

CURRICULUM

REGULATIONS 2021

B.E - ELECTRICAL AND ELECTRONICS ENGINEERING
Full Time (4 Years)

SEMESTER
I TO VIII

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B.E. – ELECTRICAL AND ELECTRONICS ENGINEERING – SEMESTER I TO VIII**A. Foundation Courses****Humanities and Social Sciences including Management Courses – Credits (9-12)**

SL. NO	COURSE CODDE	COURSE	OFFERING DEPT.	CATEGORY	L	T	P	C	PREREQUISITE
1.		TECHNICAL ENGLISH	ENG	FC-HS	3	0	0	3	NIL
2.		BUSINESS ENGLISH	ENG	FC-HS	3	0	0	3	NIL
3.		ENGLISH LANGUAGE LAB	ENG	FC-HS	0	0	4	2	NIL
4.		TOTAL QUALITY MANAGEMENT	MANAG	FC-HS	3	0	0	3	NIL
5.		PROFESSIONAL COMMUNICATION AND PERSONALITY DEVELOPMENT LAB	ENG	FC-HS	0	0	2	1	NIL
6.		UNIVERSAL HUMAN VALUES - UNDERSTANDING HARMONY	ENG	FC-HS	3	0	0	3	NIL

Basic Science Courses – Credits (18-25)

1.		ENGINEERING MATHEMATICS	MATH	FC-BS	2	1	0	3	NIL
2.		PHYSICAL SCIENCES	PHY & CHEM	FC-BS	4	0	0	4	NIL
3.		DIFFERENTIAL EQUATIONS AND TRANSFORMS	MATH	FC-BS	2	1	0	3	ENGINEERING MATHEMATICS
4.		SMART MATERIALS AND NANO TECHNOLOGY	PHY	FC-BS	3	0	0	3	PHYSICAL SCIENCES
5.		PARTIAL DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA	MATH	FC-BS	2	1	0	3	DIFFERENTIAL EQUATIONS AND TRANSFORMS
6.		NUMERICAL METHODS	MATH	FC-BS	2	1	0	3	DIFFERENTIAL EQUATIONS AND TRANSFORMS
7.		MATHEMATICAL AND STATISTICAL TOOL FOR RESEARCH	MATH	FC-BS	2	1	0	3	NIL
8.		NON-DESTRUCTIVE TESTING OF MATERIALS	PHY	FC-BS	3	0	0	3	NIL
9.		ENVIRONMENTAL SCIENCES	CHEM	FC-BS	3	0	0	3	NIL
10.		PHYSICAL SCIENCES LAB	PHY & CHEM	FC-BS	0	0	4	2	NIL

Engineering Science courses including Workshop, Drawing, Basics of Electrical/Mechanical/Computer etc., Credits – (18-24)

1		FOUNDATIONS OF COMPUTING AND PROGRAMMING (THEORY AND PRACTICALS)	CSE	FC-ES	2	0	2	3	NIL
2		BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING	EEE & ECE	FC-ES	4	0	0	4	NIL

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3		PYTHON PROGRAMMING (THEORY AND PRACTICALS)	CSE	FC-ES	2	0	2	3	NIL
4		BASICS OF CIVIL AND MECHANICAL ENGINEERING	CIVIL & MECH	FC-ES	4	0	0	4	NIL
5		ENGINEERING GRAPHICS AND DESIGN	MECH	FC-ES	0	0	6	3	NIL
6		PROGRAMMING FOR PROBLEM SOLVING	CSE	FC-ES	3	0	0	3	NIL
7		BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING LAB	EEE & ECE	FC-ES	0	0	4	2	NIL
8		ENGINEERING SKILLS PRACTICALS LAB	CIVIL & MECH	FC-ES	0	0	4	2	NIL

B.E. – ELECTRICAL AND ELECTRONICS ENGINEERING – SEMESTER I TO VIII									
B. Professional Courses									
Core Courses – Credits (48-54)									
SL. NO	COURSE CODE	COURSE	OFFERING DEPT.	CATEGORY	L	T	P	C	PREREQUISITE
1.		ELECTRIC CIRCUIT ANALYSIS (THEORY AND PRACTICALS)	EEE	CC	3	0	2	4	BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING
2.		SEMICONDUCTOR DEVICES AND CIRCUITS	ECE	CC	3	0	0	3	BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING
3.		ELECTRICAL MACHINES – I	EEE	CC	3	0	0	3	BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING
4.		ELECTRICAL MACHINES – II	EEE	CC	3	0	0	3	ELECTRICAL MACHINES – I
5.		ELECTROMAGNETIC THEORY	EEE	CC	3	0	0	3	ENGINEERING MATHEMATICS
6.		MEASUREMENT AND INSTRUMENTATION (THEORY AND PRACTICALS)	EEE	CC	3	0	2	4	BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING
7.		ANALOG AND DIGITAL CIRCUITS (THEORY AND PRACTICALS)	ECE	CC	3	0	2	4	SEMICONDUCTOR DEVICES AND CIRCUITS
8.		POWER ELECTRONICS AND DRIVES (THEORY AND PRACTICALS)	EEE	CC	3	0	2	4	SEMICONDUCTOR DEVICES AND CIRCUITS
9.		TRANSMISSION AND DISTRIBUTION	EEE	CC	3	0	0	3	ELECTROMAGNETIC THEORY
10.		CONTROL SYSTEMS	EEE	CC	3	0	0	3	DIFFERENTIAL EQUATIONS AND TRANSFORMS
11.		POWER SYSTEM ANALYSIS	EEE	CC	3	0	0	3	TRANSMISSION & DISTRIBUTION

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12.		MICROCONTROLLER BASED SYSTEM DESIGN AND EMBEDDED SYSTEM DESIGN (THEORY AND PRACTICALS)	ECE	CC	3	0	2	4	ANALOG AND DIGITAL CIRCUITS
13.		POWER SYSTEM PROTECTION AND SWITCHGEAR	EEE	CC	3	0	0	3	ELECTRICAL MACHINES – I & ELECTRICAL MACHINES – II
14.		SEMICONDUCTOR DEVICES AND CIRCUITS LAB	ECE	CC	0	0	4	2	NIL
15.		ELECTRICAL MACHINES – I LAB	EEE	CC	0	0	4	2	NIL
16.		ELECTRICAL MACHINES – II LAB	EEE	CC	0	0	4	2	NIL
17.		CONTROL SYSTEMS LAB	EEE	CC	0	0	4	2	NIL
18.		POWER SYSTEM SIMULATION LAB	EEE	CC	0	0	4	2	NIL

B.E. – ELECTRICAL AND ELECTRONICS ENGINEERING – SEMESTER I TO VIII

C. Elective Courses

Professional Elective - Credits(12)

SL. NO	COURSE CODE	COURSE	OFFERING DEPT.	CATEGORY	L	T	P	C	PREREQUISITE
1.		HIGH VOLTAGE ENGINEERING	EEE	EC-PS	3	0	0	3	NIL
2.		POWER SYSTEM OPERATION AND CONTROL	EEE	EC-PS	3	0	0	3	NIL
3.		POWER QUALITY AND FACTS	EEE	EC-PS	3	0	0	3	NIL
4.		SPECIAL ELECTRICAL MACHINES	EEE	EC-PS	3	0	0	3	NIL
5.		WIND ENERGY CONVERSION SYSTEMS	EEE	EC-PS	3	0	0	3	NIL
6.		ELECTRIC VEHICLES	EEE	EC-PS	3	0	0	3	NIL
7.		DISTRIBUTED GENERATION AND MICROGRIDS	EEE	EC-PS	3	0	0	3	NIL
8.		POWER CONVERTERS ANALYSIS AND DESIGN	EEE	EC-PS	3	0	0	3	NIL
9.		RENEWABLE ENERGY SOURCES	EEE	EC-PS	3	0	0	3	NIL
10.		ENERGY CONVERSION AND STORAGE TECHNOLOGIES	EEE	EC-PS	3	0	0	3	NIL
11.		POWER SYSTEM AND SMART GRID	EEE	EC-PS	3	0	0	3	NIL
12.		DIGITAL SIGNAL PROTECTION FOR POWER SYSTEMS	EEE	EC-PS	3	0	0	3	NIL
13.		DESIGN OF ELECTRICAL APPARATUS	EEE	EC-PS	3	0	0	3	NIL

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14.		HVDC TRANSMISSION SYSTEMS	EEE	EC-PS	3	0	0	3	NIL
15.		ENERGY AUDIT AND CONSERVATION	EEE	EC-PS	3	0	0	3	NIL

Industry Designed/ Industry Supported/ Industry Offered/ Industry Sponsored Courses – Credits (6)

SL. NO	COURSE CODE	COURSE	OFFERING INDUSTRY	CATEGORY	L	T	P	C	PREREQUISITE
1.		BUSINESS INTELLIGENCE AND ITS APPLICATIONS	INFOSYS	EC-IE	3	0	0	3	NIL
2.		LEARNING IT ESSENTIALS BY DOING	INFOSYS	EC-IE	3	0	0	3	NIL
3.		MATH MODELLING AND CONTROL SYSTEMS (THEORY AND PRACTICALS)	REYNLAB	EC-IE	2	0	2	3	NIL
4.		ELECTRIC AND HYBRID ELECTRIC VEHICLES (THEORY AND PRACTICALS)	REYNLAB	EC-IE	2	0	2	3	NIL

Open Electives – Electives from Innovation, Entrepreneurship, Skill Development etc. - Credits (6-9)

SL. NO	COURSE CODE	COURSE	OFFERING DEPT.	CATEGORY	L	T	P	C	PREREQUISITE
1.		INNOVATION, PRODUCT DEVELOPMENT AND COMMERCIALIZATION	MANAG	OE-IE	3	0	0	3	NIL
2.		NEW VENTURE PLANNING AND MANAGEMENT	MANAG	OE-IE	3	0	0	3	NIL
3.		SOCIAL ENTREPRENEURSHIP	MANAG	OE-IE	3	0	0	3	NIL
4.		ENGINEERING STARTUPS AND ENTREPRENEURIAL MANAGEMENT	MANAG	OE-IE	3	0	0	3	NIL
5.		INTELLECTUAL PROPERTY RIGHTS	MANAG	OE - IE	3	0	0	3	NIL
6.		LIFE SKILLS	MANAG	OE-IE	3	0	0	3	NIL

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Open Electives – Electives from other Technical and /or Emerging Courses - Credits (6-9)

SL. NO	COURSE CODE	COURSE	OFFERING DEPT.	CATEGORY	L	T	P	C	PREREQUISITE
1.		PRINCIPLES OF BIOMEDICAL INSTRUMENTATION	BME	OE-EA	3	0	0	3	NIL
2.		BIOSENSORS AND TRANSDUCERS	BME	OE-EA	3	0	0	3	NIL
3.		INTRODUCTION TO BIOFUELS	BTE	OE-EA	3	0	0	3	NIL
4.		FOOD AND NUTRITION TECHNOLOGY	BTE	OE-EA	3	0	0	3	NIL
5.		DISASTER RISK MANAGEMENT	CIVIL	OE-EA	3	0	0	3	NIL
6.		MUNICIPAL SOLID WASTE MANAGEMENT	CIVIL	OE-EA	3	0	0	3	NIL
7.		FUNDAMENTALS OF ARTIFICIAL INTELLIGENCE	CSE	OE-EA	3	0	0	3	NIL
8.		INTRODUCTION TO INTERNET OF THINGS	CSE	OE-EA	3	0	0	3	NIL
9.		CYBER SECURITY	CSE	OE-EA	3	0	0	3	NIL
10.		DESIGN OF ELECTRONIC EQUIPMENT	ECE	OE-EA	3	0	0	3	NIL
11.		INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	ECE	OE-EA	3	0	0	3	NIL
12.		3D PRINTING AND ITS APPLICATIONS	MECH	OE-EA	3	0	0	3	NIL
13.		INDUSTRIAL ROBOTICS	MECH	OE-EA	3	0	0	3	NIL
14.		BIOMOLECULES – STRUCTURE AND FUNCTION	PE	OE-EA	3	0	0	3	NIL
15.		PHARMACOGENOMICS	PE	OE-EA	3	0	0	3	NIL

B.E. – ELECTRICAL AND ELECTRONICS ENGINEERING – SEMESTER I TO VIII

D. Courses for Presentation of technical Skills related to the specialization

Project work, Seminar and Internship in Industry or elsewhere Credits - (15)

SL. NO	COURSE CODE	COURSE	OFFERING DEPT.	CATEGORY	L	T	P	C	PREREQUISITE
1.		PROJECT WORK	EEE	PI-P	0	0	16	8	NIL
2.		MINI PROJECT	EEE	PI-M	0	0	6	3	NIL
3.		SEMINAR	EEE	PI-S	0	0	2	1	NIL
4.		INTERNSHIP	EEE	PI-IT	3 Weeks			3	NIL

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B.E. – ELECTRICAL AND ELECTRONICS ENGINEERING – SEMESTER I TO VIII									
E.MANDATORY COURSES									
MANDATORY COURSES (NO CREDITS) (NOT INCLUDED FOR CGPA CALCULATIONS)									
SL. NO	COURSE CODE	COURSE	OFFERING DEPT.	CATEGORY	L	T	P	C	PREREQUISITE
1.		YOGA AND MEDITATION	PHED	AC	0	0	2	0	NIL
ANY TWO OF THE FOLLOWING COURSES									
2.		GENDER EQUITY AND LAW	LAW	AC	0	0	2	0	NIL
3.		ESSENCE OF INDIAN TRADITIONAL KNOWLEDGE	GEN	AC	0	0	2	0	NIL
4.		INDIAN CONSTITUTION	LAW	AC	0	0	2	0	NIL
5.		NCC/NSS/RRC/YRC/STUDENT CLUBS/UNNAT BHARAT ABHIYAN/ SWACHH BHARAT	GEN	AC	0	0	2	0	NIL
6.		SPORTS AND GAMES	PHED	AC	0	0	2	0	NIL

B.E. – ELECTRICAL AND ELECTRONICS ENGINEERING – SEMESTER I TO VIII									
Professional Elective Courses relevant to chosen Specialization / Branch Credits - (12)									
SL. NO	COURSE CODE	COURSE	OFFERING DEPT.	CATEGORY	L	T	P	C	PREREQUISITE
SPECIALISATION – ELECTRIC VEHICLE									
1.		ARCHITECTURE OF ELECTRIC AND HYBRID ELECTRIC VEHICLE	EEE	EC-SE	3	0	0	3	NIL
2.		BATTERY MANAGEMENT SYSTEM	EEE	EC-SE	3	0	0	3	NIL
3.		MODERN DRIVES FOR ELECTRIC VEHICLE	EEE	EC-SE	3	0	0	3	NIL
4.		POWER CONVERTERS FOR ELECTRIC VEHICLE	EEE	EC-SE	3	0	0	3	NIL
5.		TESTING OF ELECTRIC AND HYBRID VEHICLE	EEE	EC-SE	3	0	0	3	NIL
6.		DESIGN OF HYBRID ELECTRIC VEHICLE	MECH	EC-SE	3	0	0	3	NIL
7.		CONTROL SYSTEMS FOR HYBRID ELECTRIC VEHICLE	EEE	EC-SE	3	0	0	3	NIL
8.		BRAKE SYSTEM OF EV AND HEV	EEE	EC-SE	3	0	0	3	NIL
9.		ENERGY STORAGE SIMULATION LAB	EEE	EC-SE	3	0	0	3	NIL
10.		ELECTRIC DRIVES LAB	EEE	EC-SE	0	0	4	2	NIL

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SPECIALISATION – SOLAR AND ALTERNATE ENERGY

1.		NEW AND RENEWABLE ENERGY SOURCES AND ITS APPLICATIONS	EEE	EC-SE	3	0	0	3	NIL
2.		SOLAR COLLECTORS AND THERMAL ENERGY CONVERSION	EEE	EC-SE	3	0	0	3	NIL
3.		ENERGY CONSERVATION AND ENERGY EFFICIENCY	EEE	EC-SE	3	0	0	3	NIL
4.		APPLICATIONS OF GREEN BUILDING TECHNOLOGIES	EEE	EC-SE	3	0	0	3	NIL
5.		NUCLEAR REACTOR THEORY	EEE	EC-SE	3	0	0	3	NIL
6.		CONVENTIONAL ENERGY TECHNOLOGIES	EEE	EC-SE	3	0	0	3	NIL
7.		SOLAR ENERGY LAB	EEE	EC-SE	3	0	0	3	NIL
8.		WIND ENERGY LAB	EEE	EC-SE	3	0	0	3	NIL
9.		POWER ELECTRONICS SIMULATION LAB -I	EEE	EC-SE	0	0	4	2	NIL
10.		POWER ELECTRONICS SIMULATION LAB -II	EEE	EC-SE	0	0	4	2	NIL

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