

ARASU ENGINEERING COLLEGE, KUMBAKONAM-612501

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING



CO-PO/PSO MAPPING
REGULATIONS: 2021 (U.G)

SUBJECT CODE & NAME : HS3152& PROFESSIONAL ENGLISH I

YEAR / SEM : I / I

COURSE OUTCOMES (COs) : At the end of the course, the students will be able to:

PROFESSIONAL ENGLISH I	
C101.1	Use appropriate words in a professional context
C101.2	Gain understanding of basic grammatic structures and use them in right context.
C101.3	Read and infer the denotative and connotative meanings of technical texts
C101.4	Write definitions, descriptions, narrations and essays on various topics

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C101.1	1	1	1	1	1	3	3	3	1	3	-	3	-	-
C101.2	1	1	1	1	1	3	3	3	1	3	-	3	-	-
C101.3	2	3	2	3	2	3	3	3	2	3	3	3	-	-
C101.4	2	3	2	3	2	3	3	3	2	3	3	3	-	-
C101	1.6	2.2	1.8	2.2	1.5	3	3	3	1.6	3	3	3	-	-
Rounded Off	2	2	2	2	2	3	3	3	2	3	3	3	-	-

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High) ‘-’: No Correlation

SUBJECT CODE & NAME : MA3151 & MATRICES AND CALCULUS

YEAR / SEM : I / I

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

MATRICES AND CALCULUS	
C102.1	Use the matrix algebra methods for solving practical problems.
C102.2	Apply differential calculus tools in solving various application problems.
C102.3	Able to use differential calculus ideas on several variable functions.
C102.4	Apply different methods of integration in solving practical problems
C102.5	Apply multiple integral ideas in solving areas, volumes and other practical problems.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C102.1	3	3	1	1	-	-	-	-	2	-	2	3	2	-
C102.2	3	3	1	1	-	-	-	-	2	-	2	3	2	-
C102.3	3	3	1	1	-	-	-	-	2	-	2	3	2	-
C102.4	3	3	1	1	-	-	-	-	2	-	2	3	2	-
C102.5	3	3	1	1	-	-	-	-	2	-	2	3	2	-
C102	3	3	1	1	-	-	-	-	2	-	2	3	2	-
Rounded Off	3	3	1	1	-	-	-	-	2	-	2	3	2	-

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘ - ‘ : No Correlation

SUBJECT CODE & NAME : PH3151 & ENGINEERING PHYSICS

YEAR / SEM : I / I

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

ENGINEERING PHYSICS	
C103.1	Understand the importance of mechanics.
C103.2	Express their knowledge in electromagnetic waves.
C103.3	Demonstrate a strong foundational knowledge in oscillations, optics and lasers
C103.4	Understand the importance of quantum physics.
C103.5	Comprehend and apply quantum mechanical principles towards the formation of energy bands.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C103.1	3	3	2	1	1	1	-	-	-	-	-	-	-	-
C103.2	3	3	2	1	2	1	-	-	-	-	-	-	-	-
C103.3	3	3	2	2	2	1	-	-	-	-	-	1	-	-
C103.4	3	3	1	1	2	1	-	-	-	-	-	-	-	-
C103.5	3	3	1	1	2	1	-	-	-	-	-	-	-	-
C103	3	3	1.6	1.2	1.8	1	-	-	-	-	-	1	-	-
Rounded Off	3	3	2	1	2	1	-	-	-	-	-	1	-	-

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : CY3151 & ENGINEERING CHEMISTRY

YEAR / SEM : I / I

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

ENGINEERING CHEMISTRY	
C104.1	Infer the quality of water from quality parameter data and propose suitable treatment methodologies to treat water.
C104.2	Identify and apply basic concepts of nanoscience and nanotechnology in designing the synthesis of nonmaterial for engineering and technology applications.
C104.3	Apply the knowledge of phase rule and composites for material selection requirements
C104.4	Recommend suitable fuels for engineering processes and applications
C104.5	Recognize different forms of energy resources and apply them for suitable applications in energy sectors.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C104.1	3	2	2	1	-	1	1	-	-	-	-	1	-	-
C104.2	2	-	-	1	-	2	2	-	-	-	-	-	-	-
C104.3	3	1	-	-	-	-	-	-	-	-	-	-	-	-
C104.4	3	1	1	-	-	1	2	-	-	-	-	-	-	-
C104.5	3	1	2	1	-	2	2	-	-	-	-	2	-	-
C104	2.8	1.3	1.6	1	-	1.5	1.8	-	-	-	-	1.5	-	-
Rounded Off	3	1	2	1	-	2	2	-	-	-	-	2	-	-

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : GE3151 & PROBLEM SOLVING AND PYTHON PROGRAMMING

YEAR / SEM : I / I

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

Problem Solving and Python Programming	
C105.1	Develop algorithmic solutions to simple computational problems.
C105.2	Develop and execute simple Python programs.
C105.3	Write simple Python programs using conditionals and loops for solving problems.
C105.4	Decompose a Python program into functions.
C105.5	Represent compound data using Python lists, tuples, dictionaries etc.
C105.6	Read and write data from/to files in Python programs.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C105.1	3	3	3	3	2	-	-	-	-	-	2	2	3	3
C105.2	3	3	3	3	2	-	-	-	-	-	2	2	3	-
C105.3	3	3	3	3	2	-	-	-	-	-	2	-	3	-
C105.4	2	2	-	2	2	-	-	-	-	-	1	-	3	-
C105.5	1	2	-	-	1	-	-	-	-	-	1	-	2	-
C105.6	2	2	-	-	2	-	-	-	-	-	1	-	2	-
C105	2.2	2.5	3	2.8	1.7	-	-	-	-	-	1.5	2	3	3
Rounded Off	2	3	3	3	2	-	-	-	-	-	2	2	3	3

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : GE3152& HERITAGE OF TAMILS

YEAR / SEM : I / I

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

HERITAGE OF TAMILS	
C106.1	Learn and understand the specialties of Tamil language, early epics of Tamil
C106.2	Learn about the art of painting, sculptures and making of musical instruments
C106.3	Understand the folk arts, sports and games of Tamils
C106.4	Learn and Understand the departmental doctrines of Tamils
C106.5	Understand the contribution of Indian's in Indian liberation war and role of siddha medicine in Indian medicine.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C106.1	-	-	-	-	-	1	-	-	-	-	-	-	-	-
C106.2	-	-	-	-	-	1	-	-	-	-	-	-	-	-
C106.3	-	-	-	-	-	1	-	-	-	-	-	-	-	-
C106.4	-	-	-	-	-	1	-	-	-	-	-	-	-	-
C106.5	-	-	-	-	-	1	-	-	-	-	-	-	-	-
C106	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Rounded Off	-	-	-	-	-	1	-	-	-	-	-	-	-	-

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : GE3171 & Problem Solving and Python Programming Laboratory

YEAR / SEM : I / I

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

Problem Solving and Python Programming Laboratory	
C107.1	Develop algorithmic solutions to simple computational problems
C107.2	Develop and execute simple Python programs.
C107.3	Implement programs in Python using conditionals and loops for solving problems.
C107.4	Deploy functions to decompose a Python program.
C107.5	Process compound data using Python data structures.
C107.6	Utilize Python packages in developing software applications.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C107.1	3	3	3	3	3	-	-	-	-	-	3	2	3	3
C107.2	3	3	3	3	3	-	-	-	-	-	3	2	3	-
C107.3	3	3	3	3	2	-	-	-	-	-	2	-	3	-
C107.4	3	2	-	2	2	-	-	-	-	-	1	-	3	-
C107.5	1	2	-	-	1	-	-	-	-	-	1	-	2	-
C107.6	2	-	-	-	2	-	-	-	-	-	1	-	2	-
C107	2.6	2.6	3	2.8	2.1	-	-	-	-	-	1.8	2	3	3
Rounded Off	3	3	3	3	2	-	-	-	-	-	2	2	3	3

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : BS3171 & Physics and Chemistry Laboratory

YEAR / SEM : I / I

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

Physics Laboratory	
C108.1	Understand the functioning of various physics laboratory equipment
C108.2	Use graphical models to analyze laboratory data.
C108.3	Use mathematical models as a medium for quantitative reasoning and describing physical reality
C108.4	Access, process and analyze scientific information.
C108.5	Solve problems individually and collaboratively.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C108.1	3	2	3	1	1	-	-	-	-	-	-	-	-	-
C108.2	3	3	2	1	1	-	-	-	-	-	-	-	-	-
C108.3	3	2	3	1	1	-	-	-	-	-	-	-	-	-
C108.4	3	3	2	1	1	-	-	-	-	-	-	-	-	-
C108.5	3	2	3	1	1	-	-	-	-	-	-	-	-	-
C108	3	2.4	2.6	1	1	-	-	-	-	-	-	-	-	-
Rounded Off	3	2	3	1	1	-	-	-	-	-	-	-	-	-

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : BS3171 & Physics and Chemistry Laboratory

YEAR / SEM : I / I

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

Chemistry Laboratory	
C108.1	Analyse the quality of water samples with respect to their acidity, alkalinity, hardness and DO.
C108.2	Determine the amount of metal ions through volumetric and spectroscopic techniques
C108.3	Analyse and determine the composition of alloys.
C108.4	Learn simple method of synthesis of nanoparticles.
C108.5	Quantitatively analyse the impurities in solution by electroanalytical techniques.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C108.1	3	-	1	-	-	2	2	-	-	-	-	2	-	-
C108.2	3	1	2	-	-	1	2	-	-	-	-	1	-	-
C108.3	3	2	1	1	-	-	1	-	-	-	-	-	-	-
C108.4	2	1	2	-	-	2	2	-	-	-	-	-	-	-
C108.5	2	1	2	-	1	2	2	-	-	-	-	1	-	-
C108	2.6	1.3	1.6	1	1	1.4	1.8	-	-	-	-	1.3	-	-
Rounded Off	3	1	2	1	1	1	2	-	-	-	-	1	-	-

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : GE3172 & English Laboratory

YEAR / SEM : I / I

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

English Laboratory	
C109.1	Comprehend and listen general as well as complex academic information
C109.2	Listen and understand different points of view in a discussion
C109.3	Speak fluently and accurately in formal and informal communicative contexts
C109.4	Describe products and processes and explain their uses and purposes clearly and accurately
C109.5	Express their opinions effectively in both formal and informal discussions

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C109.1	3	3	3	3	1	3	3	3	3	3	3	3	-	-
C109.2	3	3	3	3	1	3	3	3	3	3	3	3	-	-
C109.3	3	3	3	3	1	3	3	3	3	3	3	3	-	-
C109.4	3	3	3	3	1	3	3	3	3	3	3	3	-	-
C109.5	3	3	3	3	1	3	3	3	3	3	3	3	-	-
C109	3	3	3	3	1	3	3	3	3	3	3	3	-	-
Rounded Off	3	3	3	3	1	3	3	3	3	3	3	3	-	-

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : HS3252& PROFESSIONAL ENGLISH -II

YEAR / SEM : I / II

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

PROFESSIONAL ENGLISH -II	
C110.1	Compare and contrast products and ideas in technical texts
C110.2	Identify and report cause and effects in events, industrial processes through technical texts
C110.3	Analyse problems in order to arrive at feasible solutions and communicate them in the written format.
C110.4	Present their ideas and opinions in a planned and logical manner
C110.5	Draft effective resumes in the context of job search.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C110.1	3	3	3	3	3	3	3	3	2	3	3	3	-	-
C110.2	3	3	3	3	3	3	3	3	2	3	3	3	-	-
C110.3	3	3	3	3	3	3	3	3	2	3	3	3	-	-
C110.4	3	3	3	3	2	3	3	3	2	3	3	3	-	-
C110.5	-	-	-	-	-	-	-	-	3	3	3	3	-	-
C110	3	3	3	3	2.75	3	3	3	2.2	3	3	3	-	-
Rounded Off	3	3	3	3	3	3	3	3	2	3	3	3	-	-

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : MA3251& STATISTICS AND NUMERICAL METHODS

YEAR / SEM : I / II

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

STATISTICS AND NUMERICAL METHODS	
C111.1	Apply the concept of testing of hypothesis for small and large samples in real life problems.
C111.2	Apply the basic concepts of classifications of design of experiments in the field of agriculture.
C111.3	Appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems.
C111.4	Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations.
C111.5	Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C111.1	3	3	1	1	1	-	-	-	2	-	2	3	2	-
C111.2	3	3	1	1	1	-	-	-	2	-	2	3	2	-
C111.3	3	3	1	1	1	-	-	-	2	-	2	3	2	-
C111.4	3	3	1	1	1	-	-	-	2	-	2	3	2	-
C111.5	3	3	1	1	1	-	-	-	2	-	2	3	2	-
C111	3	3	1	1	1	-	-	-	2	-	2	3	2	-
Rounded Off	3	3	1	1	1	-	-	-	2	-	2	3	2	-

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : PH3254 & PHYSICS FOR ELECTRONICS ENGINEERING

YEAR / SEM : I / II

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

PHYSICS FOR ELECTRONICS ENGINEERING	
C112.1	Know basics of crystallography and its importance for varied materials properties
C112.2	Gain knowledge on the electrical and magnetic properties of materials and their applications
C112.3	Understand clearly of semiconductor physics and functioning of semiconductor devices
C112.4	Understand the optical properties of materials and working principles of various optical devices
C112.5	Appreciate the importance of nanotechnology and nanodevices.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C112.1	3	-	1	-	-	-	-	-	-	-	-	-	2	-
C112.2	3	2	1	2	-	2	-	-	-	-	-	-	2	-
C112.3	3	2	2	-	2	-	-	-	-	-	-	-	2	-
C112.4	3	-	1	-	3	-	3	-	-	-	-	1	2	-
C112.5	3	-	2	1	-	2	-	-	-	-	-	1	2	-
C112	3	2	1.4	1.5	2.5	2	3	-	-	-	-	1	2	-
Rounded Off	3	2	1	2	3	2	3	-	-	-	-	1	2	-

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : BE3254 & ELECTRICAL AND INSTRUMENTATION ENGINEERING

YEAR / SEM : I / II

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

ELECTRICAL AND INSTRUMENTATION ENGINEERING	
C113.1	Explain the working principle of electrical machines.
C113.2	Analyze the output characterizes of electrical machines.
C113.3	Choose the appropriate electrical machines for various applications.
C113.4	Explain the types and operating principles of measuring instruments.
C113.5	Explain the basic power system structure and protection schemes.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C113.1	2	1	1	-	-	-	-	1	-	-	-	-	1	-
C113.2	2	1	1	-	-	-	-	1	-	-	-	-	1	-
C113.3	2	1	1	-	-	-	-	1	-	-	-	-	1	-
C113.4	2	1	1	-	-	-	-	1	-	-	-	-	1	-
C113.5	2	1	1	-	-	-	-	1	-	-	-	-	1	-
C113	2	1	1	-	-	-	-	1	-	-	-	-	1	-
Rounded Off	2	1	1	-	-	-	-	1	-	-	-	-	1	-

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : GE3251 & ENGINEERING GRAPHICS

YEAR / SEM : I / II

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

ENGINEERING GRAPHICS	
C114.1	Use BIS conventions and specifications for engineering drawing.
C114.2	Construct the conic curves, involutes and cycloid.
C114.3	Solve practical problems involving projection of lines
C114.4	Draw the orthographic, isometric and perspective projections of simple solids.
C114.5	Draw the development of simple solids.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C114.1	3	1	2	-	2	-	-	-	-	3	-	2	1	-
C114.2	3	1	2	-	2	-	-	-	-	3	-	2	1	-
C114.3	3	1	2	-	2	-	-	-	-	3	-	2	1	-
C114.4	3	1	2	-	2	-	-	-	-	3	-	2	1	-
C114.5	3	1	2	-	2	-	-	-	-	3	-	2	1	-
C114	3	1	2	-	2	-	-	-	-	3	-	2	1	-
Rounded Off	3	1	2	-	2	-	-	-	-	3	-	2	1	-

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : EC3251 & Circuit Analysis

YEAR / SEM : I / II

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

Circuit Analysis	
C115.1	Apply the basic concepts of circuit analysis such as Kirchoff's laws, mesh current and node voltage method for analysis of DC and AC circuits.
C115.2	Apply suitable network theorems and analyze AC and DC circuits
C115.3	Analyze steady state response of any R, L and C circuits
C115.4	Analyze the transient response for any RC, RL and RLC circuits and frequency response of parallel and series resonance circuits.
C115.5	Analyze the coupled circuits and network topologies

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C115.1	3	3	1	1	-	-	-	1	-	1	-	-	2	-
C115.2	3	3	2	2	-	-	-	1	-	1	-	-	2	-
C115.3	3	3	3	3	-	-	-	1	-	1	-	-	2	-
C115.4	3	3	3	3	-	-	-	1	-	1	-	-	2	-
C115.5	3	3	3	2	-	-	-	1	-	1	-	-	2	-
C115	3	3	2.4	2.2	-	-	-	1	-	1	-	-	2	-
Rounded Off	3	3	2	2	-	-	-	1	-	1	-	-	2	-

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : GE3252 & TAMILS AND TECHNOLOGY

YEAR / SEM : I / II

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

TAMILS AND TECHNOLOGY	
C116.1	Gain knowledge about various weaving and pottery technologies
C116.2	Learn and understand the design and construction technologies of temples in sangam age
C116.3	Understand and analyze principles, style and techniques of the different manufacturing technologies
C116.4	Learn and understand the lifestyle, Cultivation and irrigation technologies of chola period
C116.5	Gain knowledge about Tamil laws of science and Tamil digitalization techniques

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C116.1	-	-	1	-	-	1	-	-	-	-	-	-	-	-
C116.2	-	-	1	-	-	1	-	-	-	-	-	-	-	-
C116.3	-	-	1	-	-	1	-	-	-	-	-	-	-	-
C116.4	-	-	1	-	-	1	-	-	-	-	-	-	-	-
C116.5	-	-	1	-	-	1	-	-	-	-	-	-	-	-
C116	-	-	1	-	-	1	-	-	-	-	-	-	-	-
Rounded Off	-	-	1	-	-	1	-	-	-	-	-	-	-	-

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : GE3271 & ENGINEERING PRACTICES LABORATORY

YEAR / SEM : I / II

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

ENGINEERING PRACTICES LABORATORY	
C118.1	Draw pipe line plan; lay and connect various pipe fittings used in common household plumbing work; Saw; plan; make joints in wood materials used in common household wood work.
C118.2	Wire various electrical joints in common household electrical wire work.
C118.3	Weld various joints in steel plates using arc welding work; Machine various simple processes like turning, drilling, tapping in parts; Assemble simple mechanical assembly of common household equipments; Make a tray out of metal sheet using sheet metal work.
C118.4	Solder and test simple electronic circuits; Assemble and test simple electronic components on PCB.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C118.1	3	2	-	-	1	1	1	-	-	-	-	2	1	-
C118.2	3	2	-	-	1	1	1	-	-	-	-	2	1	-
C118.3	3	2	-	-	1	1	1	-	-	-	-	2	1	-
C118.4	3	2	-	-	1	1	1	-	-	-	-	2	1	-
C118	3	2	-	-	1	1	1	-	-	-	-	2	1	-
Rounded Off	3	2	-	-	1	1	1	-	-	-	-	2	1	-

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : EC3271 & CIRCUIT ANALYSIS LABORATORY

YEAR / SEM : I / II

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

CIRCUIT ANALYSIS LABORATORY	
C119.1	Design RL and RC circuits.
C119.2	Verify Thevenin & Norton theorem Theorems.
C119.3	Verify KVL & KCL
C119.4	Verify Super Position Theorem.
C119.5	Verify Maximum Power Transfer Theorem.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1 0	PO1 1	PO1 2	PSO1	PSO2
C119.1	3	2	1	1	-	-	-	1	-	1	-	-	3	-
C119.2	3	3	2	2	-	-	-	1	-	1	-	-	3	-
C119.3	3	3	3	3	-	-	-	1	-	1	-	-	3	-
C119.4	3	3	3	3	-	-	-	1	-	1	-	-	3	-
C119.5	3	3	3	2	-	-	-	1	-	1	-	-	3	-
C119	3	2.8	2.4	2.2	-	-	-	1	-	1	-	-	3	-
Rounded Off	3	3	2	2	-	-	-	1	-	1	-	-	3	-

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High) ‘-’: No Correlation

SUBJECT CODE & NAME : GE3272 & COMMUNICATION LABORATORY

YEAR / SEM : I / II

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

COMMUNICATION LABORATORY	
C120.1	Speak effectively in group discussions held in formal/semi formal contexts
C120.2	Discuss, analyze and present concepts and problems from various perspectives to arrive at suitable solutions
C120.3	Write emails, letters and effective job applications
C120.4	Write critical reports to convey data and information with clarity and precision
C120.5	Give appropriate instructions and recommendations for safe execution of tasks

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C120.1	2	3	3	3	1	3	3	3	3	3	3	3	-	-
C120.2	2	3	3	3	1	3	3	3	3	3	3	3	-	-
C120.3	2	2	3	3	1	3	3	3	3	3	3	3	-	-
C120.4	3	3	3	3	1	3	3	3	3	3	3	3	-	-
C120.5	3	3	3	3	1	3	3	3	3	3	3	3	-	-
C120	2.4	2.8	3	3	1	3	3	3	3	3	3	3	-	-
Rounded Off	2	3	3	3	1	3	3	3	3	3	3	3	-	-

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High) '-': No Correlation

SUBJECT CODE & NAME : MA3355 & RANDOM PROCESSES AND LINEAR ALGEBRA

YEAR / SEM : II / III

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

RANDOM PROCESSES AND LINEAR ALGEBRA	
C201.1	Explain the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts.
C201.2	Demonstrate accurate and efficient use of advanced algebraic techniques
C201.3	Apply the concept of random processes in engineering disciplines
C201.4	Understand the fundamental concepts of probability with a thorough knowledge of standard distributions that can describe certain real-life phenomenon.
C201.5	Understand the basic concepts of one and two dimensional random variables and apply them to model engineering problems.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C201.1	3	3	-	-	-	-	-	-	3	-	-	2	2	-
C201.2	3	3	-	-	-	-	-	-	3	-	-	2	2	-
C201.3	3	3	-	-	-	-	-	-	3	-	-	2	2	-
C201.4	3	3	-	-	-	-	-	-	3	-	-	2	2	-
C201.5	3	3	-	-	-	-	-	-	3	-	-	2	2	-
C201	3	3	-	-	-	-	-	-	3	-	-	2	2	-
Rounded Off	3	3	-	-	-	-	-	-	3	-	-	2	2	-

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : CS3353 & C PROGRAMMING AND DATA STRUCTURES

YEAR / SEM : II / III

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

C PROGRAMMING AND DATA STRUCTURES	
C202.1	Apply advanced features of C in solving problems.
C202.2	Write functions to implement linear and non-linear data structure operations.
C202.3	Suggest and use appropriate linear/non-linear data structure operations for solving a given problem
C202.4	Appropriately use sort and search algorithms for a given application.
C202.5	Apply appropriate hash functions that result in a collision free scenario for data storage and retrieval.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C202.1	2	3	1	2	2	1	1	-	1	2	1	3	-	1
C202.2	1	2	1	2	2	-	-	-	1	1	1	2	-	1
C202.3	2	3	1	1	3	-	-	-	1	1	1	2	-	1
C202.4	2	1	-	2	1	-	-	-	2	1	1	2	-	1
C202.5	1	2	1	2	2	1	1	-	1	2	1	3	-	1
C202	1.6	2.1	1	1.8	2	1	1	-	1.1	1.3	1	2.6	-	1
Rounded Off	2	2	1	2	2	1	1	-	1	1	1	3	-	1

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : EC3354& SIGNALS AND SYSTEMS

YEAR / SEM : II / III

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

SIGNALS AND SYSTEMS	
C203.1	Determine if a given system is linear/causal/stable
C203.2	Determine the frequency components present in a deterministic signal
C203.3	Characterize continuous LTI systems in the time domain and frequency domain
C203.4	Characterize discrete LTI systems in the time domain and frequency domain
C203.5	Compute the output of an LTI system in the time and frequency domains

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1 0	PO1 1	PO1 2	PSO1	PSO2
C203.1	3	-	3	-	3	2	-	-	-	-	-	3	3	1
C203.2	3	-	3	-	-	2	-	-	-	-	-	3	3	1
C203.3	3	3	-	-	3	2	-	-	-	-	-	3	3	1
C203.4	3	3	-	-	3	2	-	-	-	-	-	3	3	1
C203.5	3	3	-	3	3	2	-	-	-	-	-	3	3	1
C203	3	3	3	3	3	2	-	-	-	-	-	3	3	1
Rounded Off	3	3	3	3	3	2	-	-	-	-	-	3	3	1

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : EC3353 & ELECTRONIC DEVICES AND CIRCUITS

YEAR / SEM : II / III

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

ELECTRONIC DEVICES AND CIRCUITS	
C204.1	Explain the structure and working operation of basic electronic devices.
C204.2	Design and analyze amplifiers.
C204.3	Analyze frequency response of BJT and MOSFET amplifiers
C204.4	Design and analyze feedback amplifiers and oscillator principles.
C204.5	Design and analyze power amplifiers and supply circuits

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C204.1	3	3	3	3	2	1	-	-	-	-	-	1	2	1
C204.2	3	2	2	3	2	2	-	-	-	-	-	1	2	1
C204.3	3	3	3	2	1	2	-	-	-	-	-	1	2	1
C204.4	3	3	2	3	2	2	-	-	-	-	-	1	2	1
C204.5	3	2	3	2	2	1	-	-	-	-	-	1	2	1
C204	3	2.6	2.6	2.6	1.8	1.6	-	-	-	-	-	1	2	1
Rounded Off	3	3	3	3	2	2	-	-	-	-	-	1	2	1

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High) '-': No Correlation

SUBJECT CODE & NAME : EC3351 & CONTROL SYSTEMS

YEAR / SEM : II / III

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

CONTROL SYSTEMS	
C205.1	Compute the transfer function of different physical systems
C205.2	Analyse the time domain specification and calculate the steady state error
C205.3	Illustrate the frequency response characteristics of open loop and closed loop system response.
C205.4	Analyse the stability using Routh and root locus techniques.
C205.5	Illustrate the state space model of a physical system and discuss the concepts of sampled data control system.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C205.1	3	3	3	2	2	2	-	-	-	-	2	3	-	-
C205.2	3	3	3	3	2	3	-	-	-	-	2	2	-	-
C205.3	3	2	3	3	2	2	-	-	-	-	2	3	-	-
C205.4	3	3	3	2	2	2	-	-	-	-	2	2	-	-
C205.5	2	2	3	3	2	3	-	-	-	-	2	3	-	-
C205	2.8	2.6	3	2.6	2	2.2	-	-	-	-	2	2.6	-	-
Rounded Off	3	3	3	3	2	2	-	-	-	-	2	3	-	-

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

0: No Correlation

Prepared By

Approved BY

SUBJECT CODE & NAME : EC3352& DIGITAL SYSTEMS DESIGN

YEAR / SEM : II / III

COURSE OUTCOMES (COs):

DIGITAL SYSTEMS DESIGN	
C206.1	Use Boolean algebra and simplification procedures relevant to digital logic.
C206.2	Design various combinational digital circuits using logic gates.
C206.3	Analyse and design synchronous sequential circuits
C206.4	Analyse and design asynchronous sequential circuits.
C206.5	Build logic gates and use programmable devices.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C206.1	3	2	2	2	-	2	-	-	-	-	3	3	3	2
C206.2	-	-	-	-	-	-	-	-	-	-	2	1	3	2
C206.3	-	3	3	2	-	2	-	-	-	-	2	2	3	2
C206.4	-	-	-	-	-	-	-	-	-	-	3	2	3	2
C206.5	-	3	3	3	-	-	-	-	-	-	2	2	3	2
C206	3	2.6	2.6	2.3	-	2	-	-	-	-	2.4	2	3	2
Rounded Off	3	3	3	2	-	2	-	-	-	-	2	2	3	2

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : EC3361 & ELECTRONIC DEVICES AND CIRCUITS LABORATORY

YEAR / SEM : II / III

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

ELECTRONIC DEVICES AND CIRCUITS LABORATORY	
C207.1	Characteristics of PN Junction Diode and Zener diode.
C207.2	Design and Testing of BJT and MOSFET amplifiers.
C207.3	Analyse, design and Operation of power amplifiers.
C207.4	Analyse, design and Operation of Differential Amplifier
C207.5	Analyse, design and Operation of Transformer Coupled Power Amplifier.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C207.1	2	2	3	3	2	1	-	-	-	-	-	1	3	1
C207.2	2	2	3	3	2	1	-	-	-	-	-	1	3	1
C207.3	2	-	2	-	1	1	-	-	-	-	-	1	3	1
C207.4	-	-	-	-	3	1	-	-	-	-	-	1	3	1
C207.5	-	-	-	-	2	1	-	-	-	-	-	1	3	1
C207	2	2	2.6	3	2	1	-	-	-	-	-	1	3	1
Rounded Off	2	2	3	3	2	1	-	-	-	-	-	1	3	1

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : CS3362 & C PROGRAMMING AND DATA STRUCTURES LABORATORY

YEAR / SEM : II / III

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

C PROGRAMMING AND DATA STRUCTURES LABORATORY	
C208.1	Use different constructs of C and develop applications.
C208.2	Write functions to implement linear and non-linear data structure operations.
C208.3	Suggest and use the appropriate linear / non-linear data structure operations for a given problem.
C208.4	Apply appropriate hash functions that result in a collision free scenario for data storage and Retrieval.
C208.5	Implement Sorting and searching algorithms for a given application.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C208.1	2	3	1	2	2	1	1	-	1	2	1	3	-	-
C208.2	1	2	1	2	2	-	-	-	1	1	1	2	-	-
C208.3	2	3	1	2	3	-	-	-	1	1	1	2	-	-
C208.4	2	1	-	1	1	-	-	-	2	1	1	2	-	-
C208.5	1	2	1	2	2	1	1	-	1	2	1	3	-	-
C208	1.6	2.2	1	1.8	2	1	1	-	1.2	1.4	1	2.4	-	-
Rounded Off	2	2	1	2	2	1	1	-	1	1	1	2	-	-

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : GE3361 & PROFESSIONAL DEVELOPMENT

YEAR / SEM : II / III

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

PROFESSIONAL DEVELOPMENT	
C209.1	Use MS Word to create quality documents, by structuring and organizing content for their day to day technical and academic requirements.
C209.2	Use MS EXCEL to perform data operations and analytics, record, retrieve data as per requirements and visualize data for ease of understanding
C209.3	Use MS PowerPoint to create high quality academic presentations by including common tables, charts, graphs, interlinking other elements, and using media objects.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C209.1														
C209.2														
C209.3														
C209														
Rounded Off														

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : EC3452& ELECTROMAGNETIC FIELDS

YEAR / SEM : II / IV

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

ELECTROMAGNETIC FIELDS	
C210.1	Relate the fundamentals of vector, coordinate system to electromagnetic concepts
C210.2	Analyze the characteristics of Electrostatic field
C210.3	Interpret the concepts of Electric field in material space and solve the boundary conditions
C210.4	Explain the concepts and characteristics of Magneto Static field in material space and solve boundary conditions.
C210.5	Determine the significance of time varying fields.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C210.1	2	1	1	1	-	2	1	-	-	1	-	2	2	1
C210.2	2	2	3	3	2	2	2	-	-	1	1	2	3	1
C210.3	2	2	3	2	2	2	1	-	-	1	1	2	3	1
C210.4	2	2	3	2	2	2	1	-	-	1	1	2	3	1
C210.5	2	2	2	2	2	2	1	-	-	2	2	1	2	1
C210	2	1.8	2.4	2	2	2	1.2	-	-	1.2	1.2	1.8	2.6	1
Rounded Off	2	2	2	2	2	2	1	-	-	1	1	2	3	1

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

“-”: No Correlation

SUBJECT CODE & NAME : EC3401& NETWORKS AND SECURITY

YEAR / SEM : II / IV

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

NETWORKS AND SECURITY	
C211.1	Explain the Network Models, layers and functions.
C211.2	Categorize and classify the routing protocols.
C211.3	List the functions of the transport and application layer.
C211.4	Evaluate and choose the network security mechanisms
C211.5	Discuss the hardware security attacks and countermeasures.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C211.1	3	2	1	1	-	1	-	-	-	2	1	1	-	-
C211.2	3	2	1	1	-	1	-	-	-	2	1	1	-	-
C211.3	3	2	2	2	2	1	-	-	-	2	1	1	-	-
C211.4	3	1	1	-	-	1	-	-	-	2	1	1	-	-
C211.5	3	1	1	-	-	1	-	-	-	2	1	1	-	-
C211	3	1.6	1.2	1.3	2	1	-	-	-	2	1	1	-	-
Rounded Off	3	2	1	1	2	1	-	-	-	2	1	1	-	-

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : EC3451& LINEAR INTEGRATED CIRCUITS

YEAR / SEM : II / IV

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

Linear Integrated Circuits	
C212.1	Design linear and nonlinear applications of OP – AMPS
C212.2	Design applications using analog multiplier and PLL
C212.3	Design ADC and DAC using OP – AMPS
C212.4	Generate waveforms using OP – AMP Circuits
C212.5	Analyze special function ICs

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C212.1	2	-	-	-	-	-	-	-	-	-	1	-	2	1
C212.2	2	3	3	2	-	-	-	-	-	-	-	-	2	1
C212.3	1	-	-	2	-	-	-	-	-	-	-	-	2	1
C212.4	1	-	-	2	-	-	-	-	-	-	-	-	2	1
C212.5	1	2	3	3	-	-	-	-	-	-	-	3	2	1
C212	1.4	2.5	3	2.2	-	-	-	-	-	-	1	3	2	1
Rounded Off	1	3	3	2	-	-	-	-	-	-	1	3	2	1

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High) ‘-’: No Correlation

SUBJECT CODE & NAME : EC3492& DIGITAL SIGNAL PROCESSING

YEAR / SEM : II / IV

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

DIGITAL SIGNAL PROCESSING	
C213.1	Apply DFT for the analysis of digital signals and systems
C213.2	Design IIR and FIR filters
C213.3	Characterize the effects of finite precision representation on digital filters
C213.4	Design multirate filters
C213.5	Apply adaptive filters appropriately in communication systems

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C213.1	3	3	3	3	2	2	-	-	-	-	1	1	3	3
C213.2	3	3	3	3	2	2	-	-	-	-	1	1	2	3
C213.3	3	3	2	2	2	2	-	-	-	-	1	1	1	3
C213.4	3	3	2	2	3	1	-	-	-	-	1	1	2	3
C213.5	3	2	2	2	3	2	-	-	-	-	1	1	2	3
C213	3	2.8	2.4	2.4	2.4	1.8	-	-	-	-	1	1	2	3
Rounded Off	3	3	2	2	2	2	-	-	-	-	1	1	2	3

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : EC3491& COMMUNICATION SYSTEMS

YEAR / SEM : II / IV

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

COMMUNICATION SYSTEMS	
C214.1	Gain knowledge in amplitude modulation techniques
C214.2	Understand the concepts of Random Process to the design of communication systems
C214.3	Gain knowledge in digital techniques
C214.4	Gain knowledge in sampling and quantization
C214.5	Understand the importance of demodulation techniques

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C214.1	3	3	3	3	2	1	1	-	-	-	1	1	2	1
C214.2	3	3	3	3	2	1	1	-	-	-	1	1	2	1
C214.3	3	3	3	3	3	1	1	-	-	-	1	1	2	1
C214.4	3	3	3	3	3	1	1	-	-	-	1	1	2	1
C214.5	3	3	3	3	2	1	1	-	-	-	1	1	2	1
C214	3	3	3	3	2.4	1	1	-	-	-	1	1	2	1
Rounded Off	3	3	3	3	2	1	1	-	-	-	1	1	2	1

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : GE3451 & ENVIRONMENTAL SCIENCES AND SUSTAINABILITY

YEAR / SEM : II / IV

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

ENVIRONMENTAL SCIENCES AND SUSTAINABILITY	
C215.1	Recognize and understand the functions of environment, ecosystems and biodiversity and their conservation.
C215.2	Identify the causes, effects of environmental pollution and natural disasters and contribute to the preventive measures in the society.
C215.3	Identify and apply the understanding of renewable and non-renewable resources and contribute to the sustainable measures to preserve them for future generations.
C215.4	Recognize the different goals of sustainable development and apply them for suitable technological advancement and societal development.
C215.5	Demonstrate the knowledge of sustainability practices and identify green materials, energy cycles and the role of sustainable urbanization.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C215.1	2	1	-	-	-	2	3	-	-	-	-	2	-	-
C215.2	3	2	-	-	-	3	3	-	-	-	-	2	-	-
C215.3	3	-	1	-	-	2	2	-	-	-	-	2	-	-
C215.4	3	2	1	1	-	2	2	-	-	-	-	2	-	-
C215.5	3	2	1	-	-	2	2	-	-	-	-	1	-	-
C215	2.8	1.8	1	1	-	2.2	2.4	-	-	-	-	1.8	-	-
Rounded Off	3	2	1	1	-	2	2	-	-	-	-	2	-	-

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : EC3461 & COMMUNICATION SYSTEMS LABORATORY

YEAR / SEM : II / IV

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

COMMUNICATION SYSTEMS LABORATORY	
C216.1	Design AM, FM & Digital Modulators for specific applications.
C216.2	Compute the sampling frequency for digital modulation.
C216.3	Simulate & validate the various functional modules of Communication system.
C216.4	Demonstrate their knowledge in base band signaling schemes through implementation of digital modulation schemes.
C216.5	Apply various channel coding schemes & demonstrate their capabilities towards the improvement of the noise performance of Communication system.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C216.1	3	3	3	3	3	3	-	-	-	1	1	1	2	1
C216.2	3	3	3	3	3	2	-	-	-	1	1	1	2	1
C216.3	3	3	3	3	3	2	-	-	-	1	1	1	2	1
C216.4	3	3	3	3	3	3	-	-	-	1	1	1	2	1
C216.5	3	3	3	3	3	2	-	-	-	1	1	1	2	1
C216	3	3	3	3	3	2.5	-	-	-	1	1	1	2	1
Rounded Off	3	3	3	3	3	3	-	-	-	1	1	1	2	1

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : EC3462& LINEAR INTEGRATED CIRCUITS LABORATORY

YEAR / SEM : II / IV

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

LINEAR INTEGRATED CIRCUITS LABORATORY	
C217.1	Analyze various types of feedback amplifiers
C217.2	Design oscillators, tuned amplifiers, wave-shaping circuits and multivibrators
C217.3	Design and simulate feedback amplifiers, oscillators, tuned amplifiers, wave- shaping circuits and multivibrators, filters usingSPICE Tool.
C217.4	Design amplifiers, oscillators, D-A converters using operational amplifiers.
C217.5	Design filters using op-amp and perform an experiment on frequency response.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C217.1	2	3	3	3	-	-	-	-	-	-	1	1	2	1
C217.2	2	3	3	3	-	-	-	-	-	-	1	1	2	1
C217.3	2	3	3	3	-	-	-	-	-	-	1	1	2	1
C217.4	2	3	3	3	2	-	-	-	-	-	1	1	2	1
C217.5	-	-	-	-	-	-	-	-	-	-	-	-	2	1
C217	2	3	3	3	2	-	-	-	-	-	1	1	2	1
Rounded Off	2	3	3	3	2	-	-	-	-	-	1	1	2	1

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : EC3501 & WIRELESS COMMUNICATION

YEAR / SEM : III / V

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

WIRELESS COMMUNICATION	
C301.1	Understand The Concept and Design Of A Cellular System.
C301.2	Understand Mobile Radio Propagation and Various Digital Modulation Techniques.
C301.3	Understand The Concepts of Multiple Access Techniques and Wireless Networks
C301.4	Characterize a wireless channel and evolve the system design specifications
C301.5	Design a cellular system based on resource availability and traffic demands.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C301.1	3	2	2	3	3	1	-	-	-	-	-	1	3	2
C301.2	3	3	2	1	3	2	-	-	-	-	-	-	3	2
C301.3	3	3	3	3	2	2	-	-	-	-	-	1	3	2
C301.4	2	3	2	2	2	2	-	-	-	-	-	1	3	2
C301.5	2	-	3	3	2	1	-	-	-	-	-	1	3	2
C301	2.6	2.8	2.6	2.6	2.4	1.6	-	-	-	-	-	1	3	2
Rounded Off	3	3	3	3	2	2	-	-	-	-	-	1	3	2

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : EC3552 & VLSI AND CHIP DESIGN

YEAR / SEM : III / V

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

VLSI AND CHIP DESIGN	
C302.1	In depth knowledge of MOS technology
C302.2	Understand Combinational Logic Circuits and Design Principles
C302.3	Understand Sequential Logic Circuits and Clocking Strategies
C302.4	Understand Memory architecture and building blocks
C302.5	Understand the ASIC Design Process and Testing.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C302.1	1	1	-	-	-	-	-	-	-	-	-	-	2	3
C302.2	2	2	3	2	-	-	-	-	-	-	-	1	2	3
C302.3	3	3	2	3	1	1	-	-	-	-	-	2	2	3
C302.4	-	-	1	1	-	-	-	-	-	-	-	3	2	3
C302.5	-	-	-	-	-	2	-	-	-	-	1	-	2	3
C302	2	2	2	2	1	1.5	-	-	-	-	1	2	2	3
Rounded Off	2	2	2	2	1	2	-	-	-	-	1	2	2	3

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : EC3551& TRANSMISSION LINES AND RF SYSTEMS

YEAR / SEM : III / V

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

TRANSMISSION LINES AND RF SYSTEMS	
C303.1	Explain the characteristics of transmission lines and its losses.
C303.2	Calculate the standing wave ratio and input impedance in high frequency transmission lines.
C303.3	Analyze impedance matching by stubs using Smith Charts.
C303.4	Comprehend the characteristics of TE and TM waves.
C303.5	: Design a RF transceiver system for wireless communication

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C303.1	3	3	3	3	2	1	-	-	-	1	-	1	2	1
C303.2	3	2	2	3	2	1	-	-	-	1	-	1	2	1
C303.3	3	3	3	2	1	2	-	-	-	1	-	1	2	1
C303.4	3	3	2	3	2	1	-	-	-	1	-	1	2	1
C303.5	3	2	3	2	2	1	-	-	-	1	-	1	2	1
C303	3	2.6	2.6	2.6	1.8	1.2	-	-	-	1	-	1	2	1
Rounded Off	3	3	3	3	2	1	-	-	-	1	-	1	2	1

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : CEC345& OPTICAL COMMUNICATION & NETWORKS

YEAR / SEM : III / V

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

OPTICAL COMMUNICATION & NETWORKS	
C304A _{8.1}	Realize Basic Elements in Optical Fibers, Different Modes and Configurations.
C304A _{8.2}	Analyze The Transmission Characteristics Associated with Dispersion and Polarization Techniques.
C304A _{8.3}	Design Optical Sources and Detectors with Their Use in Optical Communication System.
C304A _{8.4}	Construct Fiber Optic Receiver Systems, Measurements and Techniques.
C304A _{8.5}	Design Optical Communication Systems and Its Networks.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C304A _{8.1}	3	3	2	3	3	1	-	-	-	-	-	1	3	2
C304A _{8.2}	3	3	2	1	3	2	-	-	-	-	-	2	3	2
C304A _{8.3}	3	3	3	3	2	1	-	-	-	-	-	1	3	2
C304A _{8.4}	3	3	2	2	2	1	-	-	-	-	-	1	3	2
C304A _{8.5}	3	3	3	3	2	1	-	-	-	-	-	1	3	2
C304A ₈	3	3	2.4	2.4	2.4	1.4	-	-	-	-	-	1.4	3	2
Rounded Off	3	3	2	2	2	1	-	-	-	-	-	1	3	2

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : CBM352 & HUMAN ASSIST DEVICES

YEAR / SEM : III / V

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

HUMAN ASSIST DEVICES	
C305B _{4.1}	Realize Basic Elements in Optical Fibers, Different Modes and Configurations.
C305B _{4.2}	Analyze The Transmission Characteristics Associated with Dispersion and Polarization Techniques.
C305B _{4.3}	Design Optical Sources and Detectors with Their Use in Optical Communication System.
C305B _{4.4}	Construct Fiber Optic Receiver Systems, Measurements and Techniques.
C305B _{4.5}	Design Optical Communication Systems and Its Networks.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1 0	PO1 1	PO1 2	PSO1	PSO2
C305B_{4.1}	3	3	2	3	3	1	-	-	-	-	-	1	3	2
C305B_{4.2}	3	3	2	1	3	2	-	-	-	-	-	2	3	2
C305B_{4.3}	3	3	3	3	2	1	-	-	-	-	-	1	3	2
C305B_{4.4}	3	3	2	2	2	1	-	-	-	-	-	1	3	2
C305B_{4.5}	3	3	3	3	2	1	-	-	-	-	-	1	3	2
C305B₄	3	3	2.4	2.4	2.4	1.4	-	-	-	-	-	1.4	3	2
Rounded Off	3	3	2	2	2	1	-	-	-	-	-	1	3	2

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : CEC352 & SATELLITE COMMUNICATION

YEAR / SEM : III / V

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

SATELLITE COMMUNICATION	
C306D7.1	Identify the satellite orbits
C306D7.2	Analyze the satellite subsystems
C306D7.3	Evaluate the satellite link power budget
C306D7.4	Identify access technology for satellite
C306D7.5	Design various satellite applications

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1 0	PO1 1	PO1 2	PSO1	PSO2
C306D7.1	3	3	3	3	2	3	1	1	-	1	-	1	3	3
C306D7.2	3	2	2	3	2	3	-	-	-	-	-	1	3	3
C306D7.3	3	3	3	2	1	3	-	-	-	-	-	1	3	3
C306D7.4	3	3	2	3	2	3	-	-	-	-	-	1	3	3
C306D7.5	3	2	3	2	2	1	-	-	-	-	-	1	3	3
C306D7	3	2.6	2.6	2.6	1.8	2.6	1	1	-	1	-	1	3	3
Rounded Off	3	3	3	3	2	3	1	1	-	1	-	1	3	3

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : MX3084 & DISASTER RISK REDUCTION AND MANAGEMENT

YEAR / SEM : III / V

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

DISASTER RISK REDUCTION AND MANAGEMENT	
C307.1	Impart knowledge on the concepts of Disaster, Vulnerability and Disaster Risk reduction (DRR).
C307.2	Enhance understanding on Hazards, Vulnerability and Disaster Risk Assessment prevention and risk reduction.
C307.3	Develop disaster response skills by adopting relevant tools and technology.
C307.4	Enhance awareness of institutional processes for Disaster response in the country.
C307.5	Develop rudimentary ability to respond to their surroundings with potential

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C307.1	3	3	2	3	-	-	2	2	-	-	2	-	2	-
C307.2	3	3	3	3	-	-	2	1	-	-	2	-	2	-
C307.3	3	3	3	3	-	-	2	2	-	-	-	-	2	-
C307.4	3	3	2	3	-	-	2	1	-	-	2	-	2	-
C307.5	3	3	2	3	-	-	2	2	-	-	2	-	3	-
C307	3	3	2.4	3	-	-	2	1.6	-	-	1.6	-	2.2	-
Rounded Off	3	3	2	3	-	-	2	2	-	-	2	-	2	-

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : CEC369& IOT PROCESSORS

YEAR / SEM : III / V

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

IOT PROCESSORS	
C304A _{6.1}	Explain the architecture and features of ARM.
C304A _{6.2}	List the concepts of exception handling
C304A _{6.3}	Write a program using ARM CORTEX M3/M4.
C304A _{6.4}	Learn the architecture of STM32L15XXX ARM CORTEX M3/M4.
C304A _{6.5}	Design an SoC for any application

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C304A _{6.1}	3	3	3	2	2	2	-	-	-	-	-	3	3	3
C304A _{6.2}	3	3	3	3	2	2	-	-	-	-	-	2	3	3
C304A _{6.3}	3	3	3	3	2	2	-	-	-	-	-	2	2	3
C304A _{6.4}	3	3	2	2	2	2	-	-	-	-	-	2	2	3
C304A _{6.5}	3	3	2	2	2	1	-	-	-	-	-	3	3	3
C304A ₆	3	3	2.6	2.4	2	1.8	-	-	-	-	-	2.4	2.6	3
Rounded Off	3	3	3	2	2	2	-	-	-	-	-	2	3	3

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : CEC339 & FUNDAMENTALS OF NANO ELECTRONICS

YEAR / SEM : III / V

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

FUNDAMENTALS OF NANO ELECTRONICS	
C305F _{6.1}	Understand the basics of nano electronics including quantum wires, dots and wells.
C305F _{6.2}	Use the mechanism behind quantum electronic devices.
C305F _{6.3}	Understand the mechanism in nano electronic transistors.
C305F _{6.4}	Analyze the key performance aspects of tunneling and superconducting nano electronic devices.
C305F _{6.5}	Apply the knowledge in the development of nanotubes and nanostructure devices.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C305F _{6.1}	3	3	2	2	2	1	-	-	-	-	-	2	2	3
C305F _{6.2}	3	3	3	2	2	2	-	-	-	-	-	2	3	3
C305F _{6.3}	3	3	3	2	2	2	-	-	-	-	-	2	3	3
C305F _{6.4}	3	3	2	2	2	2	-	-	-	-	-	2	3	3
C305F _{6.5}	3	3	3	3	3	3	-	-	-	-	-	2	3	3
C305F ₆	3	3	2.6	2.2	2.2	1.8	-	-	-	-	-	2	2.8	3
Rounded Off	3	3	3	2	2	2	-	-	-	-	-	2	3	3

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : CEC354 & SOFTWARE DEFINED NETWORKS

YEAR / SEM : III / V

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

SOFTWARE DEFINED NETWORKS	
C306D_{8.1}	Describe the motivation behind SDN and its data plane .
C306D_{8.2}	Identify the functions of control plane.
C306D_{8.3}	Apply SDN to networking applications.
C306D_{8.4}	Apply various operations of network function virtualization.
C306D_{8.5}	Explain various use cases of SDN.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C306D_{7.1}	3	3	3	3	3	2	-	-	-	-	-	3	3	3
C306D_{7.2}	3	3	3	2	2	2	-	-	-	-	-	3	3	3
C306D_{7.3}	3	3	3	3	1	2	-	-	-	-	-	3	3	3
C306D_{7.4}	2	3	3	2	2	1	-	-	-	-	-	2	2	3
C306D_{7.5}	3	3	2	2	2	1	-	-	-	-	-	2	2	3
C306D₇	2.8	3	2.8	2.4	2	1.6	-	-	-	-	-	2.6	2.6	3
Rounded Off	3	3	3	2	2	2	-	-	-	-	-	3	3	3

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : EC3561 & VLSI LABORATORY

YEAR / SEM : III / V

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

VLSI LABORATORY	
C308.1	Write HDL code for basic as well as advanced digital integrated circuit
C308.2	Import the logic modules into FPGA Boards
C308.3	Synthesize Place and Route the digital Ips
C308.4	Design, Simulate and Extract the layouts of Digital & Analog IC Blocks using EDA tools.
C308.5	Test and Verification of IC design.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C308.1	2	-	-	-	-	-	-	-	-	-	-	-	2	3
C308.2	3	3	1	1	-	-	-	-	-	-	-	-	2	3
C308.3	1	2	2	2	-	-	-	-	-	-	1	1	2	3
C308.4	-	1	3	3	1	-	-	-	-	-	1	1	2	3
C308.5	3	3	3	3	1	-	-	-	-	-	1	1	2	3
C308	2.2	2.2	2.2	2.2	1	-	-	-	-	-	1	1	2	3
Rounded Off	2	2	2	2	1	-	-	-	-	-	1	1	2	3

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : ET3491 & EMBEDDED SYSTEMS AND IOT DESIGN

YEAR / SEM : III / VI

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

EMBEDDED SYSTEMS AND IOT DESIGN	
C309.1	Explain the architecture and features of 8051
C309.2	Develop a model of an embedded system.
C309.3	List the concepts of real time operating systems.
C309.4	Learn the architecture and protocols of IoT.
C309.5	Design an IoT based system for any application.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C309.1	3	3	3	2	2	-	-	-	-	-	-	-	3	3
C309.2	3	3	3	2	2	-	-	-	-	-	-	-	3	3
C309.3	3	3	2	2	2	-	-	-	-	-	-	-	2	3
C309.4	3	3	2	2	2	-	-	-	-	-	-	-	3	3
C309.5	3	3	3	3	3	-	-	-	-	-	-	-	3	3
C309	3	3	2.6	2.2	2.2	-	-	-	-	-	-	-	2.8	3
Rounded Off	3	3	3	2	2	-	-	-	-	-	-	-	3	3

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : CS3491 & ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

YEAR / SEM : III / VI

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING	
C310.1	Use appropriate search algorithms for problem solving
C310.2	Apply reasoning under uncertainty
C310.3	Build supervised learning models
C310.4	Build ensembling and unsupervised models
C310.5	Build deep learning neural network models

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C310.1	3	2	2	3	1	3	2	-	-	-	-	1	2	3
C310.2	3	2	2	3	1	3	2	-	-	-	-	1	1	3
C310.3	1	2	1	3	2	3	2	-	-	-	-	1	2	3
C310.4	1	2	3	1	3	3	2	-	-	-	-	1	1	3
C310.5	2	2	2	-	3	3	2	-	-	-	-	1	2	3
C310	2	2	2	2	2	3	2	-	-	-	-	1	1.6	3
Rounded Off	2	2	2	2	2	3	2	-	-	-	-	1	2	3

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : CEC365 & WIRELESS SENSOR NETWORK DESIGN

YEAR / SEM : III / VI

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

WIRELESS SENSOR NETWORK DESIGN	
C311C _{6.1}	Design solutions for WSNs applications
C311C _{6.2}	Develop efficient MAC and Routing Protocols
C311C _{6.3}	Design solutions for 6LOWPAN applications
C311C _{6.4}	Develop efficient layered protocols in 6LOWPAN
C311C _{6.5}	Use Tiny OS and Contiki OS in WSNs and 6LOWPAN applications

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C311C _{6.1}	3	3	2	2	2	1	-	-	-	-	2	2	1	3
C311C _{6.2}	3	3	2	2	2	1	-	-	-	-	-	2	2	3
C311C _{6.3}	3	3	3	2	2	1	-	-	-	-	-	3	2	3
C311C _{6.4}	3	3	3	3	2	2	-	-	-	-	-	2	1	3
C311C _{6.5}	2	-	1	1	3	2	-	-	-	-	-	2	2	3
C311C ₆	2.8	3	2.2	2.6	2.2	1.4	-	-	-	-	-	2.2	1.6	3
Rounded Off	3	3	2	3	2	4	-	-	-	-	2	2	2	3

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : CBM341 & BODY AREA NETWORKS

YEAR / SEM : III / VI

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

BODY AREA NETWORKS	
C312F _{4.1}	Comprehend and appreciate the significance and role of this course in the present contemporary world.
C312F _{4.2}	Design a BAN for appropriate application in medicine.
C312F _{4.3}	Assess the efficiency of communication and the security parameters.
C312F _{4.4}	Understand the need for medical device regulation and regulations followed in various regions.
C312F _{4.5}	Extend the concepts of BAN for medical applications.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C312F_{4.1}	2	2	1	1	1	1	1	-	-	-	-	1	1	2
C312F_{4.2}	3	3	3	3	1	2	2	-	-	-	-	1	1	2
C312F_{4.3}	3	2	1	1	1	1	1	-	-	-	-	1	1	2
C312F_{4.4}	2	2	1	1	1	1	1	-	-	-	-	1	1	2
C312F_{4.5}	2	2	1	1	1	2	2	-	-	-	-	1	1	2
C312F₄	2.4	2.2	1.4	1.4	1	1.4	1.4	-	-	-	-	1	1	2
Rounded Off	2	2	1	1	1	1	1	-	-	-	-	1	1	2

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : CEC348 & REMOTE SENSING

YEAR / SEM : III / VI

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

REMOTE SENSING	
C313E_{7.1}	Understand the principles of electromagnetic radiation.
C313E_{7.2}	Learn the atmospheric radiation interactions.
C313E_{7.3}	Study the laws of planetary motion.
C313E_{7.4}	Classify the different types of resolution
C313E_{7.5}	Know the concepts of digital interpretation

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C313E_{7.1}	3	2	2	3	1	3	2	-	-	-	-	1	3	3
C313E_{7.2}	3	2	2	3	1	3	2	-	-	-	-	1	3	3
C313E_{7.3}	1	2	1	3	2	3	2	-	-	-	-	1	3	3
C313E_{7.4}	1	2	3	1	3	3	2	-	-	-	-	1	3	3
C313E_{7.5}	2	2	2	-	3	3	2	-	-	-	-	1	3	3
C313E₇	2	2	2	2.5	2	3	2	-	-	-	-	1	3	3
Rounded Off	2	2	2	3	2	3	2	-	-	-	-	1	3	3

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

“-”: No Correlation

SUBJECT CODE & NAME : MX3089 & INDUSTRIAL SAFETY

YEAR / SEM : III / VI

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

INDUSTRIAL SAFETY	
C314.1	Understand the basic concept of safety.
C314.2	Obtain knowledge of Statutory Regulations and standards.
C314.3	Know about the safety Activities of the Working Place.
C314.4	Analyze on the impact of Occupational Exposures and their Remedies.
C314.5	Obtain knowledge of Risk Assessment Techniques.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C314.1	3	3	3	1	1	3	2	2	3	3	1	3	3	3
C314.2	2	3	2	2	1	3	2	3	3	2	1	3	3	3
C314.3	2	2	2	2	1	2	2	2	3	2	1	2	3	3
C314.4	3	3	3	2	2	3	2	2	3	2	1	3	3	3
C314.5	3	2	3	2	2	3	2	2	3	2	2	3	3	3
C314	2.6	2.6	2.6	1.8	1.4	2.8	2	2.2	3	2.2	1.2	2.8	3	3
Rounded Off	3	3	3	2	1	2	2	2	3	2	1	3	3	3

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : CEC331 & 4G/5G COMMUNICATION NETWORKS

YEAR / SEM : III / VI

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

4G/5G COMMUNICATION NETWORKS	
C311C _{8.1}	Understand the evolution of wireless networks.
C311C _{8.2}	Learn the concepts of 5G networks.
C311C _{8.3}	Comprehend the 5G architecture and protocols
C311C _{8.4}	Understand the dynamic spectrum management.
C311C _{8.5}	Learn the security aspects in 5G networks

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C311C_{8.1}	3	3	2	3	2	-	-	-	-	-	-	-	2	3
C311C_{8.2}	3	3	3	2	2	-	-	-	-	-	-	-	2	3
C311C_{8.3}	3	3	2	2	2	-	-	-	-	-	-	-	2	3
C311C_{8.4}	3	3	3	3	2	-	-	-	-	-	-	-	2	3
C311C_{8.5}	3	2	3	3	2	-	-	-	-	-	-	-	2	3
C311C₈	3	2.8	2.6	2.6	2	-	-	-	-	-	-	-	2	3
Rounded Off	3	3	3	3	2	-	-	-	-	-	-	-	2	3

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : CEC340 & MEMS DESIGN

YEAR / SEM : III / VI

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

MEMS DESIGN	
C313E_{6.1}	Understand the basics of MEMS design aspects.
C313E_{6.2}	Apply the knowledge in the development of electro static sensors and actuators.
C313E_{6.3}	Apply the knowledge in the development of thermal sensors and actuators.
C313E_{6.4}	Apply the knowledge in the development of piezoelectric sensors and actuators.
C313E_{6.5}	Apply the knowledge in the development of magnetic sensors and actuators.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C313E_{6.1}	3	3	2	2	2	2	-	-	-	-	-	1	2	3
C313E_{6.2}	3	3	3	2	2	2	-	-	-	-	-	2	2	3
C313E_{6.3}	3	3	3	2	2	2	-	-	-	-	-	2	2	3
C313E_{6.4}	3	3	3	2	2	2	-	-	-	-	-	2	2	3
C313E_{6.5}	3	3	3	2	2	2	-	-	-	-	-	2	2	3
C313E₆	3	3	2.6	2	2	2	-	-	-	-	-	1.8	2	3
Rounded Off	3	3	3	2	2	2	-	-	-	-	-	2	2	3

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : CEC358 & UNDERWATER IMAGING SYSTEMS AND IMAGE PROCESSING

YEAR / SEM : III / VI

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

UNDERWATER IMAGING SYSTEMS AND IMAGE PROCESSING	
C312B _{5.1}	Understand the techniques for underwater imaging.
C312B _{5.2}	Understand the fundamentals of underwater acoustics and ambient noise.
C312B _{5.3}	Exposer for array processing techniques for underwater imaging applications.
C312B _{5.4}	Design of Filter and impedance matching circuits.
C312B _{5.5}	Know about SONAR system and its applications.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C312B_{5.1}	3	3	3	2	2	2	-	-	-	-	-	3	2	3
C312B_{5.2}	3	3	3	2	2	1	-	-	-	-	-	2	2	3
C312B_{5.3}	3	3	2	2	2	2	-	-	-	-	-	2	2	2
C312B_{5.4}	3	3	3	2	2	1	-	-	-	-	-	2	2	2
C312B_{5.5}	3	3	3	3	2	2	-	-	-	-	-	1	2	2
C312B₅	3	3	2.8	2.2	2	1.6	-	-	-	-	-	2	2	2.4
Rounded Off	3	3	3	2	2	2	-	-	-	-	-	2	2	2

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : GE3791 & HUMAN VALUES AND ETHICS

YEAR / SEM : IV / VII

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

HUMAN VALUES AND ETHICS	
C401.1	Identify the importance of democratic, secular and scientific values in harmonious functioning of social life.
C401.2	Practice democratic and scientific values in both their personal and professional life.
C401.3	Find rational solutions to social problems.
C401.4	Behave in an ethical manner in society.
C401.5	Practice critical thinking and the pursuit of truth.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C401.1	1	-	-	-	-	3	3	3	2	2	1	2	-	-
C401.2	1	-	-	-	-	3	3	3	2	2	1	2	-	-
C401.3	1	-	-	-	-	3	3	3	2	2	1	2	-	-
C401.4	1	-	-	-	-	3	3	3	2	2	1	2	-	-
C401.5	1	-	-	-	-	3	3	3	2	2	1	2	-	-
C401	1	-	-	-	-	3	3	3	2	2	1	2	-	-
Rounded Off	1	-	-	-	-	3	3	3	2	2	1	2	-	-

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High) ‘-’: No Correlation

SUBJECT CODE & NAME : GE3752 & TOTAL QUALITY MANAGEMENT

YEAR / SEM : IV / VII

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

TOTAL QUALITY MANAGEMENT	
C402.1	Ability to apply TQM concepts in a selected enterprise.
C402.2	Ability to apply TQM principles in a selected enterprise.
C402.3	Ability to understand Six Sigma and apply Traditional tools, New tools, Benchmarking and FMEA.
C402.4	Ability to understand Taguchi's Quality Loss Function, Performance Measures and apply QFD, TPM, COQ and BPR
C402.5	Ability to apply QMS and EMS in any organization.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C402.1	-	3	-	-	-	-	-	-	-	-	-	3	1	-
C402.2	-	-	-	-	-	3	-	-	-	-	-	3	1	-
C402.3	-	-	-	-	3	-	-	-	3	-	-	-	-	-
C402.4	-	2	-	-	3	2	3	2	-	-	-	3	-	-
C402.5	-	-	3	-	-	3	3	2	-	-	-	-	-	-
C402	-	2.5	3	-	3	2.6	3	2	3	-	-	3	1	-
Rounded Off	-	3	3	-	3	3	3	2	3	-	-	3	1	-

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High) ‘-’: No Correlation

SUBJECT CODE & NAME : OMR351 & SENSORS

YEAR / SEM : IV / VII

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

SENSORS	
C403.1	Understand various sensor effects, sensor characteristics, signal types, calibration methods and obtain transfer function and empirical relation of sensors. They can also analyze the sensor response.
C403.2	Analyze and select suitable sensor for displacement, proximity and range measurement
C403.3	Analyze and select suitable sensor for force, magnetic field, speed, position and direction measurement.
C403.4	Analyze and Select suitable sensor for light detection, pressure and temperature measurement and also familiar with other miniaturized smart sensors.
C403.5	Select and design suitable signal conditioning circuit with proper compensation and linearizing element based on sensor output signal.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C403.1	3	3	2	-	-	-	-	-	-	-	1	2	1	2
C403.2	3	3	2	1	1	1	-	-	-	-	1	2	1	2
C403.3	3	3	2	1	1	1	-	-	-	-	1	2	1	2
C403.4	3	3	2	1	1	1	-	-	-	-	1	2	1	2
C403.5	3	3	2	1	1	1	-	-	-	-	1	2	1	2
C403	3	3	2	1	1	1	-	-	-	-	1	2	1	2
Rounded Off	3	3	2	1	1	1	-	-	-	-	1	2	1	2

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : OMR351 & MECHATRONICS

YEAR / SEM : IV / VII

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

MECHATRONICS	
C404.1	Select sensors to develop Mechatronics systems.
C404.2	Explain the architecture and timing diagram of microprocessor, and also interpret and develop programs.
C404.3	Design appropriate interfacing circuits to connect I/O devices with microprocessor.
C404.4	Apply PLC as a controller in Mechatronics system.
C404.5	Design and develop the apt Mechatronics system for an application.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C404.1	3	2	1	3	-	2	-	-	-	-	-	2	3	2
C404.2	3	2	1	3	-	2	-	-	-	-	-	2	3	2
C404.3	3	2	1	3	-	2	-	-	-	-	-	2	3	2
C404.4	3	2	1	3	-	2	-	-	-	-	-	2	3	2
C404.5	3	2	1	3	-	2	-	-	-	-	-	2	3	2
C404	3	2	1	3	-	2	-	-	-	-	-	2	3	2
Rounded Off	3	2	1	3	-	2	-	-	-	-	-	2	3	2

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : EC3711 & SUMMER INTERNSHIP

YEAR / SEM : IV / VII

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

SUMMER INTERNSHIP	
C405.1	System-level design processes, verification and validation techniques, manufacturing and production processes in the firm or research facilities in the laboratory/research institute.
C405.2	Analysis of industrial / research problems and their solutions.
C405.3	Develop skills to carry out research in the research institutes/laboratories.
C405.4	Documentation of system specifications, design methodologies, process parameters, testing parameters and results.
C405.5	Preparing of technical report and presentation.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C405.1	3	3	3	1	1	3	2	2	3	3	1	3	3	3
C405.2	2	3	2	2	1	3	2	3	3	2	1	3	3	3
C405.3	2	2	2	2	1	2	2	2	3	2	1	2	3	3
C405.4	3	3	3	2	2	3	2	2	3	2	1	3	3	3
C405.5	3	2	3	2	2	3	2	2	3	2	2	3	3	3
C405	2.6	2.6	2.6	1.8	1.4	2.8	2	2.2	3	2.2	1.2	2.8	3	3
Rounded Off	3	3	3	2	1	2	2	2	3	2	1	3	3	3

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation

SUBJECT CODE & NAME : EC3811 & PROJECT WORK / INTERNSHIP

YEAR / SEM : IV / VIII

COURSE OUTCOMES (COs): At the end of the course, the students will be able to:

PROJECT WORK / INTERNSHIP	
C406.1	Formulate and analyze problem / create a new product/ process.
C406.2	Design and conduct experiments to find solution
C406.3	Analyze the results and provide solution for the identified problem, prepare project report and make presentation
C406.4	Documentation of system specifications, design methodologies, process parameters, testing parameters and results.
C406.5	Preparing of technical report and presentation.

CO-PO & CO-PSO Matrices:

Course Outcomes	Program Outcomes												Program Specific Outcomes	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C406.1	3	3	3	3	2	3	2	2	3	3	3	3	3	3
C406.2	2	3	2	2	2	3	2	3	3	2	3	3	3	3
C406.3	2	2	2	2	2	2	2	2	3	2	3	2	3	3
C406.4	3	3	3	2	2	3	2	2	3	2	3	3	3	3
C406.5	3	2	3	2	2	3	2	2	3	2	3	3	3	3
C406	2.6	2.6	2.6	2.2	2	2.8	2	2.2	3	2.2	3	2.8	3	3
Rounded Off	3	3	3	2	1	2	2	2	3	2	3	3	3	3

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

‘-’: No Correlation