



KINGSTON ENGINEERING COLLEGE

(An Autonomous Institution)

**(Approved by AICTE & COA, New Delhi, Affiliated to Anna University, Chennai)
Chittoor Main Road, Christianpet,
Katpadi, Vellore-632059**

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

AUTONOMOUS CURRICULUM

REGULATION 2026

Academic Year 2026-27 onwards



INSTITUTE VISION

To be a pioneer in engineering and management education by providing amicable ambience and being a centre for learning thereby perpetuating versatile professionals in engineering and management suitable for industry, higher education and research.

INSTITUTE MISSION

- Developing, nurturing and building professionals with technical, research and managerial expertise, intellectual proficiency, right attitude and moral ethics.
- Building infrastructure that earmarks the institution to be the most preferred educational destination and provides the right ambience for creative and innovative teaching - learning process.
- Enabling learners to broaden their horizon and helping to meet global challenges.

QUALITY POLICY

To establish and implement a robust quality system at Kingston Engineering College, encircling teaching, learning, research, and self-reliance, focusing on core and support functions to ensure accountability to stakeholders through continuous improvement and sustenance towards promoting holistic academic excellence.

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B.E - ELECTRONICS AND COMMUNICATION ENGINEERING

REGULATION - 2026

CHOICE BASED CREDIT SYSTEM

VISION

To develop the department into a Centre of Excellence for learning in the recent trends of Electronics and Communication Engineering, thereby enabling our graduates to excel as efficient engineers, managers, and entrepreneurs.

MISSION

M1: Providing quality education in the areas of Electronics and Communication Engineering to enhance the employability and professional competence of our graduates and contribute to economic, scientific, and societal development.

M2: Endowing students with the knowledge, technical skills and values that prepare them to excel as engineers and leaders in their profession and to be committed to lifelong learning.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO1: To provide the students with a strong foundation in the required sciences in order to pursue studies in Electronics and Communication Engineering.

PEO2: To gain adequate knowledge to become a good professional in electronic and communication engineering associated industries, higher education, and research.

PEO3: To develop an attitude in lifelong learning, applying and adapting new ideas and technologies as their field evolves.

PEO4: To prepare students to critically analyze existing literature in an area of specialization and ethically develop innovative and research-oriented methodologies to solve the problems identified.

PEO5: To inculcate in the students a professional and ethical attitude and an ability to visualize the engineering issues in a broader social context.

PROGRAM OUTCOMES:

PO1: Engineering Knowledge: Apply mathematics, science, and engineering fundamentals to complex problems.

PO2: Problem Analysis: Identify and analyze complex problems using research and sustainability principles.

PO3: Design Solutions: Design systems and processes considering health, safety, cost, culture, and environment.

PO4: Investigations: Use experiments, modelling, and data analysis to reach valid conclusions.

PO5: Engineering Tools: Apply modern tools for modelling and problem-solving, recognizing their limits.

PO6: Society and Environment: Assess societal, legal, and environmental impacts of engineering solutions.

PO7: Ethics: Commit to ethics, human values, diversity, and legal compliance.

PO8: Teamwork: Work effectively as an individual and in multidisciplinary teams.

PO9: Communication: Communicate clearly in reports, presentations, and documentation across diverse groups.

PO10: Management & Finance: Apply management and economic principles in projects and teamwork.

PO11: Lifelong Learning: Engage in continuous learning, adapt to new technologies, and think critically

PROGRAM SPECIFIC OUTCOMES (PSOs):

PSO1: To design and develop efficient electronic and modern communication systems for real-time applications.

PSO2: To identify, formulate, and solve complex problems in the field of electronics and communication engineering using modern tools and techniques.

PSO3: To keep pace with emerging technologies and foster innovation, collaborative skills, and ethical practices.

MAPPING OF PROGRAM EDUCATIONAL OBJECTIVES WITH PROGRAM OUTCOMES

PROGRAM EDUCATIONAL OBJECTIVES	PROGRAM OUTCOMES										
	1	2	3	4	5	6	7	8	9	10	11
I	3	3	3	1	2	1	1	2	2	1	3
II	3	3	3	3	3	2	1	3	3	2	3
III	3	3	3	2	3	1	1	3	2	1	3
IV	3	3	3	3	3	3	3	3	2	2	2
V	3	3	2	2	3	3	3	3	2	2	2

1 - Low, 2 - Medium, 3 - High, '-' - no correlation

MAPPING OF PROGRAM SPECIFIC OUTCOMES WITH PROGRAM OUTCOMES

PROGRAM SPECIFIC OUTCOMES	PROGRAM OUTCOMES										
	1	2	3	4	5	6	7	8	9	10	11
I	3	2	2	2	3	1	1	3	1	1	3
II	3	3	3	3	3	1	2	3	3	2	3
III	3	2	3	3	3	2	3	2	2	2	3

1 - Low, 2 - Medium, 3 - High, '-' - no correlation

SUSTAINABLE DEVELOPMENT GOALS (SDG)





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B.E - ELECTRONICS AND COMMUNICATION ENGINEERING
REGULATION – 2026
CURRICULUM SEMESTER I to VIII
CHOICE BASED CREDIT SYSTEM
(For the Students from admitted the Academic Year 2026-2027)

Semester I									
S. No	Course Code	Course Name	Course Type	Contact Periods	L	T	P	C	SDG
Theory Course									
1	HS26101	Heritage of Tamil	HS	1	1	0	0	1	4,11, 17
2	MA26104	Calculus and Numerical Methods	BS	4	3	1	0	4	4, 9, 11,12
Lab Integrated Theory Course									
3	HS26102	English for Interpersonal Communication-I	HS	3	1	0	2	2	4, 8, 16
4	EC26101	Principles of Electrical and Electronics Engineering	ES	5	3	0	2	4	7, 9, 11, 12
5	CS26C01	Programming in C	ES	5	3	0	2	4	4, 8, 9
6	PH26101	Physics for Electronics Engineering	BS	4	2	0	2	3	4,7,8, 9, 12
Practical Course									
7	CS26C11	Engineering Foundation Laboratory (CSE and ECE)	ES	2	0	0	2	1	4, 8, 9, 12
Employability Enhancement Course									
8	PD26S01	Digital Professional Skills	EE	2	0	0	2	1	4, 8, 9
Mandatory Course									
9	MC26101	Student Induction Program	MC	3 weeks	0	0	0	0	4
10	MC26102	Foreign Language Level-I (Japanese / German)	MC	2	0	0	2	1	4, 8,17
11	MC26103	Physical Education I	MC	2	0	0	2	0	3,4,5
Audit Course									
12	AC26101	NSS/YRC/SDG/CLUB ACTIVITIES	AC	1 Week	-	-	-	0	3,11, 17
TOTAL				30	13	1	16	21	-

Semester II									
S. No	Course Code	Course Name	Course Type	Contact Periods	L	T	P	C	SDG
Theory Course									
1	HS26201	Tamil and Technology	HS	1	1	0	0	1	11
2	MA26202	Matrices and Linear Algebra	BS	4	3	1	0	4	4, 8, 9, 12
3	HS26202	Universal Human Values-II: Understanding Harmony	HS	3	3	0	0	3	3, 4, 16
Lab Integrated Theory Course									
4	HS26203	English for Interpersonal Communication-II	HS	3	1	0	2	2	4, 8, 9
5	EC26201	Circuits and Network Analysis	ES	4	2	0	2	3	7, 9
6	CS26C02	Python Programming	ES	5	3	0	2	4	4, 8, 9
7	CH26C01	Chemistry for Engineers	BS	4	2	0	2	3	6,7,9, 12,13
Practical Course									
8	ME26C11	Engineering Foundation Laboratory (MECH)	ES	2	0	0	2	1	4, 8, 9, 12
Employability Enhancement Course									
9	PD26S02	Professional Excellence and Career Development	EE	2	0	0	2	1	3, 4, 8, 16
Mandatory Course									
10	MC26201	Foreign Language level-II (Japanese / German)	MC	2	0	0	2	1	4, 8,17
11	MC26202	Physical Education II	MC	2	0	0	2	0	3,4,5
Audit Course									
12	AC26201	NSS/YRC/SDG/CLUB ACTIVITIES	AC	1 Week	-	-	-	0	3, 11,17
TOTAL				32	15	1	16	23	-

Semester III									
S. No	Course Code	Course Name	Course Type	Contact Periods	L	T	P	C	SDG
Theory Course									
1	MA26301	Transforms and Partial Differential Equations	BS	4	3	1	0	4	4, 9
2	EC26301	Electronic Circuits	ES	3	3	0	0	3	4, 9, 11
3	EC26302	Signals and Systems	PC	3	3	0	0	3	7, 9, 11
Lab Integrated Theory Course									
4	EC26303	Digital System Design	PC	5	3	0	2	4	7, 9
5	EC26304	Design Thinking and Idea Innovation	ES	4	2	0	2	3	4,9
Practical Course									
6	EC26311	Electronic Circuits Laboratory	PC	4	0	0	4	2	4, 9, 11
Employability Enhancement Course									
7	EC26S01	Employability Enhancement Skill – I	EE	2	0	0	2	1	4, 8
8	EC26S02	Industry Certification Course-I	EE	2	0	0	2	1	
Mandatory Course									
9	MC26301	Environmental and Sustainable Future	MC	1	1	0	0	1	11, 12, 13
10	MC26302	Foreign Language Level-III (Japanese / German)	MC	2	0	0	2	1	4, 8,17
Audit Course									
11	AC26301	NSS/YRC/SDG/CLUB ACTIVITIES	AC	1 Week	-	-	-	0	3, 11, 17
TOTAL				30	15	1	14	23	-

Semester IV									
S. No	Course Code	Course Name	Course Type	Contact Periods	L	T	P	C	SDG
Theory Course									
1	MA26401	Probability and Random Process	BS	4	3	1	0	4	3, 4, 8, 9, 13
2		Open Elective – I	OE	3	3	0	0	3	
3	EC26401	Electromagnetic Fields and Transmission Lines	PC	3	3	0	0	3	7, 9, 11
Lab Integrated Theory Course									
4	EC26402	Digital Signal Processing	PC	5	2	1	2	4	7, 9, 11
5	EC26403	Linear Integrated Circuits	PC	4	2	0	2	3	7, 9
6	EC26404	Analog and Digital Communication	PC	4	2	0	2	3	9, 10
Practical Course									
7	EC26411	Innovation Design Laboratory	PC	4	0	0	4	2	4, 9
Employability Enhancement Course									
8	EC26S03	Employability Enhancement Skill – II	EE	2	0	0	2	1	4, 8
9	EC26S04	Industry Oriented Course-I	EE	2	0	0	2	1	
Mandatory Course									
10	MC26401	Foreign Language Level-IV (Japanese / German)	MC	2	0	0	2	1	4, 8, 17
11	MC26402	Indian Constitution	MC	1	1	0	0	0	4, 16
Audit Course									
12	AC26401	NSS/YRC/SDG/CLUB ACTIVITIES	AC	1 Week	-	-	-	0	3, 11, 17
TOTAL				34	16	2	16	25	-

Semester V									
S. No	Course Code	Course Name	Course Type	Contact Periods	L	T	P	C	SDG
Theory Course									
1	EC26501	VLSI and Chip Design	PC	3	3	0	0	3	9,12
2	EC26502	Control Systems	PC	3	3	0	0	3	7, 9
3		Open Elective – II	OE	3	3	0	0	3	-
Lab Integrated Theory Course									
4	EC26503	Cyber security	PC	4	2	0	2	3	4, 5, 8, 9
5	EC26C02	Microprocessors and Microcontrollers	PC	4	2	0	2	3	4, 9
6		Professional Elective - I	PE	4	2	0	2	3	-
Practical Course									
7	EC26511	VLSI Laboratory	PC	4	0	0	4	2	9, 12
8	EC26512	Innovation Product Development-I Laboratory	PC	4	0	0	4	2	4, 8, 9, 12
Employability Enhancement Course									
9	EC26S05	Career Readiness – I	EE	2	0	0	2	1	4, 8
Mandatory Course									
10	MC26501	Disaster Management	MC	1	1	0	0	0	12,13
Audit Course									
11	AC26501	NSS/YRC/SDG/CLUB ACTIVITIES	AC	1 Week	-	-	-	0	3, 11, 17
TOTAL				32	16	0	16	23	-

S. No	For Honours Degree								
1	Multidisciplinary Project (Capstone Design Project – Level I)	EE	12	0	0	12	6	4, 8, 9, 11, 12	
(or)									
1	Honours Elective – I	PE	4	-	-	-	3		
2	Honours Elective – II	PE	4	-	-	-	3		
S. No	For Minor Degree								
1	Minor Elective – I	PC	3	-	-	-	3		
2	Minor Elective – II	PC	3	-	-	-	3		

Semester VI									
S. No	Course Code	Course Name	Course Type	Contact Periods	L	T	P	C	SDG
Theory Course									
1	EC26601	Wireless Communication	PC	3	3	0	0	3	9, 11
2		Management Elective	HS	3	3	0	0	3	-
3		Open Elective-III	OE	3	3	0	0	3	-
4		Professional Elective – II	PE	3	3	0	0	3	-
Lab Integrated Theory Course									
5	EC26602	Artificial Intelligence and Machine Learning	PC	4	2	0	2	3	9, 10
6		Professional Elective - III	PE	4	2	0	2	3	-
Practical Course									
7	EC26611	Innovation Product Development-II Laboratory	PC	4	0	0	4	2	4, 8, 9, 12
Employability Enhancement Course									
8	EC26S06	Career Readiness – II	EE	2	0	0	2	1	4, 8
9	EC26S07	Industry-Oriented Course-II	EE	2	0	0	2	1	-
Mandatory Course									
10	MC26601	Introduction to Indian Knowledge System	MC	1	1	0	0	0	4, 11, 12
Audit Course									
11	AC26601	NSS/YRC/SDG/CLUB ACTIVITIES	AC	1 Week	-	-	-	0	3, 11, 17
TOTAL				29	17	0	12	22	-

S. No	For Honours Degree							
1	Multidisciplinary Project (Capstone Design Project – Level II)	EE	12	0	0	12	6	4, 8, 9, 11, 12
(or)								
1	Honours Elective – III	PE	4	-	-	-	3	
2	Honours Elective – IV	PE	4	-	-	-	3	
S. No	For Minor Degree							
1	Minor Elective – III	PC	3	-	-	-	3	
2	Minor Elective – IV	PC	3	-	-	-	3	

Semester VII									
S. No	Course Code	Course Name	Course Type	Contact Periods	L	T	P	C	SDG
Theory Course									
1	HS26701	Research and Publication Ethics	HS	3	2	1	0	3	4,9, 16, 17
2	EC26701	Embedded Systems and IoT Design	PC	3	3	0	0	3	9, 11
3	EC26702	Antennas and Microwave Engineering	PC	3	3	0	0	3	9, 17
Lab Integrated Theory Course									
4		Professional Elective – IV	PE	4	2	0	2	3	-
Practical Course									
5	EC26711	Mini Project	EE	4	0	0	4	2	4,8,9
6	EC26712	Embedded Systems and IoT Design Laboratory	PC	4	0	0	4	2	4, 9
7	EC26713	Internship	EE	4 Weeks				2	-
Employability Enhancement Course									
8	EC26S08	Industry Readiness and Professional Excellence	EE	2	0	0	2	1	4, 8, 9, 12
9	EC26S09	Industry Certification Course-II	EE	2	0	0	2	1	-
TOTAL				25	10	1	14	20	-

S. No	For Honours Degree								
1	Multidisciplinary Project (Capstone Design Project – Level III)	EE	12	0	0	12	6	4, 8, 9, 11, 12	
(or)									
1	Honours Elective – V	PE	4	-	-	-	3		
2	Honours Elective – VI	PE	4	-	-	-	3		
S. No	For Minor Degree								
1	Minor Elective – V	PC	3	-	-	-	3		
2	Minor Elective – VI	PC	3	-	-	-	3		

Semester VIII									
S. No	Course Code	Course Name	Course Type	Contact Periods	L	T	P	C	SDG
Practical Course									
1	EC26811	Project Work	EE	16	0	0	16	8	4, 8, 9
TOTAL				16	0	0	16	8	-

Credit Distribution

S.No	Subject Area	Credit Per Semester								Credits Total	Percentage
	Semester	I	II	III	IV	V	VI	VII	VIII		
1	Humanities and Social Science (HS)	3	6	0	0	0	3	3	0	15	9.09%
2	Basic Science Course (BS)	7	7	4	4	0	0	0	0	22	13.33%
3	Engineering Science Course (ES)	9	8	6	0	0	0	0	0	23	13.93%
4	Employability Enhancement Course (EE)	1	1	2	2	1	2	6	8	23	13.93%
5	Open Elective (OE)	0	0	0	3	3	3	0	0	09	5.45%
6	Professional Course (PC)	0	0	9	15	16	8	8	0	56	33.93%
7	Professional Elective (PE)	0	0	0	0	3	6	3	0	12	7.27%
8	Mandatory Course (MC)	1	1	2	1	0	0	0	0	05	3.03%
9	Audit Course (AC)	0	0	0	0	0	0	0	0	00	0.00%
Total		21	23	23	25	23	22	20	8	165	100%

B.E - ELECTRONICS AND COMMUNICATION ENGINEERING

REGULATION – 2026

PROFESSIONAL ELECTIVE COURSES: VERTICALS

Vertical I IC Design and Testing	Vertical II Computational Signal Processing	Vertical III IoT and Sensor Technologies	Vertical IV RF and Space Technologies	Vertical V High Speed Communication and Networks	Vertical VI Robotics
Wide Bandgap Devices	Advanced Digital Signal Processing	IoT Processors	MICs and RF System Design	Optical Communication and Networks	Robot Operating System
Validation and Testing Technology	Image Processing	IoT-Based System Design	EMI/EMC Pre Compliance Testing	Wireless Broadband Networks	Materials Informatics
Low Power IC Design	Speech Processing	Embedded AI Systems	RF ID System Design and Testing	Massive MIMO Networks	Robotics Vision and Sensing
VLSI Testing and Design for Testability	Software Defined Radio	Industrial IoT and Industry 4.0	Radar Technologies	Networks and Security	Expert Systems
Mixed Signal IC Design Testing	DSP Architecture and Programming	MEMS Design	Satellite Communication	5G/6G Communication Networks	Multiagent Systems
Analog IC Design	Computer Vision	Fundamentals of Nanoelectronics	Rocketry and Space Mechanics	Software Defined Networks	Robotic process Automation

VERTICAL I: IC DESIGN AND TESTING

S. No	Course Code	Course Name	Course Type	Contact Periods	L	T	P	C	SDG
1	EC26IC1	Wide Bandgap Devices	PE	4	2	0	2	3	7, 9
2	EC26IC2	Validation and Testing Technology	PE	4	2	0	2	3	4, 9
3	EC26IC3	Low Power IC Design	PE	4	2	0	2	3	9, 12
4	EC26IC4	VLSI Testing and Design for Testability	PE	3	3	0	0	3	9, 12
5	EC26IC5	Mixed Signal IC Design Testing	PE	4	2	0	2	3	3, 9
6	EC26IC6	Analog IC Design	PE	4	2	0	2	3	9, 11

VERTICAL II: COMPUTATIONAL SIGNAL PROCESSING

S. No	Course Code	Course Name	Course Type	Contact Periods	L	T	P	C	SDG
1	EC26SP1	Advanced Digital Signal Processing	PE	4	2	0	2	3	4, 9, 11
2	EC26SP2	Image Processing	PE	3	3	0	0	3	3, 9, 15
3	EC26SP3	Speech Processing	PE	4	2	0	2	3	9, 10
4	EC26SP4	Software Defined Radio	PE	4	2	0	2	3	9, 17
5	EC26SP5	DSP Architecture and Programming	PE	4	2	0	2	3	9, 12
6	EC26SP6	Computer Vision	PE	4	2	0	2	3	9

VERTICAL III: IOT AND SENSOR TECHNOLOGIES

S. No	Course Code	Course Name	Course Type	Contact Periods	L	T	P	C	SDG
1	EC26IS1	IoT Processors	PE	4	2	0	2	3	4, 9, 12
2	EC26IS2	IoT Based Systems Design	PE	3	3	0	0	3	3, 7, 11, 13
3	EC26IS3	Embedded AI Systems	PE	3	3	0	0	3	4, 9, 12, 13
4	EC26IS4	Industrial IoT and Industry 4.0	PE	4	2	0	2	3	8, 9, 12
5	EC26IS5	MEMS Design	PE	4	2	0	2	3	3, 9, 11
6	EC26IS6	Fundamentals of Nanoelectronics	PE	4	2	0	2	3	4, 7, 9, 12

VERTICAL IV: RF AND SPACE TECHNOLOGIES

S. No	Course Code	Course Name	Course Type	Contact Periods	L	T	P	C	SDG
1	EC26RF1	MICs and RF System Design	PE	4	2	0	2	3	9, 12
2	EC26RF2	EMI/EMC Pre Compliance Testing	PE	4	2	0	2	3	3, 9
3	EC26RF3	RF ID System Design and Testing	PE	4	2	0	2	3	8, 9
4	EC26RF4	Radar Technologies	PE	3	3	0	0	3	11, 13
5	EC26RF5	Satellite Communication	PE	3	3	0	0	3	4, 17
6	EC26RF6	Rocketry and Space Mechanics	PE	3	3	0	0	3	9, 15

VERTICAL V: HIGH SPEED COMMUNICATION AND NETWORKS

S. No	Course Code	Course Name	Course Type	Contact Periods	L	T	P	C	SDG
1	EC26CN1	Optical Communication and Networks	PE	4	2	0	2	3	9, 17
2	EC26CN2	Wireless Broadband Networks	PE	4	3	0	0	3	4, 9
3	EC26CN3	Massive MIMO Networks	PE	4	2	0	2	3	9, 11
4	EC26CN4	Networks and Security	PE	4	2	0	2	3	9, 16
5	EC26CN5	5G/6G Communication Networks	PE	4	2	0	2	3	8, 9
6	EC26CN6	Software Defined Networks	PE	4	2	0	2	3	9, 12

VERTICAL VI: ROBOTICS

S. No	Course Code	Course Name	Course Type	Contact Periods	L	T	P	C	SDG
1	EC26RO1	Robot Operating System	PE	3	3	0	0	3	4, 9
2	EC26RO2	Materials Informatics	PE	3	3	0	0	3	7, 9
3	EC26RO3	Robotics Vision and Sensing	PE	3	3	0	0	3	9, 11
4	EC26RO4	Expert Systems	PE	3	3	0	0	3	7, 9
5	EC26RO5	Multiagent Systems	PE	3	3	0	0	3	4, 9
6	EC26RO6	Robotic process Automation	PE	3	3	0	0	3	3, 9



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OPEN ELECTIVES

S. No	Course Code	Course Name	Course Type	Contact Periods	L	T	P	C	SDG
1	OE26C01	Environment and social impact Assessment	OE	3	3	0	0	3	11, 13, 15
2	OE26C02	Data Communication	OE	3	3	0	0	3	9, 7
3	OE26C03	Renewable energy Systems	OE	3	3	0	0	3	7, 9, 13
4	OE26C04	E-Vehicle	OE	3	3	0	0	3	7, 11, 13
5	OE26C05	Holistic Nutrition	OE	3	3	0	0	3	2, 3
6	OE26C06	NGOs and Sustainable Development	OE	3	3	0	0	3	1, 10, 17
7	OE26C07	Fundamentals of Quantum Electronics	OE	3	3	0	0	3	4, 9
8	OE26C08	Biotechnology in Health Care	OE	3	3	0	0	3	3, 9
9	OE26C09	Space Science	OE	3	3	0	0	3	4, 9, 13
10	OE26C10	Introduction to Industrial Engineering	OE	3	3	0	0	3	8, 9, 12
11	OE26C11	Food, Nutrition and Health	OE	3	3	0	0	3	2, 3
12	OE26C12	Introduction to Industrial Instrumentation and control	OE	3	3	0	0	3	9, 12
13	OE26C13	Graph Theory	OE	3	3	0	0	3	4, 9
14	OE26C14	IT in Agricultural Systems	OE	3	3	0	0	3	2, 9, 15
15	OE26C15	Digital Payment Systems	OE	3	3	0	0	3	8, 9, 10
16	OE26C16	Project Report Writing	OE	3	3	0	0	3	4
17	OE26C17	English for Competitive Examinations	OE	3	3	0	0	3	4, 8
18	OE26C18	Fundamentals of Aeronautical Engineering	OE	3	3	0	0	3	9, 11
19	OE26C19	Life Style Diseases	OE	3	3	0	0	3	3
20	OE26C20	Operations Research	OE	3	3	0	0	3	8, 9, 12
21	OE26C21	Cost Management of Engineering Projects	OE	3	3	0	0	3	8, 9, 12

22	OE26C22	Industrial Nano technology	OE	3	3	0	0	3	3, 9
23	OE26C23	Resource Management Techniques	OE	3	3	0	0	3	6, 12, 13
24	OE26C24	Fintech Regulation	OE	3	3	0	0	3	8, 9, 16
25	OE26C25	Introduction to Control Engineering	OE	3	3	0	0	3	9, 12
26	OE26C26	Pharmaceutical Nanotechnology	OE	3	3	0	0	3	3, 9
27	OE26C27	Aviation Management	OE	3	3	0	0	3	8, 9, 11
28	OE26C28	AI for Business and Society	OE	3	3	0	0	3	8, 9, 16
29	OE26C29	Soft Computing	OE	3	3	0	0	3	4, 9
30	OE26C30	Cyber Loss and Digital Forensics	OE	3	3	0	0	3	9, 16

B.E - ELECTRONICS AND COMMUNICATION ENGINEERING
REGULATION – 2026

ELECTIVE – MANAGEMENT COURSES

S. No	Course Code	Course Name	Course Type	Contact Periods	L	T	P	C	SDG
1	HS26601	Principles of Management	HS	3	3	0	0	3	8, 9
2	HS26602	Total Quality Management	HS	3	3	0	0	3	9, 12
3	HS26603	Strategic Management	HS	3	3	0	0	3	8, 12, 17
4	HS26604	Business Analytics	HS	3	3	0	0	3	4, 9
5	HS26605	Entrepreneurship Development	HS	3	3	0	0	3	8, 17
6	HS26606	Digital Marketing	HS	3	3	0	0	3	8, 9

B.E - ELECTRONICS AND COMMUNICATION ENGINEERING

REGULATION – 2026

VERTICALS FOR MINOR DEGREE

(In addition to all the verticals of other programmes)

Vertical I Financial Computational and Block Chain	Vertical II Business Innovation	Vertical III Public Governance	Vertical IV Analytical Business System	Vertical V Sustainable Environmental Studies
Financial Management	Foundations of Entrepreneurship	Principles of Public Administration	Statistics for Management	Sustainable infrastructure Development
Fundamentals of Investment	Team Building & Leadership Management for Business	Constitutional Governance and Human Rights	Datamining for Business Intelligence	Sustainable Agriculture and Environmental Management
Banking, Financial Services and Insurance	Creativity & Innovation in Entrepreneurship	Public Personnel Administration	Human Resource Analytics	Sustainable Bio Materials
Introduction to Blockchain and its Applications	Principles of Marketing Management for Business	Administrative Theories	Marketing and Social Media Web Analytics	Materials for Energy Sustainability
Fintech Personal Finance and Payments	Human Resource Management for Entrepreneurs	Indian Administrative System	Operation and Supply Chain Analytics	Green Technology
Introduction to Fintech	Financing New Business Ventures	Public Policy Administration	Financial Analytics	Environmental Quality Monitoring and Analysis

VERTICAL 1: FINANCIAL COMPUTATIONAL AND BLOCK CHAIN

S. No	Course Code	Course Name	Course Type	Contact Periods	L	T	P	C	SDG
1	EC26FB1	Financial Management	PC	3	3	0	0	3	8, 12
2	EC26FB2	Fundamentals of Investment	PC	3	3	0	0	3	8, 9
3	EC26FB3	Banking, Financial Services and Insurance	PC	3	3	0	0	3	1, 8
4	EC26FB4	Introduction to Blockchain and its Applications	PC	3	3	0	0	3	9,16
5	EC26FB5	Fintech Personal Finance and Payments	PC	3	3	0	0	3	1, 10
6	EC26FB6	Introduction to Fintech	PC	3	3	0	0	3	8, 9

VERTICAL 2: BUSINESS INNOVATION

S. No	Course Code	Course Name	Course Type	Contact Periods	L	T	P	C	SDG
1	EC26BI1	Foundations of Entrepreneurship	PC	3	3	0	0	3	1, 4, 8
2	EC26BI2	Team Building & Leadership Management for Business	PC	3	3	0	0	3	5, 16, 17
3	EC26BI3	Creativity & Innovation in Entrepreneurship	PC	3	3	0	0	3	9, 11, 13
4	EC26BI4	Principles of Marketing Management For Business	PC	3	3	0	0	3	8, 12, 17
5	EC26BI5	Human Resource Management for Entrepreneurs	PC	3	3	0	0	3	5, 8, 10
6	EC26BI6	Financing New Business Ventures	PC	3	3	0	0	3	1, 10, 17

VERTICAL 3: PUBLIC GOVERNANCE

S. No	Course Code	Course Name	Course Type	Contact Periods	L	T	P	C	SDG
1	EC26PC1	Principles of Public Administration	PC	3	3	0	0	3	16, 17
2	EC26PC2	Constitutional Governance and Human Rights	PC	3	3	0	0	3	5, 16
3	EC26PC3	Public Personnel Administration	PC	3	3	0	0	3	8, 16
4	EC26PC4	Administrative Theories	PC	3	3	0	0	3	9, 16
5	EC26PC5	Indian Administrative System	PC	3	3	0	0	3	11, 16
6	EC26PC6	Public Policy Administration	PC	3	3	0	0	3	16, 17

VERTICAL 4: ANALYTICAL BUSINESS SYSTEM

S. No	Course Code	Course Name	Course Type	Contact Periods	L	T	P	C	SDG
1	EC26BS1	Statistics for Management	PC	3	3	0	0	3	4, 9
2	EC26BS2	Datamining for Business Intelligence	PC	3	3	0	0	3	8, 9
3	EC26BS3	Human Resource Analytics	PC	3	3	0	0	3	8, 10
4	EC26BS4	Marketing and Social Media Web Analytics	PC	3	3	0	0	3	9, 12
5	EC26BS5	Operation and Supply Chain Analytics	PC	3	3	0	0	3	9, 12
6	EC26BS6	Financial Analytics	PC	3	3	0	0	3	8, 17

VERTICAL 5: SUSTAINABLE ENVIRONMENTAL STUDIES

S. No	Course Code	Course Name	Course Type	Contact Periods	L	T	P	C	SDG
1	EC26SE1	Sustainable infrastructure Development	PC	3	3	0	0	3	9, 11
2	EC26SE2	Sustainable Agriculture and Environmental Management	PC	3	3	0	0	3	2, 6, 12, 15
3	EC26SE3	Sustainable Bio Materials	PC	3	3	0	0	3	9, 12
4	EC26SE4	Materials for Energy Sustainability	PC	3	3	0	0	3	7, 13
5	EC26SE5	Green Technology	PC	3	3	0	0	3	7, 9, 12
6	EC26SE6	Environmental Quality Monitoring and Analysis	PC	3	3	0	0	3	3, 13, 14, 15


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 Phone : 0416-2298300

EC26101	PRINCIPLES OF ELECTRICAL AND ELECTRONICS ENGINEERING	L	T	P	C
SDG:7,9,11,12		3	0	2	4
COURSE OBJECTIVES:					
- Impart knowledge on the construction, working principles, and selection criteria of electrical machines (DC/AC machines, transformers, induction motors, BLDC, stepper, and servo motors) for real-time drive applications. - Familiarize students with electrical measuring instruments, calibration standards, measurement errors, and power semiconductor devices used in modern power electronic converters and drives. - Provide a strong foundation in passive components and semiconductor diodes, including their construction, characteristics, and applications. - Develop an understanding of the construction, operation, and characteristics of Bipolar Junction Transistors and Unijunction Transistors in various configurations. - Build competence in the construction, operation, and characteristics of Field Effect Transistors (JFET, MOSFET, MESFET, IGBT, FinFET) and their practical applications.					
UNIT I	ELECTRICAL MACHINES AND APPLICATIONS	9			
Construction, types and working principle of DC & AC machines, Transformer, Induction motor, BLDC, Stepper and Servo motor. Selection of drives for real time applications (Cranes/EV/Pumping applications).					
UNIT II	ELECTRICAL INSTRUMENTATION AND POWER ELECTRONICS	9			
Functional elements of an instrument, Standards and calibration, Errors in measurement, Operating Principle, types - Moving Coil and Moving Iron meters, DSO- Block diagram. Power Semiconductor Devices: DIAC, TRIAC, SCR – Controlled Rectifiers – Choppers and Inverters – Variable Frequency Drives (VFD) for Induction Motors.					
UNIT III	SEMICONDUCTOR DEVICES	9			
Resistors, Capacitors, Inductors; PN Junction diode, Special purpose diodes- Zener Diode, T-diode, Photodiode, LED, LCD -Construction & Characteristics.					
UNIT IV	BIPOLAR JUNCTION TRANSISTOR	9			
NPN and PNP transistors- construction, working principle, input and output characteristics of common base, common emitter and common collector configurations, Comparison of CB, CE & CC configurations, Advantages and Disadvantages of BJT, UJT-Construction, Working principle, transfer characteristics. Applications of BJT & UJT.					
UNIT V	FIELD EFFECT TRANSISTORS	9			
JFET: Construction, types, operation and characteristics, Advantages and Disadvantages. MOSFET: Construction, types, operation and characteristics. Advantages and Disadvantages, MESFET, IGBT & FinFET - Construction and characteristics-Applications of FET.					
ACTIVITIES: Match electrical machines with suitable applications, Quiz on instruments and power electronic devices, Identify electronic components (symbols, and applications), Develop a simple FET-based application (Hackathon) & Review of GATE questions.					
					45 PERIODS
LIST OF EXPERIMENTS:					30 PERIODS
- Study of DC machines. - Calibration of meters - Study of DSO and Function Generator - V-I Characteristics of PN junction diode - V-I Characteristics of Zener diode - V-I Characteristics of SCR - BJT-Input & output characteristics - FET-transfer & drain characteristics					

LABORATORY REQUIREMENTS:**Hardware Requirements details (For Batch of 30 Students):**

- | | |
|--|---------------|
| 1. Bread Boards | – 15 Nos. |
| 2. CRO (30 MHz) | – 10Nos. |
| 3. Function Generators (3 MHz) | – 10 Nos. |
| 4. Dual Regulated Power Supplies (0 – 30V) | – 10 Nos. |
| 5. Voltmeter (0-30 V) | – 30 Nos. |
| 6. Ammeter (0-30 mA) | – 30Nos. |
| 7. BC107, BC547, BF195C, BFW10, IN4001, IN4007 | – 25 Nos. |
| 8. Digital Multimeters | – 15 Nos. |
| 9. Resistors, Capacitors, Inductors | – As Required |

COURSE OUTCOMES:

- CO1:** Explain the construction and working principle of DC & AC machines, transformers, and special motors (BLDC, stepper, servo), and select suitable drives for real-time applications such as cranes, EVs, and pumping systems.
- CO2:** Describe the functional elements of measuring instruments, identify sources of measurement error, and explain the operation of power semiconductor devices (SCR, DIAC, TRIAC) in controlled rectifiers, choppers, inverters, and VFDs.
- CO3:** Analyze the characteristics of passive components and semiconductor diodes (Zener, tunnel diode, photodiode, LED, LCD) for their use in electronic circuits.
- CO4:** Illustrate the construction, working principle, and I-V characteristics of BJTs in CB, CE, and CC configurations, and UJT, along with their comparative advantages and applications.
- CO5:** Compare the construction, operation, and characteristics of JFETs, MOSFETs, MESFETs, IGBTs, and FinFETs, and apply this knowledge to select appropriate FET devices for given applications.

TOTAL: 75 PERIODS**WEIGHTAGE:** Continuous Assessment: 50%, End Semester Examinations: 50%**TEXTBOOKS:**

1. D.P. Kothari & I.J. Nagrath, "Electric Machines," McGraw Hill Education, 5th Edition, 2017. (Unit I).
2. R.K. Rajput, "Electrical and Electronics Measurements and Instrumentation," S. Chand Publishing, Latest Edition, 2020. (Unit II)
3. M.D. Singh & K.B. Khanchandani, "Power Electronics," McGraw Hill Education, 3rd Edition, 2019. (Unit II)
4. R.L. Boylestad & Louis Nashelsky, "Electronic Devices and Circuit Theory," Pearson Education, 11th Edition, 2015. (Unit III, IV & V).
5. David A. Bell, "Electronic Devices and Circuits," Oxford University Press, 5th Edition, 2008. (Unit IV & V)

REFERENCES:

1. P.S. Bimbhra, "Electrical Machinery," Khanna Publishers, 8th Edition, 2019. (Unit I)
2. A.K. Sawhney, "A Course in Electrical and Electronic Measurements and Instrumentation," Dhanpat Rai & Co., 19th Edition, 2018. (Unit II)
3. Muhammad H. Rashid, "Power Electronics: Circuits, Devices and Applications," Pearson Education, 4th Edition, 2014. (Unit II)
4. Jacob Millman, Christos Halkias & Chetan Parikh, "Millman's Electronic Devices and Circuits," McGraw Hill Education, 4th Edition, 2015. (Unit III, IV & V)
5. Robert Boylestad, "Introductory Circuit Analysis," Pearson Education, 13th Edition, 2016. (Unit III)
6. Ben G. Streetman & Sanjay Banerjee, "Solid State Electronic Devices," Pearson Education, 7th Edition, 2015. (Unit V).

E-RESOURCES:

1. <https://nptel.ac.in/courses/108108112>
2. <https://nptel.ac.in/courses/108106181>
3. <https://nptel.ac.in/courses/108102146>

4. <https://nptel.ac.in/courses/108103862>
5. <https://nptel.ac.in/courses/108107586>
6. <https://nptel.ac.in/courses/108102145>

CO's-PO's & PSO's MAPPING:

CO	PO											PSO		
	1	2	3	4	5	6	7	8	9	10	11	1	2	3
1	3	3	3	2	2	2	-	-	-	-	2	3	3	2
2	3	3	3	2	3	2	-	-	-	-	2	3	3	2
3	3	3	2	2	2	1	-	-	-	-	2	3	3	2
4	3	3	2	2	2	-	-	-	-	-	2	3	2	2
5	3	3	3	2	3	1	-	-	-	-	3	3	3	3
AVG	3.0	3.0	2.6	2.0	2.4	1.5	-	-	-	-	2.2	3.0	2.8	2.2
Low (1); Medium (2); High (3); '-' - no correlation														


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EC26201	CIRCUIT AND NETWORK ANALYSIS	L	T	P	C
SDG: 7,9		2	0	2	3
COURSE OBJECTIVES:					
- To impart knowledge of the fundamental concepts of DC circuit analysis using basic circuit laws and systematic analysis techniques. - To develop the ability to analyze electrical networks using network theorems, duality concepts, and dependent sources. - To understand the behavior of AC circuits under sinusoidal steady-state conditions using phasor analysis and power concepts. - To analyze the transient and resonance characteristics of RL, RC, and RLC circuits. - To study magnetically coupled circuits, transformers, and network parameter representations for two-port networks.					
UNIT I	DC CIRCUIT ANALYSIS	6			
Basic Components of electric Circuits, Charge, current, Voltage and Power, Voltage and Current Sources, Ohms Law, Kirchoff 's law, The single Node – Pair Circuit, series and Parallel Connected Independent Sources, Resistors in Series and Parallel, Resistive and inductive Ladder Network, Delta-Wye Conversion- voltage and current division, Nodal analysis, Mesh analysis.					
UNIT II	NETWORK THEOREM AND DUALITY	6			
Theorems: Linearity and superposition, Thevenin and Norton Equivalent Circuits, Maximum Power Transfer. Duals, Dual circuits. Analysis using dependent current sources and voltage sources-super node, super mesh					
UNIT III	SINUSOIDAL STEADY STATE ANALYSIS	6			
Sinusoidal Steady – State analysis, Characteristics of Sinusoids, The Complex Forcing Function, The Phasor, Phasor relationship for R, L, and C, impedance and Admittance, Nodal and Mesh Analysis, Phasor Diagrams, AC Circuit Power Analysis, Instantaneous Power, Average Power, apparent Power and Power Factor, Complex Power.					
UNIT IV	TRANSIENTS AND RESONANCE IN RLC CIRCUITS	6			
Basic RL and RC Circuits, The Source- Free RL Circuit, The Source-Free RC Circuit, The Unit-Step Function, Driven RL Circuits, Driven RC Circuits, RLC Circuits, Frequency Response: Series Resonance, Parallel Resonance, Quality Factor and Bandwidth.					
UNIT V	COUPLED CIRCUITS AND NETWORK PARAMETERS	6			
Magnetically Coupled Circuits, mutual Inductance, Linear Transformer and Ideal Transformer, Network Parameters: Z, Y, ABCD or T, hybrid (h).					
ACTIVITIES: Practice solving variety of problems from GATE					
30 PERIODS					


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LIST OF EXPERIMENTS:**30 PERIODS**

1. Verifications of KVL and KCL.
2. Verification of Superposition Theorem
3. Verifications of Thevenin and Norton theorem.
4. Verification of maximum power transfer Theorem
5. Determination of Resonance Frequency of Series and Parallel RLC Circuits.
6. Transient analysis of RL and RC circuits.

LABORATORY REQUIREMENTS:

1. Resistors, Capacitors, Inductors –Sufficient Quantities.
2. Bread Boards – 15 Nos.
3. CRO (30Mhz) – 10 Nos.
4. Function Generators (3Mhz) – 10 Nos.
5. Dual Regulated Power Supplies (0 – 30V) – 10 Nos.

TOTAL: 60 PERIODS**COURSE OUTCOMES:**

Upon successful completion of the course, the students will be able to:

- CO1:** Apply Kirchhoff's laws, Ohm's law, nodal analysis, mesh analysis, and circuit simplification techniques to analyze DC electrical circuits.
- CO2:** Analyze electrical networks using network theorems, duality concepts, and dependent sources to obtain equivalent circuit models.
- CO3:** Analyze sinusoidal steady-state AC circuits using phasor techniques and evaluate power, power factor, impedance, and admittance.
- CO4:** Analyze the transient response and resonance characteristics of RL, RC, and RLC circuits under various excitation conditions.
- CO5:** Evaluate the performance of magnetically coupled circuits, transformers, and two-port networks using appropriate network parameters.

WEIGHTAGE: Continuous Assessment: 40%, End Semester Examinations: 60%

TEXTBOOKS:

1. Hayt, W. H., Kemmerly, J. E., Phillips, J. D., & Durbin, S. M. "Engineering Circuit Analysis" 10th Edition, McGraw Hill, 2025. (UNIT- I, II, III, IV)
2. Alexander, C. K., & Sadiku, M. N. O. "Fundamentals of Electric Circuits" 7th Edition, McGraw Hill, 2022. (UNIT- I, II, III, V)
3. Edminister, J., & Nahvi, M. Schaum's "Outline of Electric Circuits" 7th Edition, McGraw Hill Education, 2018. (UNIT- I, II, III, IV, V)

REFERENCES:

1. Robert.L. Boylestead, "Introductory Circuit Analysis", Pearson Education India, 14th Edition, 2025.
2. John O Mallay, Schaum's Outlines "Basic Circuit Analysis", The Mc Graw Hill companies, 2nd Edition, 2011
3. Allan H.Robbins, Wilhelm C.Miller, "Circuit Analysis Theory and Practice", Cengage Learning, 6th Edition, 2015
4. David Bell, "Fundamentals of Electric Circuits", Oxford University press, 7th Edition, 2009

E-RESOURCES:

1. <https://nptel.ac.in/courses/108105159>

CO's-PO's & PSO's MAPPING:

CO	PO											PSO		
	1	2	3	4	5	6	7	8	9	10	11	1	2	3
1	3	2	2	1	-	-	-	-	-	-	2	2	-	-
2	3	2	2	2	-	-	-	-	-	-	2	2	-	-
3	3	2	2	2	1	-	-	-	-	-	2	2	-	-
4	3	2	2	2	1	-	-	-	-	-	2	2	-	-
5	3	-	2	1	-	-	-	-	-	-	2	2	1	-
Avg	3	1.6	2	1.6	0.4	-	-	-	-	-	2	2	0.2	-
Low (1); Medium (2); High (3); '-' - no correlation														


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