CRITERION 2- TEACHING-LEARNING AND EVALUATION

KEY INDICATOR 2.6 STUDENT PERFORMANCE AND LEARNING OUTCOMES

Student's performance and learning outcomes must be calculated for the majority of theological subjects and laboratories. The affiliated university narrates the program outcomes (POs) and course outcomes (COs) in order to determine the efficacy of teaching learning procedures and methodologies. The faculty member teaching the subject works with department heads to complete any course outcomes that the university has not fully specified.

The engineering program consists of five units, each covering different concepts. The goals and outcomes of each course are determined by these concepts, resulting in five course outcomes. These outcomes help determine the students' proficiency and interest in specific topics. Reviewing course and program outcomes is necessary to assess the effectiveness of teaching procedures and make necessary adjustments for improvement. The program results are influenced by the course outcomes, as the program includes multiple courses each semester. The course and program outcomes for electronics and communication engineering are discussed in the following paragraphs, including their mapping, methods of assessment, and conclusion.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO1	To enable graduates to pursue research, or have a successful career in academia or industries associated with Electronics and Communication Engineering, or as entrepreneurs.
PEO2	To provide students with strong foundational concepts and also advanced techniques and tools in order to enable them to build solutions or systems of varying complexity.
PEO3	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.

PROGRAM OUTCOMES (POs) AND PROGRAM SPECIFIC OUTCOMES (PSOs) OF THE INSTITUTE

PROGRAM OUTCOMES (POs)

PO1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
PO6	**The engineer and society**: Apply reasoning informed by the contextual knowledgeto assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8	**Ethics**: Apply ethical principles and commit to professional ethics and responsibilitiesand norms of the engineering practice.
PO9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	**Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11	**Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	**Life-long learning**: Recognize the need for, and have the preparation and abilityto engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs) OF ELECTRONICS AND COMMUNICATION ENGINEERING

PSO1	To analyze, design and develop solutions by applying foundational concepts of electronics and communication engineering.
PSO2	To apply design principles and best practices for developing quality products for scientific and business applications.
PSO3	To adapt to emerging information and communication technologies (ICT) to innovate ideas and solutions to existing/novel problems.

LIST OF COURSE FOR REGULATION 2017

1ST SEMESTER			
S.NO	**COURSE CODE**	**SUBJECT CODE**	**SUBJECT NAME**
1	C101	HS8151	COMMUNICATIVE ENGLISH
2	C102	MA8151	ENGINEERING MATHEMATICS – I
3	C103	PH8151	ENGINEERING PHYSICS
4	C104	CY8151	ENGINEERING CHEMISTRY
5	C105	GE8151	PROBLEM SOLVING AND PYTHON PROGRAMMING
6	C106	GE8152	ENGINEERING GRAPHICS
7	C107	GE8161	PROBLEM SOLVING AND PYTHON PROGRAMMING LABORATORY
8	C108	BS8161	PHYSICS AND CHEMISTRY LABORATORY

IIND SEMESTER			
9	C109	HS8251	TECHNICAL ENGLISH
10	C110	MA8251	ENGINEERING MATHEMATICS – II
11	C111	PH8253	PHYSICS FOR ELECTRONICS ENGINEERING
12	C112	BE8254	BASIC ELECTRICAL AND INSTRUMENTATION ENGINEERING
13	C113	EC8251	CIRCUIT ANALYSIS
14	C114	EC8252	ELECTRONIC DEVICES
15	C115	EC8261	CIRCUITS AND DEVICES LABORATORY
16	C116	GE8261	ENGINEERING PRACTICES LABORATORY
IIIRD SEMESTER			
17	C201	MA8352	LINEAR ALGEBRA AND PARTIAL DIFFERENTIAL EQUATIONS
18	C202	EC8351	ELECTRONIC CIRCUITS I
19	C203	EC8352	SIGNALS AND SYSTEMS
20	C204	EC8391	CONTROL SYSTEMS ENGINEERING
21	C205	EC8392	DIGITAL ELECTRONICS
22	C206	EC8393	FUNDAMENTALS OF DATA STRUCTURES IN C
23	C207	EC8361	ANALOG AND DIGITAL CIRCUITS LABORATORY
24	C208	EC8381	FUNDAMENTALS OF DATA STRUCTURES IN C LABORATORY
25	C209	HS8381	INTERPERSONAL SKILLS/LISTENING&SPEAKING
IVTH SEMESTER			
26	C210	MA8451	PROBABILITY AND RANDOM PROCESSES
27	C211	EC8451	ELECTROMAGNETIC FIELDS

28	C212	EC8452	ELECTRONIC CIRCUITS II
29	C213	EC8453	LINEAR INTEGRATED CIRCUITS
30	C214	EC8491	COMMUNICATION THEORY
31	C215	GE8291	ENVIRONMENTAL SCIENCE AND ENGINEERING
32	C216	EC8461	CIRCUITS DESIGN AND SIMULATION LABORATORY
33	C217	EC8462	LINEAR INTEGRATED CIRCUITS LABORATORY
VTH SEMESTER			
34	C301	EC8501	DIGITAL COMMUNICATION
35	C302	EC8551	COMMUNICATION NETWORKS
36	C303	EC8552	COMPUTER ARCHITECTURE AND ORGANIZATION
37	C304	EC8553	DISCRETE-TIME SIGNAL PROCESSING
38	C305	EC8073	MEDICAL ELECTRONICS
39	C306	ORO551	RENEWABLE ENERGY SOURCES
40	C307	EC8561	COMMUNICATION SYSTEMS LABORATORY
41	C308	EC8562	DIGITAL SIGNAL PROCESSING LABORATORY
42	C309	EC8563	COMMUNICATION NETWORKS LABORATORY
VITH SEMESTER			
43	C310	MG8591	PRINCIPLES OF MANAGEMENT
44	C311	EC8651	TRANSMISSION LINES AND RF SYSTEMS
45	C312	EC8652	WIRELESS COMMUNICATION
46	C313	EC8691	MICROPROCESSORS AND MICROCONTROLLERS
47	C314	EC8004	WIRELESS NETWORKS

48	C315	EC8095	VLSI DESIGN
49	C316	EC8611	TECHNICAL SEMINAR
50	C317	EC8661	VLSI DESIGN LABORATORY
51	C318	EC8681	MICROPROCESSORS AND MICROCONTROLLERS LABORATORY
52	C319	HS8581	PROFESSIONAL COMMUNICATION
VIITH SEMESTER			
53	C401	EC8701	ANTENNAS AND MICROWAVE ENGINEERING
54	C402	EC8702	AD HOC AND WIRELESS SENSOR NETWORKS
55	C403	EC8751	OPTICAL COMMUNICATION
56	C404	EC8791	EMBEDDED AND REAL TIME SYSTEMS
57	C405	OME754	INDUSTRIAL SAFETY
58	C406	EC8711	EMBEDDED LABORATORY
59	C407	EC8761	ADVANCED COMMUNICATION LABORATORY
VIIITH SEMESTER			
60	C408	EC8072	ELECTRO MAGNETIC INTERFERENCE AND COMPATIBILITY
61	C409	EC8094	SATELLITE COMMUNICATION
62	C410	EC8811	PROJECT WORK / INTERNSHIP

COURSE OUTCOMES FOR ELECTRONICS AND COMMUNICATION ENGINEERING

REGULATION 2017

PROGRAMME:ELECTRONICS AND COMMUNICATION ENGINEERING	DEGREE:U.G	ACADEMIC YEAR : 2019-2020	SEMESTER: I

S.NO	YEAR/ SEM	COURSE NAME	COURSE OUTCOMES the students will be able to understand the		KNOWLEDGE LEVEL
1.	I-YEAR I-SEM	HS8151-COMMUNICATIVE ENGLSH	C101.1	To use appropriate words in a professional context	K2
			C101.2	To gain understanding of basic grammatical structures and use them in right context.	K2
			C101.3	To read and infer the denotative and connotative meanings of technical texts	K2
			C101.4	To write definitions, descriptions, narrations and essays on various topics	K6
2	I-YEAR I-SEM	MA8151-ENGINEERING MATHEMATICS – I	C102.1	Use both the limit definition and rules of differentiation to differentiate functions.	K3
			C102.2	Apply differentiation to solve maxima and minima problems.	K3
			C102.3	Evaluate integrals both by using Riemann sums and by using the Fundamental Theorem of Calculus. Apply integration to compute multiple integrals, area, volume, integrals in polar coordinates, in addition to change of order and change of variables.	K5
			C102.4	Evaluate integrals using techniques of integration, such as substitution, partial fractions and integration by parts.	K3
			C102.5	Determine convergence/ divergence of improper integrals and evaluate convergent improper integrals. Apply various techniques.	K3

3	I-YEAR I-SEM	PH3151-ENGINEERING PHYSICS	C103.1	Understand the importance of mechanics.	K2
			C103.2	Express their knowledge in electromagnetic waves.	K2
			C103.3	Demonstrate a strong foundational knowledge in oscillations, optics and lasers.	K2
			C103.4	Understand the importance of quantum physics	K2
			C103.5	Comprehend and apply quantum mechanical principles towards the formation of energy	K2
4	I-YEAR I-SEM	CY3151-ENGINEERING CHEMISTRY	C104.1	To infer the quality of water from quality parameter data and propose suitable treatment methodologies to treat water.	K2
			C104.2	To identify and apply basic concepts of nano science and nano technology in designing the synthesis of nano-materials for engineering and technology applications.	K1
			C104.3	To apply the knowledge of phase rule and composites for material selection requirements.	K2
			C104.4	To recommend suitable fuels for engineering processes and applications.	K2
			C104.5	To recognize different forms of energy resources and apply them for suitable applications inenergy sectors.	K2
5	I-YEAR I-SEM	GE3151- PROBLEM SOLVING AND PYTHON PROGRAMMING	C105.1	Develop algorithmic solutions to simple computational problems.	K3
			C105.2	Develop and execute simple Python programs.	K3
			C105.3	Write simple Python programs using conditionals and loops for solving problems.	K3
			C105.4	Decompose a Python program into functions.	K2
			C105.5	Represent compound data using Python lists, tuples, dictionaries etc.	K2

			C105.6	Read and write data from/to files in Python programs.	K2
6	I YEAR I-SEM	GE8152-ENGINEERING GRAPHICS	C106.1	Familiarize with the fundamentals and standards of Engineering graphics	K4
			C106.2	Perform freehand sketching of basic geometrical constructions and multiple views of objects	K3
			C106.3	Project orthographic projections of lines and plane surfaces	K4
			C106.4	Draw projections and solids and development of surfaces	K3
			C106.5	Visualize and to project isometric and perspective sections of simple solids	K4
7	I-YEAR I-SEM	GE8161-PROBLEM SOLVING AND PYTHON PROGRAMMING LABORATORY	C107.1	Write, test, and debug simple Python programs	K2
			C107.2	Implement Python programs with conditionals and loops.	K2
			C107.3	Develop Python programs step-wise by defining functions and calling them	K2
			C107.4	Use Python lists, tuples, dictionaries for representing compound data.	K3
			C107.5	Read and write data from/to files in Python.	K2
8.	I-YEAR I-SEM	BS8161- PHYSICS AND CHEMISTRY LABORATORY	C108.1	To analyse the quality of water samples with respect to their acidity, alkalinity, hardness and DO.	K3
			C108.2	To determine the amount of metal ions through volumetric and spectroscopic techniques	K5
			C108.3	To analyse and determine the composition of alloys.	K5
			C108.4	To learn simple method of synthesis of nano particles	K5
			C108.5	To quantitatively analyse the impurities in solution by electro analytical techniques	K5

PROGRAMME:ELECTRONICS AND COMMUNICATION ENGINEERING	DEGREE:U.G	ACADEMIC YEAR : 2019-2020	SEMESTER: II

S.NO	YEAR/ SEM	COURSE NAME	COURSE OUTCOMES the students will be able to understand the		KNOWLEDGE LEVEL
1.	I-YEAR II-SEM	HS8251- TECHNICAL ENGLISH	C109.1	Read technical texts and write area- specific texts effortlessly	K2
			C109.2	Listen and comprehend lectures and talks in their area of specialisation successfully	K2
			C109.3	Speak appropriately and effectively in varied formal and informal contexts.	K6
			C109.4	Write reports and winning job applications	K6
2	I-YEAR II-SEM	MA8251-ENGINEERING MATHEMATICS – II	C110.1	Eigenvalues and eigenvectors, diagonalization of a matrix, Symmetric matrices, Positive definite matrices and similar matrices	K3
			C110.2	Gradient, divergence and curl of a vector point function and related identities	K5
			C110.3	Evaluation of line, surface and volume integrals using Gauss, Stokes and Green‘s theorems and their verification.	K3
			C110.4	Analytic functions, conformal mapping and complex integration	K5
			C110.5	Laplace transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coefficients	K5

3	I-YEAR II-SEM	PH8253- PHYSICS FOR ELECTRONICS ENGINEERING	C111.1	Gain knowledge on classical and quantum electron theories, and energy band structuues	K2
			C111.2	Acquire knowledge on basics of semiconductor physics and its applications in various devices	K2
			C111.3	Get knowledge on magnetic and dielectric properties of materials	K2
			C111.4	Have the necessary understanding on the functioning of optical materials for optoelectronics	K2
			C111.5	Understand the basics of quantum structures and their applications in spintronics and carbon electronics	K2
4	I-YEAR II-SEM	BE8254- BASIC ELECTRICAL AND INSTRUMENTATIO N ENGINEERING	C112.1	Understand the concept of three phase power circuits and measurement	K3
			C112.2	Comprehend the concepts in electrical generators, motors and transformers	K4
			C112.3	Choose appropriate measuring instruments for given application	K3
			C112.4	Understand the concept in AC machine	K5
			C112.5	Learn the concepts in electrical generators and motors	K2
5	I-YEAR II-SEM	EC8251- CIRCUIT ANALYSIS	C113.1	Analyze electrical circuits, apply the circuit theorems in real time	K4
			C113.2	Introduce the basic concepts of DC and AC circuits behavior	K3
			C113.3	Study the transient and steady state response of the circuits subjected to step and sinusoidal excitations	K4
			C113.4	Design different methods of circuit analysis using Network theorems, duality and topology	K4

			C113.5	Design and understand and evaluate the AC and DC circuits	K4
6	I-YEAR II-SEM	EC8252-ELECTRONIC DEVICES	C114.1	Explain the V-I characteristic of diode, UJT and SCR	K2
			C114.2	Describe the equivalence circuits of transistors	K3
			C114.3	Operate the basic electronic devices such as PN junction diode, Bipolar and Field effect Transistors, Power control devices, LED, LCD and other Opto-electronic devices	K1
			C114.4	Analyze frequency response of BJT and MOSFET amplifiers	K2
			C114.5	Design and analyze LED, LCD and other Opto-electronic devices	K6
7	I-YEAR II-SEM	EC8261- CIRCUITS AND DEVICES LABORATORY	C115.1	Analyze the characteristics of basic electronic devices	K2
			C115.2	Design RL and RC circuits	K2
			C115.3	Verify Thevinin & Norton theorem KVL & KCL, and Super Position Theorems	K4
8	I-YEAR II-SEM	GE8261-ENGINEERING PRACTICES LABORATORY	C116.1	Fabricate carpentry components and pipe connections including plumbing works	K2
			C116.2	Use welding equipments to join the structures.	K4
			C116.3	Carry out the basic machining operations	K2
			C116.4	Make the models using sheet metal works	K4
			C116.5	Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundry and fittings	K4

			C116.6	Carry out basic home electrical works and appliances	K2
			C116.7	Measure the electrical quantities	K2
			C116.8	Elaborate on the components, gates, soldering practices.	K4

PROGRAMME:ELECTRONICS AND COMMUNICATION ENGINEERING	DEGREE:U.G	ACADEMIC YEAR : 2020-2021	SEMESTER: III

S.NO	YEAR/ SEM	COURSE NAME	COURSE OUTCOMES the students will be able to understand the		KNOWLEDGE LEVEL
1.	II-YEAR III-SEM	MA8352- LINEAR ALGEBRA AND PARTIAL DIFFERENTIAL EQUATIONS	C201.1	Explain the fundamental concepts of advanced algebra and their role in	K2
			C201.2	Demonstrate accurate and efficient use of advanced algebraic techniques	K2
			C201.3	Demonstrate their mastery by solving non - trivial problems related to the concepts and by proving simple theorems about the statements proven by the text	K2
			C201.4	Able to solve various types of partial differential equations.	K2
			C201.5	Able to solve engineering problems using Fourier series	K2
2.	II-YEAR III-SEM	EC8351-ELECTRONIC CIRCUITS-I	C202.1	Acquire knowledge of Working principles, characteristics and applications of BJT and FET	K4
			C202.2	Frequency response characteristics of BJT and	K4
			C202.3	Analyze the performance of small signal BJT and FET amplifiers - single stage and multi stage amplifiers	K4

			C202.4	Apply the knowledge gained in the design of Electronic circuits	K6
			C202.5	Design and analyze the regulated DC power supplies	K5
3	II-YEAR III-SEM	EC8352- SIGNALS AND SYSTEMS	C203.1	Determine if a given system is linear/causal/stable	K3
			C203.2	Capable of determining the frequency components present in a deterministic signal	K3
			C203.3	Capable of characterizing LTI systems in the time domain and frequency domain	K3
			C203.4	compute the output of an LTI system in the time and frequency domains	K3
			C203.5	Analyze discrete time signals and system in the Fourier and Z transform domain	K3
4.	II-YEAR III-SEM	EC8391- CONTROL SYSTEMS ENGINEERING	C204.1	Identify the various control system components and their representations	K2
			C204.2	Analyze the various time domain parameters	K6
			C204.3	Analysis the various frequency response plots.	K6
			C204.4	Apply the concepts of various system stability criterions	K6
			C204.5	Design various transfer functions of digital control system using state variable models	K2
5.	II-	EC8392 - DIGITAL ELECTRONICS	C205.1	Use digital electronics in the present contemporary world	K2
			C205.2	Design various combinational digital circuits using logic gates	K5
			C205.3	Do the analysis and design procedures for synchronous and	K2

	YEAR III-SEM			asynchronous sequential circuits	
			C205.4	Use the semiconductor memories and related technology	K3
			C205.5	Use electronic circuits involved in the design of logic gates	K4
6.	II-YEAR III-SEM	FUNDAMENTALS OF DATA STRUCTURES IN C	C206.1	Implement linear and non-linear data structure operations using C	K4
			C206.2	Suggest appropriate linear / non-linear data structure for any given data set	K3
			C206.3	Apply hashing concepts for a given problem	K6
			C206.4	Modify or suggest new data structure for an application	K6
			C206.5	Appropriately choose the sorting algorithm for an application	K4
7.	II-YEAR III-SEM	EC8361- ANALOG AND DIGITAL CIRCUITS LABORATORY	C207.1	Design and Test rectifiers, filters and regulated power supplies	K6
			C207.2	Design and Test BJT/JFET amplifiers	K6
			C207.3	Differentiate cascode and cascade amplifiers	K4
			C207.4	Analyze the limitation in bandwidth of single stage and multi stage amplifier	K4
			C207.5	Measure CMRR in differential amplifier	K4
8.	II-YEAR III-SEM	EC8381-FUNDAMENTALS OF DATA	C208.1	Write basic and advanced programs in C	K4
			C208.2	Implement functions and recursive functions in C	K6
			C208.3	Implement data structures using C	K6

		STRUCTURES IN C LABORATORY	C208.4	Choose appropriate sorting algorithm for an application and implement it in a modularized way	K3
9.	II-YEAR III-SEM	HS8381-INTERPERSONAL SKILLS/ LISTENING& SPEAKING	C209.1	Listen and respond appropriately	K2
			C209.2	Participate in group discussions	K6
			C209.3	Make effective presentations	K6
			C209.4	Participate confidently and appropriately in conversations both formal and informal	K6

PROGRAMME:ELECTRONICS AND COMMUNICATION ENGINEERING	DEGREE:UG	ACADEMIC YEAR : 2020-2021	SEMESTER: IV

SL. NO	YEAR/ SEM	COURSE NAME	COURSE OUTCOMES the students will be able to understand the		KNOWLEDGE LEVEL
1.	II-YEAR IV-SEM	MA8451-PROBABILITY AND RANDOM PROCESSES	C210.1	Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon	K1
			C210.2	Understand the basic concepts of one and two dimensional random variables and apply in engineering applications	K3
			C210.3	Apply the concept random processes in engineering disciplines	K2
			C210.4	Understand and apply the concept of correlation and spectral densities	K2
			C210.5	The students will have an exposure of various distribution functions and help in acquiring skills in handling situations involving more than one variable. Able to analyze the response of random inputs to linear time invariant systems.	K3

2.	II-YEAR IV-SEM	EC8451-ELECTRO MAGNETIC FIELDS	C211.1	Display an understanding of fundamental electromagnetic laws and concepts	K1
			C211.2	Understand the electrostatics and its application.	K3
			C211.3	Write Maxwell's equations in integral, differential and phasor forms and explain their physical meaning	K3
			C211.4	Explain electromagnetic wave propagation in lossy and in lossless media	K5
			C211.5	Solve simple problems requiring estimation of electric and magnetic field quantities based on these concepts and laws	K2
3.	II-YEAR IV-SEM	EC8452-ELECTRONIC CIRCUITS - II	C212.1	Analyze different types of amplifier, oscillator and multivibrator circuits	K2
			C212.2	Design BJT amplifier and oscillator circuits	K2
			C212.3	Analyze transistorized amplifier and oscillator circuits	K3
			C212.4	Design and analyze feedback amplifiers	K4
			C212.5	Design LC and RC oscillators, tuned amplifiers, wave shaping circuits, multivibrators, power amplifier and DC convertors	K4
4.	II-YEAR IV-SEM	EC8453- LINEAR INTEGRATED CIRCUITS	C213.1	Design linear and non linear applications of OP – AMPS	K2
			C213.2	Design applications using analog multiplier and PLL	K4
			C213.3	Design ADC and DAC using OP – AMPS	K6
			C213.4	Generate waveforms using OP – AMP Circuits	K4
			C213.5	Analyze special function ICs	K2

5.	II-YEAR IV-SEM	EC8491-COMMUNICATION THEORY	C214.1	Design AM communication systems	K3
			C214.2	Design Angle modulated communication systems	K3
			C214.3	Apply the concepts of Random Process to the design of Communication systems	K4
			C214.4	Analyze the noise performance of AM and FM systems	K6
			C214.5	Gain knowledge in sampling and quantization	K4
6.	II-YEAR IV-SEM	GE8291-ENVIRONMENTAL SCIENCE AND ENGINEERING	C215.1	Environmental Pollution or problems cannot be solved by mere laws. Public participation is an important aspect which serves the environmental Protection. One will obtain knowledge on the following after completing the course	K2
			C215.2	Public awareness of environmental is at infant stage.	K1
			C215.3	Ignorance and incomplete knowledge has lead to misconceptions	K3
			C215.4	Development and improvement in std. of living has lead to serious environmental disasters	K2
			C215.5	Find the importance of women and child education.	K1
7.	II-YEAR IV-SEM	EC8461-CIRCUITS DESIGN AND SIMULATION LABORATORY	C216.1	To gain hands on experience in designing electronic circuits	K4
			C216.2	To learn simulation software used in circuit design	K6
			C216.3	To learn the fundamental principles of amplifier circuits	K6
			C216.4	To differentiate feedback amplifiers and oscillators	K3
			C216.5	To differentiate the operation of various multivibrators	K3
8.	II-YEAR IV-SEM	EC8462- LINEAR INTEGRATED	C217.1	Design amplifiers, oscillators, D-A converters using operational amplifiers	K6
			C217.2	Design filters using op-amp and performs an experiment on frequency response	K6

		CIRCUITS LABORATORY	C217.3	Analyze the working of PLL and describe its application as a frequency multiplier.	K4
			C217.4	Design DC power supply using ICs	K6
			C217.5	Analyze the performance of filters, multivibrators, A/D converter and analog multiplier using SPICE	K4

PROGRAMME:ELECTRONICS AND COMMUNICATION ENGINEERING	DEGREE:UG	ACADEMIC YEAR : 2021-2022	SEMESTER: V

S.NO	YEAR/ SEM	COURSE NAME	COURSE OUTCOMES the students will be able to understand the		KNOWLEDGE LEVI
1.	III-YEAR V-SEM	EC8501- DIGITAL COMMUNICATION	C301.1	Design PCM systems	
			C301.2	Design and implement base band transmission schemes	
			C301.3	Design and implement band pass signaling schemes	
			C301.4	Analyze the spectral characteristics of band pass signaling schemes and their noise performance	
			C301.5	Design error control coding schemes	
2.	III-YEAR V-SEM	EC8551-COMMUNICATION NETWORKS	C302.1	Identify the components required to build different types of networks	
			C302.2	Choose the required functionality at each layer for given application	
			C302.3	Identify solution for each functionality at each layer	
			C302.4	Trace the flow of information from one node to another node in the network	

			C302.5	Learn the flow control and congestion control algorithms	
3.	III-YEAR V-SEM	EC8552- COMPUTER ARCHITECTURE AND ORGANIZATION	C303.1	Describe data representation, instruction formats and the operation of a digital computer	
			C303.2	Illustrate the fixed point and floating-point arithmetic for ALU operation	
			C303.3	Discuss about implementation schemes of control unit and pipeline performance	
			C303.4	Explain the concept of various memories, interfacing and organization of multiple processors	
			C303.5	Discuss parallel processing technique and unconventional architectures	
4.	III-YEAR V-SEM	EC8553-DISCRETE-TIME SIGNAL PROCESSING	C304.1	Apply DFT for the analysis of digital signals and systems	
			C304.2	Design IIR and FIR filters	
			C304.3	Characterize the effects of finite precision representation on digital filters	
			C304.4	Design multi rate filters	
			C304.5	Apply adaptive filters appropriately in	
5.	III-YEAR V-SEM	EC8073-MEDICAL ELECTRONICS	C305.1	Know the human body electro-physiological parameters and recording of bio-potentials.	
			C305.2	Comprehend the non-electrical physiological parameters and their measurement – body temperature, blood pressure, pulse, blood cell count, blood flow meter etc.	
			C305.3	Interpret the various assist devices used in the hospitals viz. pacemakers, defibrillators,	

				dialyzers and ventilators	
			C305.4	Comprehend physical medicine methods eg. ultrasonic, shortwave, microwave surgical diathermies , and bio-telemetry principles and methods	
			C305.5	Know about recent trends in medical instrumentation	
6.	III-YEAR V-SEM	ORO551- RENEWABLE ENERGY SOURCES	C306.1	Understanding the physics of solar radiation.	
			C306.2	Ability to classify the solar energy collectors and methodologies of storing solar	
			C306.3	Knowledge in applying solar energy in a useful way.	
			C306.4	Knowledge in wind energy and biomass with its economic aspects.	
			C306.5	Knowledge in capturing and applying other forms of energy sources like wind, biogas and geothermal energies.	
7.	III-YEAR V-SEM	EC8561-COMMUNICATION SYSTEMS LABORATORY	C307.1	Simulate & validate the various functional modules of a communication system	
			C307.2	Demonstrate their knowledge in base band signalling schemes through implementation of digital modulation schemes	
			C307.3	Apply various channel coding schemes & demonstrate their capabilities towards the improvement of the noise performance of communication system	
			C307.4	Simulate end-to-end communication Link	
			C307.5	visualize the effects of sampling and TDM	
			C308.1	Carryout basic signal processing operations	

8.	III-YEAR V-SEM	EC8562- DIGITAL SIGNAL PROCESSING LABORATORY	C308.2	Demonstrate their abilities towards MATLAB based implementation of various	
			C308.3	Analyze the architecture of a DSP Processor	
			C308.4	Design and Implement the FIR and IIR Filters in DSP Processor for performing filtering operation over real-time signals	
			C308.5	Design a DSP system for various applications of DSP	
9.	III-YEAR V-SEM	EC8563-COMMUNICATION NETWORKS LABORATORY	C309.1	Communicate between two desktop computers	
			C309.2	Implement the different protocols	
			C309.3	Program using sockets	
			C309.4	Implement and compare the various routing algorithms	
			C309.5	Use the simulation tool.	

PROGRAMME: ELECTRONICS AND COMMUNICATION ENGINEERING	DEGREE:UG	ACADEMIC YEAR: 2021-2022	SEMESTER: VI

S.NO	YEAR/ SEM	COURSE NAME	COURSE OUTCOMES the students will be able to understand the		KNOWLEDGE LEVEL
1.	III- YEAR VI-SEM	MG8591-PRINCIPLES OF MANAGEMENT	C310.1	Upon completion of the course, students will be able to have clear understanding	K3
			C310.2	Managerial functions like planning, organizing, staffing, leading & controlling and have same basic knowledge on international aspect of management	K3
			C310.3	To enable the students to study the evolution of Management.	K3

			C310.4	study the functions and principles of management	K5
			C310.5	learn the application of the principles in an organization	K6
2.	III- YEAR VI-SEM	EC8651-TRANSMISSION LINES AND RF SYSTEMS	C311.1	Explain the characteristics of transmission lines and its losses	K2
			C311.1	Write about the standing wave ratio and input impedance in high frequency	K6
			C311.1	Analyze impedance matching by stubs using smith charts	K2
			C311.1	Analyze the characteristics of TE and TM waves	K3
			C311.1	Design a RF transceiver system for wireless communication	K3
3.	III- YEAR VI-SEM	EC8652-WIRELESS COMMUNICATION	C312.1	Characterize a wireless channel and evolve the system design specifications	K3
			C312.2	Design a cellular system based on resource availability and traffic demands	K5
			C312.3	Identify suitable signaling and multipath mitigation techniques for the wireless channel and system under consideration	K6
			C312.4	Design the various digital signaling techniques and multipath mitigation techniques	K2
			C312.5	Analyse the characteristic of wireless channel	K3
4.	III- YEAR VI-SEM	EC8691 MICROPROCESSORS AND MICRO CONTROLLERS	C313.1	Understand and execute programs based on 8086	K3
			C313.2	Design Memory Interfacing	K2
			C313.3	Design and interface I/O circuits.	K6
			C313.4	Design 8051 microcontroller based systems	K2
			C313.5	Implement 8051 microcontroller based systems	K6
	III- YEAR VI-SEM		C314.1	Conversant with the latest 3G/4G networks and its	K6

5.		EC8004- WIRELESS NETWORKS	C314.2	Design and implement wireless network environment for any application using latest wireless protocols and standards	K2
			C314.3	Ability to select the suitable network depending on the availability and requirement	K6
			C314.4	Implement different type of applications for smart phones and mobile devices with latest network strategies	K2
			C314.5	learn about evolution of 4G Networks, its architecture and applications	K3
6.	III- YEAR VI-SEM	EC8095 –VLSI DESIGN	C315.1	Realize the concepts of digital building blocks using MOS transistor	K3
			C315.2	Design combinational MOS circuits and power strategies	K3
			C315.3	Design and construct Sequential Circuits and Timing systems	K3
			C315.4	Design arithmetic building blocks and memory subsystems.	K5
			C315.5	Apply and implement FPGA design flow and testing.	K6
7.	III- YEAR VI-SEM	EC8611- TECHNICAL SEMINAR	C316.1	Estimate any challenging practical problems and find solution by formulating proper mathodology	K2
			C316.2	Propose intended future work based on the technical review.	K2
8.	III- YEAR VI-SEM	EC8661- VLSI DESIGN LABORATORY	C317.1	Write HDL code for basic as well as advanced digital integrated circuit	K3
			C317.2	Import the logic modules into FPGA Boards	K3
			C317.3	Synthesize Place and Route the digital IPs	K5
			C317.4	Design, Simulate and Extract the layouts of Digital & Analog IC Blocks using EDA tools	K6

			C317.5	To Introduce ALP concepts, features and Coding methods	K3
9.	III- YEAR VI-SEM	EC8681- MICRO PROCESSORS AND MICRO CONTROLLERS LABORATORY	C318.1	Write ALP Programmes for fixed and Floating Point and Arithmetic operations	K2
			C318.2	Interface different I/Os with processor	K6
			C318.3	Generate waveforms using Microprocessors	K2
			C318.4	Execute Programs in 8051	K6
			C318.5	Explain the difference between simulator and Emulator	K2
10.	III- YEAR VI-SEM	HS8581- PROFESSIONAL COMMUNICATION	C319.1	Make effective presentation	K2
			C319.2	Participate confidently in group discussion.	K6
			C319.3	Attend job interviews. Develop adequate soft skills	K2

PROGRAMME:ELECTRONICS AND COMMUNICATION ENGINEERING	DEGREE:UG	ACADEMIC YEAR : 2022-2023	SEMESTER: VII

S.NO	YEAR/ SEM	COURSE NAME	COURSE OUTCOMES the students will be able to understand the		KNOWLEDGE LEVEL
1.	IV- YEAR VII-SEM	EC 8701 - ANTENNAS AND MICROWAVE ENGINEERING	C401.1	Apply the basic principles and evaluate antenna parameters and link power budgets	K3
			C401.2	Design and assess the performance of various antennas	K3
			C401.3	Design a microwave system given the application specifications	K3
			C401.4	To enable the student to understand the basic principles in antenna and microwave system design	K5

			C401.5	To enhance the student knowledge in the area of various antenna designs.	K6
2.	IV-YEAR VII-SEM	EC8702 - AD HOC AND WIRELESS SENSOR NETWORKS	C402.1	Know the basics of Ad hoc networks and Wireless Sensor Networks	K2
			C402.2	Apply this knowledge to identify the suitable routing algorithm based on the network and user requirement	K6
			C402.3	Apply the knowledge to identify appropriate physical and MAC layer protocols	K2
			C402.4	Understand the transport layer and security issues possible in Ad hoc and sensor networks	K3
			C402.5	Be familiar with the OS used in Wireless Sensor Networks	K3
3.	IV-YEAR VII-SEM	EC8751 -OPTICAL COMMUNICATION	C403.1	Realize basic elements in optical fibers, different modes and configurations	K3
			C403.2	Analyze the transmission characteristics associated with dispersion and polarization techniques	K5
			C403.3	Design optical sources and detectors with their use in optical communication system.	K6
			C403.4	Construct fiber optic receiver systems, measurements and coupling techniques.	K2
			C403.5	Design optical communication systems and its networks.	K6
4.	IV-YEAR	EC8791-EMBEDDED AND REAL TIME SYSTEMS	C404.1	Describe the architecture and programming of ARM processor	K2
			C404.2	Outline the concepts of embedded systems	K3
			C404.3	Explain the basic concepts of real time operating system design.	K3

	VII-SEM		C404.4	Model real-time applications using embedded-system concepts	K3
			C404.5	Be exposed to the basic concepts of embedded programming	K2
5.	IV-YEAR VII-SEM	OME754-INDUSTRIAL SAFETY	C405.1	Students must be able to identify and prevent chemical, environmental mechanical, fire hazard through analysis and apply proper safety techniques on safety engineering and management.	K2
6.	IV-YEAR VII-SEM	EC8711-EMBEDDED LABORATORY	C406.1	Write programs in ARM for a specific Application	K5
			C406.2	Interface memory, A/D and D/A convertors with ARM system	K6
			C406.3	Analyze the performance of interrupt	K2
			C406.4	Write program for interfacing keyboard, display, motor and sensor	K6
			C406.5	Formulate a mini project using embedded system	K2
7.	IV-YEAR VII-SEM	EC8761-ADVANCED COMMUNICATION LABORATORY	C407.1	Analyze the performance of simple optical link by measurement of losses	K2
			C407.2	Analyze the Eye Pattern, Pulse broadening of optical fiber and the impact on BER	K3
			C407.3	Estimate the Wireless Channel Characteristics	K5
			C407.4	Analyzing the mode characteristics of fiber	K6
			C407.5	Analyze the performance of Wireless Communication System	K2

PROGRAMME:ELECTRONICS AND COMMUNICATION ENGINEERING	DEGREE:UG	ACADEMIC YEAR : 2022-2023	SEMESTER: VIII

S.NO	YEAR/ SEM	COURSE NAME	COURSE OUTCOMES the students will be able to understand the		KNOWLEDGE LEVEL
1.	IV- YEAR VIII-SEM	EC8072 - ELECTRO MAGNETIC INTERFERENCE AND COMPATIBILITY	C408.1	Identify the various types and mechanisms of Electromagnetic Interference	K2
			C408.2	Propose a suitable EMI mitigation technique	K2
			C408.3	Describe the various EMC Standards and methods to measure them.	K3
2.	IV- YEAR VIII-SEM	EC8094 - Satellite Communication	C409.1	Analyze the satellite orbits	K6
			C409.2	Analyze the earth segment and space segment	K5
			C409.3	Analyze the satellite Link design	K6
			C409.4	Design various satellite applications	K2
			C409.5	Analyze the various methods of satellite access	K6
3.	IV- YEAR	EC8811-	C410.1	Estimate any challenging practical problems and find solution by formulating proper methodology	K2
			C410.2	Formulate the professional ethics and team management.	K6

	VIII-SEM	PROJECT WORK	C410.3	Propose intended future work based on the technical review	K6

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES & PROGRAM SPECIFIC OBJECTIVES (PSOs)

C101/HS8151 - COMMUNICATIVE ENGLISH															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C101.1	-	-	-	-	2	-	1	-	-	-	3	1	-	-	2
C101.2	-	3	-	-	2	-	2	-	-	-	2	2	-	-	2
C101.3	-	3	-	-	2	-	3	-	-	-	2	2	-	-	2
C101.4	-	3	-	-	-	-	2	-	-	-	3	2	-	-	2
AVg.	-	**3**	-	-	**2**	-	**2**	-	-	-	**2.5**	**1.7**	-	-	2

C102/ MA8151- ENGINEERING MATHEMATICS – I															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C102.1	2	1	-	-	-	-	-	-	-	-	-	2	1	2	1
C102.2	1	2	2	-	-	-	-	-	-	-	-	-	-	1	2
C102.3	-	1	1	1	-	-	-	-	-	-	-	2	-	1	1
C102.4	2	-	-	2	-	-	-	-	-	-	2	-	1	2	2
C102.5	2	-	1	2	-	-	-	-	-	-	2	1	1	1	1
AVg.	**1.75**	**2**	**1.33**	**1.66**	-	-	-	-	-	-	**2**	**1.66**	**1**	**1.4**	**1.4**

C103/ PH8151- ENGINEERING PHYSICS															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C103.1	2	2	-	-	-	-	-	-	-	-	-	2	1	-	-
C103.2	3	2	-	2	-	-	-	-	-	-	3	1	2	2	-
C103.3	-	1	-	-	-	-	-	-	-	-	2	1	-	-	-
C103.4	1	-	-	2	-	-	-	-	-	-	-	2	1	3	-
C103.5	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AVg.	**1.75**	**1.66**	-	**2**	-	-	-	-	-	-	**2.5**	**1.5**	**1.33**	**2.5**	-

C104/ CY8151- ENGINEERING CHEMISTRY															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C104.1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C104.2	2	-	-	-	-	-	-	-	-	-	1	-	1	1	-
C104.3	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-
C104.4	2	-	-	-	-	-	-	-	-	-	-	2	-	-	-
C104.5	-	2	-	1	-	-	-	-	-	-	2	2	1	2	-
AVg.	**1.6**	**1.5**	-	**1**	-	-	-	-	-	-	**1.5**	**1.66**	1	1.5	-

C105 / **GE8151-PROBLEM SOLVING AND PYTHON PROGRAMMING**

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C105 .1	3	-	2	-	2	-	-	-	-	-	-	-	2	2	2
C105 .2	2	2	2	-	-	-	-	-	-	-	-	-	3	-	-
C105 .3	-	2	1	-	-	-	-	-	-	-	-	-	-	2	-
C105 .4	-	1	-	1	-	-	-	-	-	-	-	-	2	3	2
C105 .5	-	-	2	2	2	-	-	-	-	-	-	-	-	-	2
C105 .6	-	-	-	2	1	-	-	-	-	-	-	-	-	2	-
AVg.	**2.5**	**1.6**	**1.75**	**1.6**	**1.6**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.3**	**2.25**	**2**

C106/ GE8152- ENGINEERING GRAPHICS															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C106.1	3	-	2	2	-	-	2	-	-	3	-	2	2	-	-
C106.2	3	1	-	-	-	-	-	-	-	3	-	-	-	-	-
C106.3	-	-	2	-	-	-	-	-	-	-	-	2	-	-	-
C106.4	-	1	-	2	-	-	-	-	-	3	-	-	2	2	-
C106.5	3	1	2	2	-	-	-	-	-	3	-	-	2	2	-
AVg.	**3**	**1**	**2**	**2**	**-**	**-**	**2**	**-**	**-**	**3**	**-**	**2**	**2**	**2**	**-**

C107/ GE8161- PROBLEM SOLVING ANDPYTHON PROGRAMMING LABORATORY															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C107.1	3	-	-	-	-	-	-	-	-	-	-	-	3	2	1
C107.2	1	3	2	-	-	-	-	-	-	-	-	-	2	1	-
C107.3	-	-	2	-	-	-	-	-	-	-	-	-	-	1	-
C107.4	-	-	-	-	2	-	-	-	-	1	-	-	-	-	1
C107.5	-	-	-	-	-	-	-	-	-	2	-	-	-	-	1
Avg.	**2**	**3**	**2**	**-**	**2**	**-**	**-**	**-**	**-**	**1.5**	**-**	**-**	2.5	1.3	1

C108/ BS8161- PHYSICS AND CHEMISTRY LABORATORY															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C108.1	-	-	-	1	-	-	-	-	-	-	2	2	2	-	2
C108.2	-	-	-	-	-	-	-	-	-	-	1	1	-	-	1
C108.3	2	2	-	-	-	-	-	-	-	-	-	-	1	-	-
C108.4	-	-	-	2	-	-	-	-	-	-	-	-	-	-	1
C108.5	2	2	-	-	-	-	-	-	-	-	-	2	1	-	-
AVg.	**2**	**2**	**-**	**1.5**	**-**	**-**	**-**	**-**	**-**	**-**	**1.5**	**1.66**	**2**	**-**	**2**

C109/ HS8251- TECHNICAL ENGLISH															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C109.1	-	-	-	3	-	2	-	-	-	3	3	3	-	-	2
C109.2	-	-	-	3	-	1	-	-	-	3	-	1	-	-	2
C109.3	-	-	-	3	-	-	-	-	3	3	2	1	-	-	2
C109.4	-	-	-	3	-	3	-	-	3	3	3	3	-	-	2
AVg.	-	-	-	**3**	-	**1.5**	-	-	**1.5**	**3**	**2**	**2**	-	-	**2**

C110/ MA8251- ENGINEERING MATHEMATICS – II															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C110.1	2	-	2	-	-	-	-	-	-	-	1	2	2	1	1

C110.2	-	1	-	1	-	-	-	-	-	-	-	-	1	2	-
C110.3	2	-	-	-	-	-	-	-	-	-	-	1	1	2	1
C110.4	1	2	-	2	-	-	-	-	-	-	-	2	1	1	2
C110.5	2	2	2	2	-	-	-	-	-	-	2	2	2	2	2
Avg.	**1.75**	**1.66**	**2**	**1.66**	-	-	-	-	-	-	**1.5**	**1.75**	**1.4**	**1.6**	**1.2**

C111/**PH8253- PHYSICS FOR ELECTRONICS ENGINEERING**															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C111.1	2	2	-	-	-	-	-	-	-	-	-	2	1	-	-
C111.2	3	2	-	2	-	-	-	-	-	-	3	1	2	2	-
C111.3	-	1	-	-	-	-	-	-	-	-	2	1	-	-	-
C111.4	1	-	-	2	-	-	-	-	-	-	-	2	2	2	-
C111.5	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AVg	**1.75**	**1.66**	**-**	**2**	-	-	-	-	-	-	**2.5**	**1.5**	**1.66**	**2**	-

C112/BE8254- BASIC ELECTRICAL AND INSTRUMENTATION ENGINEERING															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C112.1	3	2	1	1	3	3	-	-	-	-	2	1	1	2	-
C112.2	3	2	1	1	2	2	-	-	-	-	2	2	1	2	-
C112.3	3	3	2	1	2	3	-	-	-	-	2	2	1	2	-
C112.4	3	3	2	1	2	3	-	-	-	-	2	2	1	2	-
C112.5	3	1	1	1	3	3	-	-	-	-	2	3	2	2	-
AVg	3	**2.2**	**1.4**	1	2.4	2.8	-	-	-	-	2	2	1.2	2	-

C113/ EC8251- CIRCUIT ANALYSIS															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C113.1	3	2	1	2	2	1	-	-	-	-	1	1	2	-	-
C113.2	3	2	2	2	2	1	-	-	-	-	1	1	2	-	-
C113.3	3	2	2	2	2	1	-	-	-	-	1	1	3	1	-
C113.4	3	3	1	2	2	1	-	-	-	-	1	1	2	-	-
C113.5	3	3	2	2	2	1	-	-	-	-	1	1	3	-	-
AVg.	3	**2.4**	**1.6**	2	2	1	-	-	-	-	1	1	**2.4**	**1**	-

C114/ EC8252- ELECTRONIC DEVICES															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C114.1	3	2	2	-	-	-	-	-	-	-	-	2	3	-	-
C114.2	3	2	3	2	-	-	-	-	-	-	-	2	2	2	-
C114.3	3	3	2	2	-	-	-	-	-	-	-	2	2	2	-
C114.4	3	3	2	-	-	-	-	-	-	-	-	2	2	-	-
C114.5	3	3	2	-	-	-	-	-	-	-	-	2	2	-	-
AVg.	3	**2.6**	**2.2**	**2**	-	-	-	-	-	-	-	2	**2.2**	**2**	-

C115/EC8261- CIRCUITS AND DEVICES LABORATORY															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**

C115.1	2	2	2	-	2	-	2	2	-	2	-	1	2	2	3
C115.2	2	2	2	-	2	-	2	2	-	2	-	-	2	2	3
C115.3	2	2	2	-	2	-	2	2	-	2	-	-	2	2	3
AVg.	2	2	2	-	2	-	2	2	-	2	-	1	2	2	**3**

C116/GE8261- ENGINEERING PRACTICES LABORATORY															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C116.1	3	3	-	-	1	2	-	1	2	-	-	2	-	2	-
C116.2	3	3	-	-	1	2	-	1	2	-	-	2	-	2	-
C116.3	3	3	-	-	-	2	-	1	2	-	-	2	-	-	-
C116.4	3	3	-	-	1	-	-	1	2	-	-	2	-	2	-
C116.5	3	3	-	-	-	-	-	1	2	-	-	2	-	2	-
C116.6	3	3	-	-	1	2	-	1	2	-	-	2	-	-	-
C116.7	3	3	-	-	1	2	-	1	2	-	-	2	-	-	-
C116.8	3	3	-	-	1	-	-	1	2	-	-	2	3	-	-
AVg.	3	3	-	-	1	**2**	-	1	2	-	-	2	**3**	2	-

C201/ MA8352- LINEAR ALGEBRA AND PARTIAL DIFFERENTIAL EQUATIONS															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C201.**1**	2	2	-	1	-	-	-	-	-	-	-	-	1	-	1
C201.**2**	1	-	2	2	1	-	-	-	-	-	2	-	2	2	2
C201.**3**	-	2	2	2	-	-	-	-	-	-	2	2	-	2	1
C201.**4**	2	2	-	-	2	-	-	-	-	-	2	1	1	-	2
C201.**5**	2	1	-	-	1	-	-	-	-	-	-	2	2	2	2
AVg.	**1.75**	**1.75**	**2**	**1.66**	**1.33**	-	-	-	-	-	**2**	**1.66**	**1.2**	**1.2**	**1.6**

C202/ EC8351- ELECTRONIC CIRCUITS I															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C202.**1**	2	2	3	3	-	-	-	-	-	-	-	1	**3**	**3**	-
C202.**2**	2	3	2	3	-	-	-	-	-	-	-	-	**3**	**3**	-
C202.**3**	2	3	2	3	-	-	-	-	-	-	-	-	**3**	**3**	-
C202.**4**	3	2	2	3	1	-	-	-	-	-	-	1	**2**	**2**	-
C202.**5**	3	2	3	3	1	1	-	-	-	-	-	1	**3**	**3**	**2**
AVg.	**2.4**	**2.4**	**2.4**	3	**1**	**1**	-	-	-	-	-	**1**	**2.8**	**2.8**	**2**

C203/ EC8352- SIGNALS AND SYSTEMS															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**

C203.1	3	3	2	-	3	2	-	-	-	-	-	1	**2**	**2**	2
C203.2	2	-	-	1	1	1	-	-	-	-	-	1	**2**	**1**	-
C203.3	2	2	2	-	2	-	-	-	-	-	-	-	**3**	**2**	2
C203.4	-	2	2	-	2	-	-	-	-	-	2	2	**3**	**2**	3
C203.5	2	2	-	1	2	3	-	-	-	-	-	2	**3**	**2**	**2**
AVg.	**1.8**	**1.8**	**1.2**	1	**2**	**1.2**	-	-	-	-	2	**1.2**	**2.6**	**1.8**	**1.8**

C204/ EC8391- CONTROL SYSTEMS ENGINEERING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C204.1	3	3	2	2	1	-	-	-	-	-	-	1	**3**	-	-
C204.2	3	3	3	2	1	-	-	-	-	-	-	1	**2**	**2**	-
C204.3	3	3	3	2	1	-	-	-	-	-	-	1	**2**	**2**	-
C204.4	3	3	3	3	1	-	-	-	-	-	-	1	**2**	-	-
C204.5	3	3	2	2	1	-	-	-	-	-	-	1	**2**	-	-
AVg.	3	3	**2.6**	2.2	1	-	-	-	-	-	-	1	**2.2**	**2**	-

C205/ EC8392- DIGITAL ELECTRONICS

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C204.1	3	3	2	3	2	2	-	-	-	-	3	2	3	**1**	-
C204.2	3	3	3	3	3	2	-	-	-	-	3	3	3	**2**	-
C204.3	3	3	3	3	3	1	-	-	-	-	2	2	3	**2**	-
C204.4	3	3	3	3	1	1	-	-	-	-	2	2	3	**2**	1
C204.5	3	3	3	3	1	1	-	-	-	-	1	3	3	**2**	**1**
AVg.	3	3	**2.8**	3	**2**	**1.4**	-	-	-	-	2.2	**2.4**	3	**1.8**	**1**

C206/ EC8393- FUNDAMENTALS OF DATA STRUCTURES IN C

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C206.1	3	2	-	-	3	-	-	-	-	-	1	3	**1**	**3**	2
C206.2	3	2	-	-	3	-	-	-	-	-	1	3	**1**	**3**	2
C206.3	3	2	-	-	3	-	-	-	-	-	1	3	**1**	**3**	2
C206.4	3	2	-	-	3	-	-	-	-	-	1	3	**1**	**3**	2
C206.5	3	2	-	-	3	-	-	-	-	-	1	3	**1**	**3**	**2**
AVg.	3	2	-	-	3	-	-	-	-	-	1	**3**	**1**	**3**	**2**

C207/ EC8361- ANALOG AND DIGITAL CIRCUITS LABORATORY

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C207.1	3	3	-	-	-	-	-	-	-	-	-	2	2	-	-
C207.2	2	-	2	-	-	-	-	-	-	2	-	2	2	-	-
C207.3	2	2	-	-	-	2	-	-	-	2	-	2	2	-	-
C207.4	2	-	2	3	-	2	-	-	-	-	-	2	2	**2**	-
AVg.	**2.3**	**2.5**	**2**	3	-	**2**	-	-	-	2	-	**2**	**2**	**2**	-

C208/ EC8381- FUNDAMENTALS OF DATA STRUCTURES IN C LABORATORY

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3

C208.1	3	-	3	3	3	-	3	-	2	3	-	-	3	**3**	2
C208.2	3	-	3	2	3	-	3	-	3	2	-	-	3	**3**	3
C208.3	3	-	3	2	3	-	2	-	2	3	-	-	3	**2**	2
C208.4	3	-	-	2	3	-	3	-	3	3	-	-	3	**3**	3
AVg.	3	-	**3**	2.25	**3**	-	2.75	-	2.5	2.75	-	-	3	**2.75**	**2.5**

C209/ HS8381- INTERPERSONAL SKILLS/LISTENING&SPEAKING															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C209.1	-	-	-	1	-	1	-	-	2	3	3	2	-	-	-
C209.2	-	-	-	-	-	1	-	-	3	3	3	1	-	-	-
C209.3	-	-	-	1	-	1	-	-	3	3	3	1	-	-	-
C209.4	-	-	-	-	-	1	-	-	2	3	3	2	-	-	-
AVg.	-	-	-	1	-	1	-	-	2.5	3	3	1.5	-	-	-

C210/ MA8451- PROBABILITY AND RANDOM PROCESSES															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C210.1	3	-	-	-	2	-	-	-	-	-	-	1	**2**	1	-
C210.2	2	-	-	-	1	2	-	-	-	-	-	1	**2**	1	-
C210.3	1	-	-	2	1	1	-	-	-	-	-	1	**1**	-	1
C210.4	1	1	-	-	-	-	-	-	-	-	-	1	**1**	-	-
C210.5	2	2	-	-	-	-	-	-	-	-	-	-	**1**	-	-
AVg.	**1.8**	**1.5**	-	2	**1.3**	**1.5**	-	-	-	-	-	1	**1.4**	1	1

C211/ EC8451- ELECTROMAGNETIC FIELDS															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C211.1	3	1	-	-	-	2	-	-	-	-	2	-	3	-	-
C211.2	3	1	2	-	2	-	-	-	-	-	2	-	3	-	-
C211.3	3	1	-	2	-	-	-	-	-	-	2	-	3	-	-
C211.4	3	1	2	2	2	-	-	-	-	-	2	2	3	-	-
C211.5	3	2	2	3	3	-	-	-	-	-	3	2	3	**1**	-
AVg.	3	**1.2**	**2**	2.33	**2.33**	**2**	-	-	-	-	2.2	**2**	3	**1**	-

C212/ EC8452- ELECTRONIC CIRCUITS II															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C212.1	3	3	3	3	-	-	-	-	-	-	-	2	3	**1**	-
C212.2	3	3	3	3	-	-	-	-	-	-	1	2	3	**1**	-
C212.3	3	3	3	3	2	-	-	-	-	-	-	2	3	**1**	-
C212.4	3	3	3	3	-	-	-	-	-	-	-	2	3	**1**	-
C212.5	3	3	3	3	-	2	-	-	-	-	1	2	3	**2**	-
AVg.	3	3	3	3	-	-	-	-	-	-	-	2	3	**1**	-

C213/ EC8453- LINEAR INTEGRATED CIRCUITS															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**

C213.1	3	2	3	2	-	-	-	-	-	-	-	-	**3**	3	-
C213.2	2	2	3	3	-	-	-	-	-	-	-	-	**3**	3	-
C213.3	3	1	3	-	-	-	-	-	-	-	-	-	**2**	3	-
C213.4	3	2	3	2	-	-	-	-	-	-	-	-	**3**	3	-
C213.5	2	2	3	-	-	-	-	-	-	-	-	1	**3**	3	-
AVg.	**2.6**	**1.8**	3	2.33	-	-	-	-	-	-	-	**1**	**2.8**	**3**	-

C214/ EC8491- COMMUNICATION THEORY															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C214.1	3	3	1	2	2	2	-	-	-	-	2	2	3	3	1
C214.2	3	3	1	2	2	2	-	-	-	-	2	2	3	3	1
C214.3	3	3	-	-	-	-	-	-	-	-	-	2	3	3	1
C214.4	3	3	-	2	-	-	-	-	-	-	-	2	3	3	-
C214.5	3	3	-	2	2	-	-	-	-	-	-	2	3	3	-
AVg.	3	3	**1**	2	**2**	**2**	-	-	-	-	2	2	3	3	**1**

C214/ EC8491- COMMUNICATION THEORY															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C214.1	3	3	1	2	2	2	-	-	-	-	2	2	3	3	1
C214.2	3	3	1	2	2	2	-	-	-	-	2	2	3	3	1
C214.3	3	3	-	-	-	-	-	-	-	-	-	2	3	3	1
C214.4	3	3	-	2	-	-	-	-	-	-	-	2	3	3	-
C214.5	3	3	-	2	2	-	-	-	-	-	-	2	3	3	-
AVg.	3	3	**1**	2	**2**	**2**	-	-	-	-	2	2	3	3	**1**

C215/ GE8291- ENVIRONMENTAL SCIENCE AND ENGINEERING															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C215.1	3	2	-	2	-	2	1	2	-	-	-	2	-	2	-
C215.2	2	2	-	2	-	2	1	2	-	-	1	2	-	2	-
C215.3	2	1	-	2	-	2	1	1	-	-	-	2	-	2	-
C215.4	2	2	-	2	-	2	3	2	-	-	1	3	-	2	-
C215.5	3	2	-	2	-	2	3	2	-	-	-	3	-	2	-
AVg.	**2.4**	1.8	-	2	-	**2**	1.8	1.8	-	-	1	**2.2**	-	2	-

C216/ EC8461- CIRCUITS DESIGN AND SIMULATION LABORATORY															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C216.1	3	3	3	2	-	-	-	-	-	-	-	3	**3**	**3**	-
C216.2	-	2	3	2	2	-	-	-	-	-	-	2	**3**	**2**	3
C216.3	3	2	2	-	3	2	-	-	-	-	-	2	**3**	**2**	-
C216.4	-	-	-	-	-	2	-	-	-	-	3	3	**2**	-	3
AVg.	**3**	**2.33**	**2.66**	2	**2.5**	**2**	-	-	-	-	3	**2.75**	**2.75**	**2.33**	**3**

C217/ EC8462- LINEAR INTEGRATED CIRCUITS LABORATORY															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**

C217.1	3	2	2	-	-	-	-	-	-	-	-	-	3	3	-
C217.2	2	2	2	2	-	3	-	-	-	-	-	-	3	3	-
C217.3	3	2	1	1	-	-	-	-	-	-	-	-	3	3	-
C217.4	3	1	2	-	-	-	-	-	-	-	-	-	3	3	-
C217.5	3	2	1	1	-	3	-	-	-	-	-	-	3	3	-
AVg.	**2.8**	**1.8**	**1.6**	1.3	-	**3**	-	-	-	-	-	-	3	3	-

C301/EC8501-DIGITAL COMMUNICATION															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C301.1	3	3	2	3	2	-	-	-	-	-	2	2	3	3	1
C301.2	3	3	2	2	2	-	-	-	-	-	2	2	3	3	1
C301.3	3	2	2	-	-	1	-	-	-	-	2	2	3	3	1
C301.4	3	2	2	2	1	2	-	-	-	-	2	2	3	3	1
C301.5	3	3	2	2	2	2	-	-	-	-	2	2	3	3	1
AVg	**3**	**2.6**	**2**	**2.3**	**1.8**	1.7	-	-	-	-	**2**	**2**	**3**	**3**	1

C302/EC8551-COMMUNICATION NETWORKS															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C302.1	3	-	-	-	2	-	-	-	-	-	-	2	3	1	1
C302.2	-	3	-	-	2	2	-	-	-	-	2	2	3	2	1
C302.3	-	3	-	-	2	2	-	-	-	-	2	2	3	2	1
C302.4	3	-	-	2	2	2	-	-	-	-	2	2	3	2	1
C302.5	-	-	3	2	2	2	-	-	-	-	2	2	3	3	2
AVg	**3**	**3**	**3**	**2**	**2**	**2**	-	-	-	-	**2**	**2**	**3**	**2**	**1.6**

C303/EC8552-COMPUTER ARCHITECTURE AND ORGANIZATION															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C303.1	3	2	2	3	-	1	-	-	-	-	3	3	3	3	2
C303.2	3	3	2	3	-	1	-	-	-	-	3	3	3	2	2
C303.3	3	3	3	2	-	1	-	-	-	-	3	3	3	2	2
C303.4	2	2	2	2	-	2	-	-	-	-	3	3	3	3	3
C303.5	3	2	3	2	-	1	-	-	-	-	3	3	3	3	3
AVg	**2.8**	**2.4**	**2.4**	**2.4**	-	**1.2**	-	-	-	-	**3**	**3**	**3**	**2.6**	**2.4**

C304/EC8553-DISCRETE TIME SIGNAL PROCESSING															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C304.1	3	3	2	1	1	-	-	-	-	-	-	1	3	2	3
C304.2	3	3	2	1	1	-	-	-	-	-	1	1	3	2	3
C304.3	3	2	2	1	-	1	-	-	-	-	1	-	3	2	3
C304.4	3	-	2	-	-	-	-	-	-	-	1	-	3	2	-
C303.5	3	2	3	2	-	1	-	-	-	-	1	1	3	2	3
AVg	**3**	**2.7**	**2**	**1**	**1**	**1**	-	-	-	-	**1**	**1**	**3**	**2**	**3**

C305/ EC8073- MEDICAL ELECTRONICS															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**

C305.1	-	-	-	2	-	3	-	-	-	-	-	-	2	2	-
C305.2	-	-	-	3	-	2	-	-	-	-	-	-	2	2	-
C305.3	2	2	3	2	3	3	-	-	-	-	-	-	3	2	-
C305.4	-	-	2	2	2	3	-	-	-	-	-	-	2	3	-
C305.5	-	-	2	2	-	3	-	-	-	-	-	-	2	3	-
AVg	2	2	2.33	2.2	2.5	2.8	-	-	-	-	-	-	2.2	2.4	-

C306/ ORO551- RENEWABLE ENERGY SOURCES															
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C306.1	2	2	2	1	2	3	-	-	-	-	-	-	2	2	2
C306.2	2	-	3	1	3	3	-	-	-	-	-	-	2	2	2
C306.3	2	-	3	2	3	3	-	-	-	-	-	-	3	2	3
C306.4	-	-	3	2	3	3	-	-	-	-	-	-	2	3	2
C306.5	-	-	2	1	2	3	-	-	-	-	-	-	2	3	2
AVg	2	2	2.6	1.4	2.6	3	-	-	-	-	-	-	2.2	2.4	2.2

C307/EC8561-COMMUNICATION SYSTEM LABORATORY															
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C307.1	3	3	3	2	-	-	-	-	-	-	-	3	3	3	-
C307.2	-	2	3	2	2	-	-	-	-	-	-	2	3	2	3
C307.3	3	2	2	-	3	2	-	-	-	-	-	2	3	2	-
C307.4	-	-	-	-	-	2	-	-	-	-	3	3	2	-	3
AVg	3	2.33	2.66	2	2.5	2	-	-	-	-	3	2.50	2.75	2.33	3

C308/EC8562-DIGITAL SIGNAL PROCESSING LABORATORY															
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C308.1	3	-	-	3	2	-	-	-	-	3	-	-	3	2	2
C308.2	3	-	-	2	-	-	-	-	-	-	3	-	2	1	-
C308.3	3	-	-	3	-	-	-	-	-	-	-	-	3	2	2
C308.4	3	-	-	-	-	3	1	-	-	-	-	-	3	2	3
C308.5	3	-	-	2	-	3	-	-	-	-	-	3	3	2	3
AVg	3	-	-	2.5	2	3	1	-	-	3	3	3	2.8	1.8	2

C309/ EC8563-COMMUNICATION NETWORKS LABORATORY															
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C309.1	3	-	2	3	3	-	-	-	1	-	-	2	-	2	-
C309.2	3	2	2	-	3	-	-	-	1	-	-	2	2	3	-
C309.3	3	-	2	3	3	-	-	-	1	-	-	2	-	3	-
C309.4	3	3	2	-	3	-	-	-	1	-	-	2	2	3	-
C309.5	3	-	2	-	3	-	-	-	1	-	-	2	3	2	-
AVg.	3	2.5	2	-	3	-	-	-	1	-	-	2	2.33	2.6	-

C310/MG8591-PRINCIPLES OF MANAGEMENT															
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3

C310.1	-	-	-	-	-	-	3	3	3	3	3	3	1	-	3
C310.2	-	-	-	-	-	-	2	3	-	3	3	-	2	1	3
C310.3	-	-	-	-	-	-	3	3	-	3	3	-	-	2	3
C310.4	-	-	-	-	-	-	2	2	-	-	-	-	2	1	2
C310.5	-	-	-	-	-	-	-	2	-	-	-	-	2	3	3
Avg	-	-	-	-	-	-	2	2.6	3	3	3	3	1.4	1.4	2.8

C311/EC8651-TRANSMISSION LINES AND RF SYSTEMS															
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C311.1	3	2	2	2	1	1	-	-	-	-	2	2	3	3	2
C311.2	2	2	2	2	-	1	-	-	-	-	2	2	3	3	2
C311.3	3	2	1	1	-	-	-	-	-	-	-	2	3	3	2
C311.4	2	2	2	2	-	1	-	-	-	-	1	2	3	3	2
C311.5	2	2	2	2	2	2	-	-	-	-	2	2	3	3	2
AVg	2.4	2	1.8	1.8	0.6	1.3	-	-	-	-	1.8	2	3	3	2

C312/EC8652-WIRELESS COMMUNICATION															
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C312.1	3	3	3	2	-	2	1	-	-	-	-	3	3	3	1
C312.2	3	3	3	2	-	2	2	-	-	-	-	2	3	3	1
C312.3	3	3	2	2	-	1	2	-	-	-	-	2	3	3	1
C312.4	3	3	2	2	-	1	2	-	-	-	-	2	3	3	-
C312.5	3	3	2	2	-	1	2	-	-	-	-	2	3	3	-
AVg	3	3	2.4	2	-	1.4	1.8	-	-	-	-	2.2	3	3	1

C313/EC8691-MICROPROCESSORS AND MICROCONTROLLER															
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C313.1	3	3	2	1	1	-	-	-	-	-	-	1	3	2	3
C313.2	3	3	2	1	1	-	-	-	-	-	1	1	3	2	3
C313.3	3	2	2	1	-	1	-	-	-	-	1	-	3	2	3
C313.4	3	-	2	-	-	-	-	-	-	-	1	-	3	2	-
C313.5	3	-	2	1	-	-	-	-	-	-	1	-	3	2	-
AVg	3	2.7	2	1	1	1	-	-	-	-	1	1	3	2	3

C314/EC8004-WIRELESS NETWORKS															
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C314.1	3	2	2	1	-	1`	1	-	-	-	-	1	3	1	-
C314.2	3	3	3	1	-	-	-	-	-	-	-	-	3	2	-
C314.3	3	3	3	3	1	1	1	-	-	-	1	1	3	3	2
C314.4	3	3	2	2	-	-	-	-	-	-	-	-	3	2	-
C314.5	3	3	3	3	1	2	2	-	-	-	1	2	3	3	2
AVg	3	2.8	2.6	2	1	1.33	1.33	-	-	-	1	1.33	3	2.2	2

C315/EC8095-VLSI DESIGN															
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3

C315.1	3	3	3	3	2	2	-	-	-	-	2	3	3	2	2
C315.2	3	3	3	3	2	3	-	-	-	-	2	3	3	3	3
C315.3	3	3	3	3	2	3	-	-	-	-	2	3	3	3	3
C315.4	3	3	3	3	2	3	-	-	-	-	2	3	3	3	3
C315.5	3	3	3	3	3	3	-	-	-	-	3	3	3	3	3
AVg	**3**	**3**	**3**	**3**	**2.2**	**2.8**	**-**	**-**	**-**	**-**	**2.2**	**3**	**3**	**2.8**	**2.8**

C316/EC8611-TECHNICAL SEMINAR															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C316.1	3	3	3	3	3	3	-	-	-	3	3	3	3	3	3
C316.2	-	-	-	-	-	-	-	3	3	-	3	3	3	3	3
C316.3	3	3	3	-	-	3	3	-	-	-	3	3	3	3	3
C316.4	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
AVg	3	3	3	3	3	3	-	-	-	3	3	3	3	3	3

C317/EC8661-VLSI DESIGN LABORATORY															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C317.1	3	3	-	3	3	3	-	-	-	-	3	3	3	3	3
C317.2	3	2	2	2	3	3	-	-	-	-	3	3	2	3	3
C317.3	3	3	3	3	3	3	-	-	-	-	3	3	3	3	3
C317.4	3	3	3	3	3	3	-	-	-	-	3	3	3	3	3
AVg	**3**	**2.75**	**2.6**	**2.75**	**3**	**3**	**-**	**-**	**-**	**-**	**3**	**3**	**2.75**	**3**	**3**

C318/EC8681- MICROPROCESSORS AND MICROCONTROLLER LABORATORY															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C318.1	3	3	3	2	-	-	-	-	-	-	-	3	**3**	**3**	-
C318.2	-	2	3	2	2	-	-	-	-	-	-	2	**3**	**2**	**3**
C318.3	3	2	2	-	3	2	-	-	-	-	-	2	**3**	**2**	-
C318.4	-	-	-	-	-	2	-	-	-	-	3	3	**2**	-	**3**
AVg	**3**	**2.33**	**2.66**	**2**	**2.5**	**2**	**-**	**-**	**-**	**-**	**3**	**2.75**	**2.75**	**2.33**	**3**

C319/HS8581-PROFESSIONAL COMMUNICATION															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C319.1	-	2	-	3	-	2	3	-	3	3	3	1	-	-	-
C319.2	-	2	-	3	-	2	3	-	3	3	3	1	-	-	-
C319.3	-	2	-	3	-	1	1	-	1	3	1	1	-	-	-
C319.4	-	2	-	1	-	1	3	2	3	3	3	2	-	-	-
AVg	**-**	**2**	**-**	**2.5**	**-**	**1.5**	**2.5**	**2**	**2.5**	**3**	**2.5**	**1.25**	**-**	**-**	**-**

C401/EC8701-ANTENNAS AND MICROWAVE ENGINEERING															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C401.1	3	-	2	-	-	-	-	-	-	2	-	2	3	3	2

C401.2	2	-	-	-	-	2	-	-	-	2	-	2	3	3	2
C401.3	2	3	-	-	-	2	-	-	-	2	-	2	3	3	2
C401.4	3	3	2	-	-	2	-	-	-	2	-	2	3	3	2
C401.5	-	-	-	-	3	-	-	-	-	2	-	2	3	3	2
AVg	**2.5**	**3**	**0.6**	**-**	**3**	**2**	**-**	**-**	**-**	2	**-**	2	3	3	2

C402/EC8702- AD HOC AND WIRELESS SENSOR NETWORKS															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C402.1	3	-	2	-	-	-	-	-	-	2	-	2	3	3	2
C402.2	2	-	-	-	-	2	-	-	-	2	-	2	3	3	2
C402.3	2	3	-	-	-	2	-	-	-	2	-	2	3	3	2
C402.4	3	3	2	-	-	2	-	-	-	2	-	2	3	3	2
C402.5	-	-	-	-	3	-	-	-	-	2	-	2	3	3	2
AVg	**2.5**	**3**	**0.6**	**-**	**3**	**2**	**-**	**-**	**-**	2	**-**	2	3	3	2

C403/EC8751- OPTICAL COMMUNICATION															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C403.1	3	2	2	2	1	2	-	-	-	-	-	1	2	3	2
C403.2	2	3	2	2	1	1	-	-	-	-	-	1	3	3	2
C403.3	2	2	3	2	2	1	-	-	-	-	-	2	3	3	2
C403.4	2	2	2	3	2	2	-	-	-	-	-	2	2	3	2
C403.5	2	2	3	2	2	2	-	-	-	-	-	2	2	3	2
AVg	**2.2**	**2.2**	**2.4**	**2.2**	**1.6**	**1.6**	**-**	**-**	**-**	**-**	**-**	1.6	2.4	3	2

C404/EC8791- EMBEDDED AND REAL TIME SYSTEMS															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C404.1	3	3	3	2	-	1	-	-	1	-	1	3	3	3	-
C404.2	3	3	3	2	-	-	-	-	-	-	-	2	3	3	-
C404.3	3	3	3	3	-	-	-	-	-	-	-	-	3	1	-
C404.4	3	3	3	2	-	-	-	-	-	-	-	2	2	2	-
C404.5	3	3	3	2	-	1	-	-	1	-	-	1	3	2	-
AVg	**3**	**3**	**3**	**2.2**	**-**	**1**	**-**	**-**	**1**	**-**	**1**	2	2.8	2.2	**-**

C405/ OME754- INDUSTRIAL SAFETY															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C404.1	3	3	3	2	-	1	-	-	1	-	1	3	3	3	-
C404.2	3	3	3	2	-	-	-	-	-	-	-	2	3	3	-
C404.3	3	3	3	3	-	-	-	-	-	-	-	-	3	1	-
C404.4	3	3	3	2	-	-	-	-	-	-	-	2	2	2	-
C404.5	3	3	3	2	-	1	-	-	1	-	-	1	3	2	-
AVg	**3**	**3**	**3**	**2.2**	**-**	**1**	**-**	**-**	**1**	**-**	**1**	2	2.8	2.2	**-**

C406/EC8711-EMBEDDED LABORATORY															
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**

C406.1	-	-	3	-	2	-	2	-	-	2	-	2	3	2	-
C406.2	-	2	2	-	2	-	-	-	-	3	-	2	3	2	-
C406.3	-	3	-	-	2	-	-	-	-	2	-	-	3	3	-
C406.4	-	2	-	-	2	-	-	-	-	3	-	-	3	2	-
C406.5	-	-	2	2	2	-	-	-	-	2	-	3	3	3	-
AVg	-	2	-	-	2	-	-	3	-	2	-	-	3	3	-

C407/EC8761-ADVANCED COMMUNICATION LABORATORY														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C407.1	-	3	-	2	-	-	-	-	-	-	-	-	-	3	-
C407.2	-	3	-	2	-	-	-	-	-	-	-	-	-	3	-
C407.3	-	3	-	2	-	-	-	-	-	-	-	-	-	3	-
C407.4	-	-	2	2	3	-	-	-	-	-	1	-	-	-	2
AVg	-	3	2	2	3	-	-	-	-	-	1	-	-	3	2

C408/ EC8072- ELECTRO MAGNETIC INTERFERENCE AND COMPATIBILITY															
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C408.1	3	2	3	2	2	-	-	-	-	-	-	2	3	2	2
C408.2	2	2	2	-	-	-	-	-	-	-	-	2	3	2	2
C408.3	2	2	2	-	-	2	-	-	-	-	-	2	3	2	2
C408.4	2	2	2	-	2	2	-	-	-	-	2	2	3	2	2
C408.5	3	3	3	2	2	3	-	-	-	-	3	3	3	2	2
AVg	2.4	2.2	2.4	2	2	2.3	-	-	-	-	2.5	2.2	3	2	2

C409/EC8094-SATELLITE COMMUNICATION															
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C409.1	3	3	-	2	-	-	-	-	-	-	-	3	3	1	-
C409.2	3	2	-	-	-	-	-	-	-	-	-	-	3	1	-
C409.3	3	1	2	1	-	-	-	-	-	-	-	-	3	1	-
C409.4	3	2	2	-	-	-	-	-	-	-	-	-	3	1	-
C409.5	-	1	3	-	-	2	2	-	-	3	-	3	3	1	-
AVg	3	1.8	2.33	1.5	-	2	2	-	-	3	-	3	3	1	-

C410/EC8811-PROJECT WORK															
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C410.1	3	3	3	3	3	3	-	-	-	3	3	3	3	3	3
C410.2	-	-	-	-	-	-	-	3	3	-	3	3	3	3	3
C410.3	3	3	3	-	-	3	3	-	-	-	3	3	3	3	3
AVg	3	3	3	3	3	3	-	-	-	3	3	3	3	3	3