

## R21 B.TECH FIRST YEAR COURSE STRUCTURE

### B.Tech. I Year I Semester

S. No.	Course Category	Course Title	L	T	P	Credits
1	BS-1	Mathematics-I	3	1	0	4.0
2	BS-2	Applied Physics	3	1	0	4.0
3	BS-Lab-1	Physics Lab	0	0	3	1.5
4	H&S-1	English	2	0	0	2.0
5	H&S Lab-1	English Language Skills Lab (ELSL)	0	0	2	1.0
6	ES-1	Programming for Problem Solving-I	2	0	0	2.0
7	ES Lab-1	Programming for Problem Solving Lab-I	0	0	2	1.0
8	ES-2	Engineering Graphics & Modeling	1	0	3	2.5
<b>Total</b>			<b>11</b>	<b>2</b>	<b>10</b>	<b>18</b>

### B.Tech. I Year II Semester

S. No.	Course Category	Course Title	L	T	P	Credits
1	BS-3	Mathematics-II	3	1	0	4.0
2	BS-4	Chemistry	3	1	0	4.0
3	BS-Lab-2	Chemistry Lab	0	0	3	1.5
4	ES-3	Basic Electrical Engineering	3	0	0	3.0
5	ES-Lab-2	Basic Electrical Engineering Lab	0	0	2	1.0
6	ES Lab-3	Engineering Workshop	0	1	3	2.5
7	H&S Lab-2	English Communication Skills Lab (ECSL)	0	0	2	1.0
8	ES-4	Programming for Problem Solving-II	2	0	0	2.0
9	ES-Lab-4	Programming for Problem Solving Lab-II	0	0	2	1.0
<b>Total</b>			<b>11</b>	<b>3</b>	<b>12</b>	<b>20</b>

## R21 B.TECH EEE SECOND YEAR COURSE STRUCTURE

### B. Tech. II Year I Semester

S. No.	Course Category	Course Title	L	T	P	Credits
1	BS – 5	Complex Analysis & Fourier Transforms	3	0	0	3
2	H&S – 2	Professional Communication	2	0	0	2
3	ES – 5	Electronic Devices and Circuits	3	0	0	3
4	PC – 1	Network Analysis	3	0	0	3
5	PC – 2	Electro Magnetic Fields	3	0	0	3
6	PC – 3	Electrical Machines-I	4	0	0	4
7	PC Lab-1	Basic Simulation Tools Lab	0	0	2	1
8	PC Lab-2	Electrical Circuits Lab	0	0	2	1
9	MC – 1	Environmental Science	2	0	0	0
<b>Total</b>			<b>20</b>	<b>0</b>	<b>4</b>	<b>20</b>

### B. Tech. II Year II Semester

S. No.	Course Category	Course Title	L	T	P	Credits
1	BS – 6	Numerical Methods and Partial Differential Equations	3	0	0	3
2	ES – 6	Switching Theory and Logic Design	3	0	0	3
3	PC – 4	Python for Electrical Engineers	3	0	0	3
4	PC – 5	Electrical Machines-II	3	0	0	3
5	PC – 6	Power Systems – I	3	0	0	3
6	PC – 7	Control Systems	3	0	0	3
7	PC Lab-3	Electrical Machines-I Lab	0	0	2	1
8	PC Lab-4	Electronic Devices and Circuits Lab	0	0	2	1
9	MC – 2	Gender Sensitization	2	0	0	0
<b>Total</b>			<b>20</b>	<b>0</b>	<b>4</b>	<b>20</b>

## R21 B.TECH EEE THIRD YEAR COURSE STRUCTURE

### B. Tech. III Year I Semester

S. No.	Course Category	Course Title	L	T	P	Credits
1	H&S – 3	Managerial Economics and Financial Analysis	3	0	0	3
2	PC – 8	Power Systems- II	3	0	0	3
3	PC – 9	Power Electronics	3	0	0	3
4	PC – 10	Microprocessors and Interfacing Devices	3	0	0	3
5	PE – 1	AI Techniques in Electrical Engineering/ Integrated Circuits and Applications/ Electrical Energy Conservation and Auditing	3	0	0	3
6	OE – 1	OPEN ELECTIVE – 1	3	0	0	3
7	PC Lab – 5	Electrical Machines-II Lab	0	0	2	1
8	PC Lab – 6	Advanced Communication Skills Lab	0	0	2	1
9	VAC – 1	Personality Development & Behavioral Skills	2	0	0	1
<b>Total</b>			<b>20</b>	<b>0</b>	<b>4</b>	<b>21</b>

### B. Tech. III Year II Semester

S. No.	Course Category	Course Title	L	T	P	Credits
1	ES – 7	Essentials of Computer Networks	3	0	0	3
2	PC – 11	Computer Methods in Power Systems	3	0	0	3
3	PC – 12	Power Semiconductor Drives	3	0	0	3
4	PC – 13	Switch Gear and Protection	3	0	0	3
5	PE – 2	Modern Power Electronics/ Advanced Control Systems / System Design using Verilog HDL	3	0	0	3
6	OE – 2	OPEN ELECTIVE – 2	3	0	0	3
7	PC Lab – 7	Control Systems and Simulation Lab	0	0	2	1
8	PC Lab – 8	Power Electronics and Simulation Lab	0	0	2	1
9	VAC - 2	Quantitative Methods & Logical Reasoning	2	0	0	1
<b>Total</b>			<b>20</b>	<b>0</b>	<b>4</b>	<b>21</b>

## R21 B.TECH EEE FOURTH YEAR COURSE STRUCTURE

### B. Tech. IV Year I Semester

S. No.	Course Category	Course Title	L	T	P	Credits
1	PC -14	Electrical Measurements & Instrumentation	3	0	0	3
2	PC -15	Power Systems Operation and Control	3	0	0	3
3	PE – 3	Electric Vehicles/ Power Quality and FACTS/ Embedded Systems & IOT	3	0	0	3
4	PE – 4	Advanced Control of Electric Drives/ Programmable Logic Controllers & SCADA/ Smart Grids	3	0	0	3
5	OE-3	OPEN ELECTIVE – 3	3	0	0	3
6	PC Lab - 9	Microprocessors and Interfacing Lab	0	0	2	1
7	PC Lab - 10	Electrical Measurements Lab	0	0	2	1
8	PW-1	Industry Oriented Mini Project	0	0	0	3
<b>Total</b>			<b>15</b>	<b>0</b>	<b>4</b>	<b>20</b>

### B. Tech. IV Year II Semester

S. No.	Course Category	Course Title	L	T	P	Credits
1	PC -16	Utilization of Electrical Energy	3	0	0	3
2	PC -17	Renewable Energy and Energy Storage Technologies	3	0	0	3
3	TS	Technical Seminar	0	2	0	2
4	CVV	Comprehensive Viva-Voce	0	0	0	2
5	PW-2	Major Project	0	0	20	10
<b>Total</b>			<b>6</b>	<b>2</b>	<b>20</b>	<b>20</b>

## R21 COURSE STRUCTURE (for FAST TRACK CURRICULUM SCHEME)

### B. Tech. III Year I Semester

S. No	Course Category	Course Title	L	T	P	Credits
1	H&S – 3	Managerial Economics and Financial Analysis	3	0	0	3
2	PC – 8	Power Systems- II	3	0	0	3
3	PC – 9	Power Electronics	3	0	0	3
4	PC – 10	Microprocessors and Interfacing Devices	3	0	0	3
5	PE – 1	AI Techniques in Electrical Engineering / Integrated Circuits and Applications/ Electrical Energy Conservation and Auditing	3	0	0	3
6	OE – 1	OPEN ELECTIVE – 1	3	0	0	3
7	PC Lab – 5	Electrical Machines-II Lab	0	0	2	1
8	PC Lab – 6	Advanced Communication Skills Lab	0	0	2	1
9	VAC – 1	Personality Development & Behavioral Skills	2	0	0	1
<b>Total</b>			<b>20</b>	<b>0</b>	<b>4</b>	<b>21</b>

### B. Tech. III Year II Semester

S.No.	Course Category	Course Title	L	T	P	Credits
1	ES – 7	Essentials of Computer Networks	3	0	0	3
2	PC – 11	Computer Methods in Power Systems	3	0	0	3
3	PC – 12	Power Semiconductor Drives	3	0	0	3
4	PC – 13	Switch Gear and Protection	3	0	0	3
5	PE – 2	Modern Power Electronics/ Advanced Control Systems/ System Design using Verilog HDL	3	0	0	3
6	OE – 2	OPEN ELECTIVE – 2	3	0	0	3
7	PC Lab – 7	Control Systems and Simulation Lab	0	0	2	1
8	PC Lab – 8	Power Electronics and Simulation Lab	0	0	2	1
9	VAC – 2	Quantitative Methods & Logical Reasoning	2	0	0	1
10	PC -16	Utilization of Electrical Energy	3	0	0	3
<b>Total</b>			<b>23</b>	<b>0</b>	<b>4</b>	<b>24</b>

**R21 COURSE STRUCTURE (for FAST TRACK CURRICULUM SCHEME)****B. Tech. IV Year I Semester**

S.No.	Course Category	Course Title	L	T	P	Credits
1	PC -14	Electrical Measurements & Instrumentation	3	0	0	3
2	PC -15	Power Systems Operation and Control	3	0	0	3
3	PE – 3	Electric Vehicles/ Power Quality and FACTS/ Embedded Systems & IOT	3	0	0	3
4	PE – 4	Advanced Control of Electric Drives/ Programmable Logic Controllers & SCADA/ Smart Grids	3	0	0	3
5	OE-3	OPEN ELECTIVE – 3	3	0	0	3
6	PC Lab - 9	Microprocessors and Interfacing Lab	0	0	2	1
7	PC Lab - 10	Electrical Measurements Lab	0	0	2	1
8	PW-1	Industry Oriented Mini Project	0	0	0	3
9	PC – 17	Renewable Energy and Energy Storage Technologies	3	0	0	3
<b>Total</b>			<b>18</b>	<b>0</b>	<b>4</b>	<b>23</b>

**B. Tech. IV Year II Semester**

S.No.	Course Category	Course Title	L	T	P	Credits
1	TS	Technical Seminar	0	2	0	2
2	CVV	Comprehensive Viva-Voce	0	0	0	2
3	PW-2	Major Project	0	0	20	10
<b>Total</b>			<b>0</b>	<b>2</b>	<b>20</b>	<b>14</b>