

B.E. ELECTRONICS AND COMMUNICATION ENGINEERING
REGULATION 2020 (Batch: 2021 – 2025)
CHOICE BASED CREDIT SYSTEM
I – VIII SEMESTER CURRICULUM AND SYLLABI

SEMESTER I							
SL. No.	Course Code	Course	L/T/P	Contact hrs./wk.	C	Ext./Int.	Cat.
THEORY							
1	21SB101	Engineering Biology	3/0/0	3	3	60/40	BSC
THEORY CUM PRACTICAL							
2	21MA101	Engineering Mathematics I	2/1/2	5	4	50/50	BSC
3	21PH101	Physics for Electronics	3/0/3	6	4.5	50/50	BSC
4	21CS111	Problem Solving Using C Programming	3/0/2	5	4	50/50	ESC
5	21EC101	Circuit Theory	3/0/3	6	4.5	50/50	ESC
LABORATORY COURSE							
6	21ME103	Engineering Practices Laboratory	0/0/3	3	1.5	40/60	ESC
MANDATORY COURSE							
7	21MC101	Mandatory Course I (Induction Programme)	3 weeks	0	0	0/100	MC
TOTAL			14/1/13	28	21.5	700	

SEMESTER II							
SL. No.	Course Code	Course	L/T/P	Contact hrs./wk.	C	Ext./Int.	Cat.
THEORY							
1	21GE201	Universal Human Values	3/0/0	3	3	60/40	HSMC
THEORY CUM PRACTICAL							
2	21EN101	Technical Communication Skills	2/0/2	4	3	50/50	HSMC
3	21MA201	Engineering Mathematics II	2/1/2	5	4	50/50	BSC
4	21CH101	Engineering Chemistry	3/0/3	6	4.5	50/50	BSC
5	21EC201	Electron Devices	3/0/3	6	4.5	50/50	ESC
LABORATORY COURSE							
6	21ME111	Engineering Graphics	1/0/3	4	2.5	40/60	ESC
MANDATORY COURSE							
7	21MC102	Mandatory Course II (Environmental Sciences)	2/0/0	2	0	0/100	MC
TOTAL			16/1/13	30	21.5	700	

SEMESTER III							
SL. No.	Course Code	Course	L/T/P	Contact hrs./wk.	C	Ext./Int.	Cat.
THEORY							
1	21EC301	Digital Electronics	3/0/0	3	3	60/40	PCC
2	21EC302	Electronic Circuits	3/0/0	3	3	60/40	PCC
3	21EC303	Electromagnetics	3/0/0	3	3	60/40	PCC
4	21MA303	Transforms and Numerical Methods	3/0/0	3	3	60/40	BSC
THEORY CUM PRACTICAL							
5	21CS303	Managing Data using RDBMS	3/0/2	5	4	50/50	ESC
6	21CS304	Problem solving using C++ and Data Structures	3/0/2	5	4	50/50	ESC
LABORATORY COURSE							
7	21EC304	Digital Electronics Laboratory	0/0/2	2	1	40/60	PCC
TOTAL			18/0/6	24	21	700	

SEMESTER IV							
SL. No.	Course Code	Course	L/T/P	Contact hrs./wk.	C	Ext./Int.	Cat.
THEORY							
1	21EC401	Analog Integrated Circuits	3/0/0	3	3	60/40	PCC
2	21EC402	Signals and Systems	3/0/0	3	3	60/40	PCC
3	21EC403	Analog and Digital Communication	3/0/0	3	3	60/40	PCC
4	21MA402	Probability and Random Processes	3/0/0	3	3	60/40	BSC
THEORY CUM PRACTICAL							
5	21CS302	Java Programming	3/0/2	5	4	50/50	ESC
6	21IT301	Web Development using REACT	3/0/2	5	4	50/50	ESC
LABORATORY COURSE							
7	21EC404	Circuits Laboratory	0/0/2	2	1	40/60	PCC
8	21EC405	Analog and Digital Communication Laboratory	0/0/2	2	1	40/60	PCC
TOTAL			18/0/8	26	22	800	

SEMESTER V							
SL. No.	Course Code	Course	L/T/P	Contact hrs./wk.	C	Ext./Int.	Cat.
THEORY							
1	21EC501	Microcontrollers and Interfacing	3/0/0	3	3	60/40	PCC
2	21EC502	Data and Wireless Networks	3/0/0	3	3	60/40	PCC
3	21EC503	Digital Signal Processing	4/0/0	4	4	60/40	PCC
4	21EC504	VLSI Design	3/0/0	3	3	60/40	PCC
5	21XXXXX	Emerging Elective-1	3/0/0	3	3	60/40	EEC
6	21XXXX	Open Elective-1	3/0/0	3	3	60/40	OEC
LABORATORY COURSE							
7	21EC505	Digital Signal Processing Laboratory	0/0/2	2	1	40/60	PCC
8	21EC506	VLSI Laboratory	0/0/2	2	1	40/60	PCC
MANDATORY COURSE							
9	21MCXXX	Mandatory Course III	2/0/0	2	0	0/100	MC
TOTAL			21/0/4	25	21	900	

SEMESTER VI							
SL. No.	Course Code	Course	L/T/P	Contact hrs./wk.	C	Ext./Int.	Cat.
THEORY							
1	21EC601	Antennas and Wave Propagation	3/0/0	3	3	60/40	PCC
2	21EC602	Embedded Systems and its Applications	3/0/0	3	3	60/40	PCC
3	21EC9XX	Professional Elective-1	3/0/0	3	3	60/40	PEC
4	21EE611	Control Engineering	3/0/0	3	3	60/40	ESC
5	21XXXXX	Emerging Elective -2	3/0/0	3	3	60/40	EEC
6	21XXXXX	Open Elective-2	3/0/0	3	3	60/40	OEC
LABORATORY COURSE							
7	21EC603	Microcontrollers & Embedded Systems Laboratory	0/0/2	2	1	40/60	PCC
8	21EN601	Business Communication skills Laboratory	1/0/2	3	2	40/60	HSMC
TOTAL			19/0/4	23	21	800	

SEMESTER VII							
SL. No.	Course Code	Course	L/T/P	Contact hrs./wk.	C	Ext./Int.	Cat.
THEORY							
1	21EC701	Microwave and Optical Communication	3/0/0	3	3	60/40	PCC
2	21EC9XX	Professional Elective-2	3/0/0	3	3	60/40	PEC
3	21EC9XX	Professional Elective-3	3/0/0	3	3	60/40	PEC
4	21EC9XX	Professional Elective-4	3/0/0	3	3	60/40	PEC
5	21EC9XX	Professional Elective-5	3/0/0	3	3	60/40	PEC
6	21EC9XX	Professional Elective-6	3/0/0	3	3	60/40	PEC
LABORATORY COURSE							
7	21EC702	Microwave and Optical Communication Laboratory	0/0/2	2	1	40/60	PCC
PROJECT							
8	21EC703	Mini Project	-	-	2	0/100	PROJ
EMPLOYABILITY ENHANCEMENT SKILLS							
9	21EES01	Employability Enhancement Skills (Summer Internship/Summer Training – 4 weeks)			2	40/60	
TOTAL			18/0/2	20	23	900	

SEMESTER VIII							
SL. No.	Course Code	Course	L/T/P	Contact hrs./wk.	C	Ext./Int.	Cat.
PROJECT							
1.	21EC801	Project Work	0/0/24	24	12	40/60	PROJ
TOTAL			0/0/24	24	12	500	

SCHEME OF CREDIT DISTRIBUTION - SUMMARY

SL. No.	Stream	Credits/Semester								AICTE	C	%
		I	II	III	IV	V	VI	VII	VIII			
1	Humanities (HSMC)		6				2			12*	8	4.9
2	Basic Sciences (BSC)	11.5	8.5	3	3					25*	26	15.95
3	Engineering Sciences (ESC)	10	7	8	8		3			24*	36	22.08
4	Professional Core (PCC)			10	11	15	7	4		48*	47	28.83
5	Professional Electives (PEC)						3	15		18*	18	11.04
6	Open Electives/ Emerging Electives (OEC/EEC)					6	6			18*	12	7.36
7	Project Work (PROJ)							2	12	15*	14	8.58
8	Mandatory Course (MC)									Non-Credit	Non-Credit	
9	Employability Enhancement Skills							2		-	2	1.22
Total		21.5	21.5	21	22	21	21	23	12	160*	163	100

HUMANITIES & SOCIAL SCIENCES INCLUDING MANAGEMENT (8 Credits)

SL. No.	Course Code	Course Title	L/T/P	Contact hrs./Wk.	C	Cat.
1.	21GE201	Universal Human Values	3/0/0	3	3	HSMC
2.	21EN101	Technical Communication Skills	2/0/2	4	3	HSMC
3.	21EN601	Business Communication skills Laboratory	1/0/2	3	2	HSMC

BASIC SCIENCE COURSES (26 Credits)

SL. No.	Course Code	Course Title	L/T/P	Contact hrs./Wk.	C	Cat.
1	21SB101	Engineering Biology	3/0/0	3	3	BSC
2	21MA101	Engineering Mathematics I	2/1/2	5	4	BSC
3	21PH101	Physics for Electronics	3/0/3	6	4.5	BSC
4	21MA201	Engineering Mathematics II	2/1/2	5	4	BSC
5	21CH101	Engineering Chemistry	3/0/3	6	4.5	BSC
6	21MA303	Transforms and Numerical Methods	3/0/0	3	3	BSC
7	21MA402	Probability and Random Processes	3/0/0	3	3	BSC

ENGINEERING SCIENCE COURSES (36 Credits)

SL. No.	Course Code	Course Title	L/T/P	Contact hrs./Wk.	C	Cat.
1.	21CS111	Problem Solving Using C Programming	3/0/2	5	4	ESC
2.	21EC101	Circuit Theory	3/0/3	6	4.5	ESC
3.	21ME103	Engineering Practices Laboratory	0/0/3	3	1.5	ESC
4.	21EC201	Electron Devices	3/0/3	6	4.5	ESC
5.	21ME111	Engineering Graphics	1/0/3	4	2.5	ESC
6.	21CS303	Managing Data using RDBMS	3/0/2	5	4	ESC
7.	21CS304	Programming solving using C++ and Data Structures	3/0/2	5	4	ESC
8.	21CS302	Java Programming	3/0/2	5	4	ESC

9.	21IT301	Web Development using REACT	3/0/2	5	4	ESC
10.	21IEE611	Control Engineering	3/0/0	3	3	ESC

PROFESSIONAL CORE COURSES (47 Credits)

SL. No.	Course Code	Course Title	L/T/P	Contact hrs./Wk.	C	Cat.
1.	21EC301	Digital Electronics	3/0/0	3	3	PCC
2.	21EC302	Electronic Circuits	3/0/0	3	3	PCC
3.	21EC303	Electromagnetics	3/0/0	3	3	PCC
4.	21EC304	Digital Electronics Laboratory	0/0/2	2	1	PCC
5.	21EC401	Analog Integrated Circuits	3/0/0	3	3	PCC
6.	21EC402	Signals and Systems	3/0/0	3	3	PCC
7.	21EC403	Analog and Digital Communication	3/0/0	3	3	PCC
8.	21EC404	Circuits Laboratory	0/0/2	2	1	PCC
9.	21EC405	Analog and Digital Communication Laboratory	0/0/2	2	1	PCC
10.	21EC501	Microcontrollers and Interfacing	3/0/0	3	3	PCC
11.	21EC502	Data and Wireless Networks	3/0/0	3	3	PCC
12.	21EC503	Digital Signal Processing	4/0/0	4	4	PCC
13.	21EC504	VLSI Design	3/0/0	3	3	PCC
14.	21EC505	Digital Signal Processing laboratory	0/0/2	2	1	PCC
15.	21EC506	VLSI Laboratory	0/0/2	2	1	PCC
16.	21EC601	Antennas and Wave Propagation	3/0/0	3	3	PCC
17.	21EC602	Embedded Systems and its Applications	3/0/0	3	3	PCC
18.	21EC603	Microcontrollers & Embedded Systems Laboratory	0/0/2	2	1	PCC
19.	21EC701	Microwave and Optical Communication	3/0/0	3	3	PCC
20.	21EC702	Microwave and Optical Communication Laboratory	0/0/2	2	1	PCC

PROFESSIONAL ELECTIVE COURSES (18 Credits)

SL. No.	Course Code	Course Title	L/T/P	Contact hrs./Wk.	C	Cat.
Elective Stream I: Embedded Systems & VLSI Design						
1.	21EC901	High Speed Digital Design	3/0/0	3	3	PEC
2.	21EC902	Hardware Description Languages	3/0/0	3	3	PEC
3.	21EC903	ASIC Design	3/0/0	3	3	PEC
4.	21EC904	System on Chip Design	3/0/0	3	3	PEC
5.	21EC905	Electronic Design Automation Tools	3/0/0	3	3	PEC
6.	21EC906	Embedded Processors	3/0/0	3	3	PEC
7.	21EC907	ARM Processor Architecture and Programming	3/0/0	3	3	PEC
8.	21EC908	Internet of Medical Things	3/0/0	3	3	PEC
9.	21EC909	Internet of Things and its Applications	3/0/0	3	3	PEC
Elective Stream II: Communication Engineering						
1	21EC911	Advanced Wireless Technologies	3/0/0	3	3	PEC

2	21EC912	Satellite Communication and GPS	3/0/0	3	3	PEC
3	21EC913	Long Term Evolution Technology	3/0/0	3	3	PEC
4	21EC914	MEMS	3/0/0	3	3	PEC
5	21EC915	Smart Antennas	3/0/0	3	3	PEC
6	21EC916	RF System Design	3/0/0	3	3	PEC
7	21EC917	Cognitive Radio Communication	3/0/0	3	3	PEC
8	21EC918	MIMO and Multi Carrier Systems	3/0/0	3	3	PEC
9	21EC919	Millimeter Wave Communication Systems	3/0/0	3	3	PEC
Elective Stream III – Networks, Image and Video Processing						
1	21EC921	Wireless Sensor Networks	3/0/0	3	3	PEC
2	21EC922	Soft Computing	3/0/0	3	3	PEC
3	21EC923	Digital Image and Video Processing	3/0/0	3	3	PEC
4	21EC924	Convergent Networks	3/0/0	3	3	PEC
5	21EC925	Information Security	3/0/0	3	3	PEC
6	21EC926	Pattern Recognition Techniques	3/0/0	3	3	PEC
7	21EC927	High Speed Networks	3/0/0	3	3	PEC
8	21EC928	Advanced Wireless Networks	3/0/0	3	3	PEC
9	21EC929	Neural Networks and Deep Learning	3/0/0	3	3	PEC

OPEN ELECTIVE COURSES (6 Credits)
(Offered to Other Branches)

SL. No.	Course Code	Course Title	L/T/P	Contact hrs./Wk.	C	Cat.
1.	21EC001	Principles of Cyber Physical Systems	3/0/0	3	3	OEC
2.	21EC002	Introduction to Raspberry Pi and Arduino	3/0/0	3	3	OEC
3.	21EC003	IT Workshop SCILAB/MATLAB	3/0/0	3	3	OEC
4.	21EC004	Brain Computer Interface and its Applications	3/0/0	3	3	OEC
5.	21EC005	Wireless wearable Sensors	3/0/0	3	3	OEC
6.	21EC006	Organizational Behaviour	3/0/0	3	3	OEC

EMERGING ELECTIVE COURSES (6 Credits)

SL. No.	Course Code	Course Title	L/T/P	Contact hrs./Wk.	C	Cat.
1.	21EC007	Robotics	3/0/0	3	3	EEC
2.	21EC008	Augmented and Virtual Reality	3/0/0	3	3	EEC
3.	21EC009	Computer Vision	3/0/0	3	3	EEC
4.	21EC010	Bio – inspired Human Machine Interface	3/0/0	3	3	EEC

PROJECT WORK (14 Credits)

SL.	Course	Course Title	L/T/P	Contact	C	Cat.
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No.	Code			hrs./Wk.		
1.	21EC703	Mini Project	-	-	2	PROJ
2	21EC801	Project Work	0/0/24	24	12	PROJ

MANDATORY COURSES

S.No	CourseCode	Course Title	L/T/P	Contact Hrs/Wk	C	Cat.
1.	21MC101	Induction Program		3 weeks	0	MC
2.	21MC102	Environmental Sciences	2/0/0	2	0	MC
3.	21MC103	Soft Skills	2/0/0	2	0	MC
4.	21MC104	Management Organizational Behavior	2/0/0	2	0	MC
5.	21MC105	General Aptitude	2/0/0	2	0	MC
6.	21MC106	Life Skills and Ethics	2/0/0	2	0	MC
7.	21MC107	Stress Management	2/0/0	2	0	MC
8.	21MC108	Constitution of India	2/0/0	2	0	MC
9.	21MC109	Essence of Indian Traditional Knowledge	2/0/0	2	0	MC
11.	21MC110	Design and Analysis of Algorithm	2/0/0	2	0	MC

VALUE ADDED COURSES OFFERED BY ECE

SL. No.	Course Code	Course Title	Credits
1.	21VA401	Antenna Design using ANSYS HFSS Tool Flow	1
2.	21VA402	Mastering in MATLAB - Math and Optimization	1
3.	21VA403	The Agriculture Industry in Industry 4.0	1
4.	21VA404	Connecting Technologies with Real World	1
5.	21VA405	Arduino Programming model	1
6.	21VA406	PCB Design for Electronic Circuits	1
7.	21VA407	Energy Harvesting and Security Issues in Cognitive Networks	1

VALUE ADDED COURSES OFFERED BY OTHER DEPARTMENTS

SL. No.	Course Code	Course Title	Credits
1.	21VA160	Agile Product Development in Web Application	2
2.	21VA161	Soft Skills for Corporate Workplace	1
3.	21VA162	Web Framework Technologies	2

SEMESTER WISE CREDIT DISTRIBUTION:-

Semester	I	II	III	IV	V	VI	VII	VIII	Total
Credits	21.5	21.5	21	22	21	21	23	12	163

Total Credits: 163

L: Lecture **T:** Tutorial **P:** Practical **C:** Credit **Cat.:** Category

HSMC : Humanities and Social
Sciences including Management

BSC : Basic Science Courses

ESC : Engineering Science Courses

PCC : Professional Core Courses

PEC : Professional Elective Courses

OEC :Open Elective Courses

EEC : Emerging Elective Courses

PROJ : Project Work

MC : Mandatory Course