	--	--	100	45	
EE	BTCHEE302T	Network Analysis	3	--	1A	4	4	30	70	--	--	100	45	
EE	BTCHEE303T	Electrical Measurement & Instrumentation	3	--	1A	4	4	30	70	--	--	100	45	
EE	BTCHEE304T	Analog Devices & Circuits	3	--	1A	4	4	30	70	--	--	100	45	
EE	BTCHEE305T	Renewable Energy Studies	3	--	--	3	3	30	70	--	--	100	45	
EE	BTCHEE306T	Introduction to Python Programming	1	--	--	1	1	15	35	--	--	50	23	
CV	BTCHEE307T	Environmental Studies	1	--	1A	1	Audit	50*	--	--	--	Audit	--	
EE	BTCHEE302P	Network Analysis	--	2	--	2	1	--	--	25	25	50	--	25
EE	BTCHEE303P	Electrical Measurement & Instrumentation	--	2	--	2	1	--	--	25	25	50	--	25
EE	BTCHEE304P	Analog Devices & Circuits	--	2	--	2	1	--	--	25	25	50	--	25
EE	BTCHEE306P	Introduction to Python Programming	--	2	--	2	1	--	--	25	25	50	--	25
<b>Total</b>			<b>17</b>	<b>8</b>	<b>1T+4A</b>	<b>29</b>	<b>24</b>	<b>165</b>	<b>385</b>	<b>100</b>	<b>100</b>	<b>750</b>		

- L- Lecture , P – Practical ( Half Credit Per Hour) , T – Tutorial , A- Activity , \* Indicates Noncredit Subject
- For Internal 30 Marks , 15 Marks for activity and 15 Marks for CIA ( Continues Internal Assessment )

## Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur

B.Tech ( Electrical Engineering / Electronics & Power ) – CBCS

SCHEME OF EXAMINATION

### FOURTH SEMESTER

Board	Subject Code	Subject	Teaching Scheme				Credit	Marks					Minimum Passing Marks	
			L	P	T/A	Total		Theory		Practical		Total	Theory	Practical
								Internal	Uni	Internal	Uni			
ETC	BTCHEE401T	Signal & Systems	3	--	1T	4	4	30	70	--	--	100	45	
EE	BTCHEE402T	Digital Electronics	3	--	--	3	3	30	70	--	--	100	45	
EE	BTCHEE403T	Electrical Machines -I	3	--	--	3	3	30	70	--	--	100	45	
EE	BTCHEE404T	Power System	3	--	--	3	3	30	70	--	--	100	45	
EE	BTCHEE405T	Electromagnetic Fields	3	--	1T	4	4	30	70	--	--	100	45	
EE	BTCHEE406T	Simulation & Programming Techniques	3	--	--	3	3	30	70	--	--	100	45	
EE	BTCHEE402P	Digital Electronics Lab	--	2	--	2	1	--	--	25	25	50		25
EE	BTCHEE403P	Electrical Machines –I Lab	--	2	--	2	1	--	--	25	25	50		25
EE	BTCHEE406P	Simulation & Programming Techniques Lab	--	2	--	2	1	--	--	25	25	50		25
EE	BTCHEE407P	Internship ( 2 to 3 Weeks) (After –III Semester Break)	--	--	1A	1	1	--	--	50	--	50		
<b>Total</b>			<b>18</b>	<b>6</b>	<b>2T+1A</b>	<b>27</b>	<b>24</b>	<b>180</b>	<b>420</b>	<b>125</b>	<b>75</b>	<b>800</b>		

- L- Lecture , P – Practical ( Half Credit Per Hour) , T – Tutorial , A- Activity
- Internship : a) Students shall be allowed to undergo internship after III semester break.  
b) Internal marks for internship of IV semester may be awarded after successful completion of internship.  
c) 50 internal marks given shall be given as:-  
i) 25 marks based on detailed report about internship along with certificate provided by company / industry.  
ii) 25 marks based on presentation by student about what he /she learned during internship.

## Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur

B.Tech ( Electrical Engineering / Electronics & Power ) – CBCS

SCHEME OF EXAMINATION

### FIFTH SEMESTER

Board	Subject Code	Subject	Teaching Scheme				Credit	Marks					Minimum Passing Marks	
			L	P	T/A	Total		Theory		Practical		Total	Theory	Practical
								Internal	Uni	Internal	Uni			
EE	BTCHEE501T	Microprocessor & Microcontroller	3	--	--	3	3	30	70	--	--	100	45	
EE	BTCHEE502T	Control System	3	--	1A	4	4	30	70	--	--	100	45	
EE	BTCHEE503T	Power Electronics	3	--	1T	4	4	30	70	--	--	100	45	
EE	BTCHEE504T	Advanced Electrical Power System	3	--	--	3	3	30	70	--	--	100	45	
EE	BTCHEE505T	Professional Elective -I	3	--	--	3	3	30	70	--	--	100	45	
EE	BTCHEE501P	Microprocessor & Microcontroller	--	2	--	2	1	--	--	25	25	50		25
EE	BTCHEE502P	Control System	--	2	--	2	1	--	--	25	25	50		25
EE	BTCHEE503P	Power Electronics	--	2	--	2	1	--	--	25	25	50		25
<b>Total</b>			<b>15</b>	<b>6</b>	<b>1A+1T</b>	<b>23</b>	<b>20</b>	<b>150</b>	<b>350</b>	<b>75</b>	<b>75</b>	<b>650</b>		

- L- Lecture , P – Practical ( Half Credit Per Hour) , T – Tutorial , A- Activity

Professional Elective -I	
1	Electrical Machines –II
2	Power System Practice
3	Electrical Power Utilization

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B.Tech ( Electrical Engineering / Electronics & Power ) – CBCS

SCHEME OF EXAMINATION

### SIXTH SEMESTER

Board	Subject Code	Subject	Teaching Scheme				Credit	Marks					Minimum Passing Marks	
			L	P	T/A	Total		Theory		Practical		Total	Theory	Practical
								Internal	Uni	Internal	Uni			
GS	BTCHEE601T	Engineering Economics & Management	3	--	--	3	3	30	70	--	--	100	45	
EE	BTCHEE602T	Computer Application in Power System	3	--	1T	4	4	30	70	--	--	100	45	
EE	BTCHEE603T	Switch Gear & Protection	3	--	1T	4	4	30	70	--	--	100	45	
	BTCHEE604T	Open Elective -I	3	--	--	3	3	30	70	--	--	100	45	
EE	BTCHEE605T	Professional Elective –I	3	--	--	3	3	30	70	--	--	100	45	
EE	BTCHEE606T	Yoga & Meditation	--	2	--	2	Audit	--	--	25*	--	25*		
EE	BTCHEE602P	Computer Application in Power System	--	2	--	2	1	--	--	25	25	50		25
EE	BTCHEE603P	Switch Gear & Protection	--	2	--	2	1	--	--	25	25	50		25
EE	BTCHEE607P	Internship 3 to 4 Weeks ( After 4 <sup>th</sup> or 5 <sup>th</sup> Semester Break/ Mini Project)	--	--	2A	2	2	--	--	50	--	50		
			<b>15</b>	<b>6</b>	<b>2A+2T</b>	<b>25</b>	<b>21</b>	<b>150</b>	<b>350</b>	<b>100</b>	<b>50</b>	<b>650</b>		

- L- Lecture , P – Practical ( Half Credit Per Hour) , T – Tutorial , A- Activity, \* Indicates Noncredit Subject

Open Elective -I	Professional Elective -II
1. PLC and SCADA Systems	1. Advanced Control System
2. Solar PV Systems	2. Optimization Techniques
3. Organizational Behavior	3. Electrical Drives and their Control
4. Numerical Mathematics & Probability using MATLAB	

- Internship : a) Students shall be allowed to undergo internship after 4<sup>th</sup> or 5<sup>th</sup> semester break.  
 b) Internal marks for internship of VI semester may be awarded after successful completion of internship.  
 c) 50 internal marks given shall be given as:-  
 i) 25 marks based on detailed report about internship along with certificate provided by company / industry.  
 ii) 25 marks based on presentation by student about what he /she learned during internship.

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B.Tech ( Electrical Engineering / Electronics & Power ) – CBCS

SCHEME OF EXAMINATION

### SEVENTH SEMESTER

Board	Subject Code	Subject	Teaching Scheme				Credit	Marks					Minimum Passing Marks	
			L	P	T/A	Total		Theory		Practical		Total	Theory	Practical
								Internal	Uni	Internal	Uni			
EE	BTCHEE701T	Professional Elective –III	3	--	--	3	3	30	70	--	--	100	45	
EE	BTCHEE702T	Professional Elective –IV	3	--	--	3	3	30	70	--	--	100	45	
EE	BTCHEE703T	Professional Elective –V	3	--	--	3	3	30	70	--	--	100	45	
EE	BTCHEE704T	Open Elective-II	3	--	--	3	3	30	70	--	--	100	45	
EE	BTCHEE705T	Ancient Indian History	1	--	--	1	Audit	50*	--	--	--	50*		
EE	BTCHEE706P	Elective Lab –I	--	2	--	2	1	--	--	25	25	50		25
EE	BTCHEE707P	Elective Lab –II	--	2	--	2	1	--	--	25	25	50		25
EE	BTCHEE708P	Project Phase: 1	--	6	--	6	3	--	--	50	--	50		25
<b>Total</b>			<b>13</b>	<b>10</b>	<b>--</b>	<b>23</b>	<b>17</b>	<b>120</b>	<b>280</b>	<b>100</b>	<b>50</b>	<b>550</b>		

- L- Lecture , P – Practical ( Half Credit Per Hour) , T – Tutorial , A- Activity, \* Indicates Noncredit Subject

Open Elective- II	Professional Elective - III	Professional Elective - IV	Professional Elective - V
1. Power Plant Engineering. 2. Fundamental of Control System 3. Testing and Maintenance of Electrical Equipment	1. Advanced Power Electronics 2. High Voltage Engineering 3. Energy Management and Audit	1. Digital Signal Processing and its Applications 2. Electrical Installation & Design 3. Flexible AC Transmission System	1. Electrical Machine Design 2. Electric and Hybrid Vehicles 3. Introduction to Smart Grid

Elective Lab I	Elective Lab II
1. HV Engineering <b>OR</b> 2. Electrical Drawing and Simulation	1. Electrical Installation & Design <b>OR</b> 2. Electrical Workshop

- Practical Based on Syllabus of respective Theory Subject ( Any one practical on Virtual Lab)
- Workshop practical based on Advance Electrical Design.

**Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur**

B.Tech (Electrical Engineering / Electronics & Power ) – CBCS

SCHEME OF EXAMINATION

**EIGHTH SEMESTER**

Board	Subject Code	Subject	Teaching Scheme				Credit	Marks					Minimum Passing Marks	
			L	P	T/A	Total		Theory		Practical		Total	Theory	Practical
								Internal	Uni	Internal	Uni			
EE	BTCHEE801T	Electrical Safety & Standards.	3	--	--	3	3	30	70	---	----	100	45	
EE	BTCHEE802T	Advance Professional Elective –VI	3	--	--	3	3	30	70	--	--	100	45	
EE	BTCHEE803T	Advance Professional Elective –VII	3	--	--	3	3	30	70	--	--	100	45	
EE	BTCHEE804P	Project Phase : 2	--	12	--	--	6	--	--	75	75	150		75
<b>Total</b>			<b>9</b>	<b>12</b>	<b>--</b>	<b>9</b>	<b>15</b>	<b>90</b>	<b>210</b>	<b>75</b>	<b>75</b>	<b>450</b>		

Teacher shall be assigned workload for Project Phase 2 .

<b>Professional Elective -VI</b>	<b>Professional Elective -VII</b>
1. Power Semiconductor Drives	1. EHVAC/ DC Transmission System
2. Electrical Distribution System	2. Power Quality

## LIST OF ELECTIVE SUBJECTS

<b>Semester</b>	<b>Elective Type</b>	<b>Subject Title</b>
<b>V – Fifth Semester</b>	<b>Professional Elective -I</b>	1. Electrical Machines –II
		2. Power System Practice
		3. Electrical Power Utilization
<b>VI –Sixth Semester</b>	<b>Open Elective -I</b>	1. PLC and SCADA Systems
		2. Solar PV Systems
		3. Organizational Behavior
		4. Numerical Mathematics & Probability using MATLAB
	<b>Professional Elective -II</b>	1. Advanced Control System
		2. Optimization Techniques
3. Electrical Drives and their Control		
<b>VII - Seventh Semester</b>	<b>Open Elective -II</b>	1. Power Plant Engineering
		2. Fundamental of Control System
		3. Testing and Maintenance of Electrical Equipment
	<b>Professional Elective -III</b>	1. Advanced Power Electronics
		2. HV Engineering
		3. Energy Management and Audit
	<b>Professional Elective -IV</b>	1. Digital Signal Processing and its Applications
		2. Electrical Installation & Design
		3. Flexible AC Transmission System
	<b>Professional Elective -V</b>	1. Electrical Machine Design
		2. Electric and Hybrid Vehicles
		3. Introduction to Smart Grid
<b>VIII - Eighth Semester</b>	<b>Professional Elective -VI</b>	1. Power Semiconductor Drives
		2. Electrical Distribution System
	<b>Professional Elective -VII</b>	1. EHVAC/ DC Transmission System
		2. Power Quality