Correlation between the courses and the Program Outcomes (POs) & Program Specific Outcomes for B.Tech.(ECE)

The following Program Outcome (PO) and Program Specific Outcome (PSO) statements are considered to set up correlation with individual Courses Outcomes (CO).

PO	Engineering Graduates will be able to:
PO1	**Engineering knowledge:** Apply knowledge of mathematics, science, Engineering fundamentals, and electronics engineering to the solution of engineering problems.
PO2	**Problem analysis:** Identify, formulate, review literature and analyze electronics engineering problems to design, conduct experiments, analyze data and interpret data.
PO3	**Design /development of solutions:** Design solution for electronics engineering problems and design system component of processes that meet the desired needs with appropriate consideration for the public health and safety, and the cultural, societal and the 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 in electronics engineering.
PO5	**Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to electronics engineering activities with an understanding of the limitations.
PO6	**The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to electronics engineering practice.
PO7	**Environment and sustainability:** Understand the impact of the electronics engineering solutions in societal and environmental contexts, and demonstrate the knowledge and need for sustainable development.
PO8	**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the electronics engineering practice.
PO9	**Individual and team work:** Function affectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings in electronics engineering.
PO10	**Communication:** Communicate effectively on complex engineering activities with the engineering committee and with society at large, such as, being able to comprehend and write affective reports and design documentation, make effective presentations in electronics engineering.
PO11	**Project Management and finance:** Demonstrate knowledge & understanding of the electronics engineering principles 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 in electronics engineering.
PO12	**Life- long learning:** Recognize the need for, and the preparation and ability to engage in independent research and lifelong learning in the broadest contest of technological changes in electronics engineering.

PSO	Engineering Graduates will be able to:
PSO1	To apply the fundamental and design knowledge in the areas of analog & digital circuits, Communication and networks.
PSO2	To pursue higher studies or get placed in Industries and Organizations.

Correlation between courses and the Program Outcomes (POs) and Program Specific outcomes is as in tables below;

3rd Semester

HAS-201C: Mathematics-III

Course Outcomes: On completion of this course, the successful students should be able to:

CO	Statement
CO1	Use fourier series, transforms and also use concepts for solving problems in physics electronics and computer science.
CO2	Solve problem when a complex variable is involved. they will learn about use of complex variables, complex integration, basic theorems and their applications.
CO3	Use power series expansion of various functions, Taylor's series, Laurent's series. Solve problems of probability distributions: Binomial, Poisson and Normal distributions
CO4	Apply knowledge of the basics of operations research, including the students ability to formulate problems and to think creatively and synthesize results using simplex, Big M method, dual simplex method.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	1	1	2	1	1	1	2	2	2	1	1	2	2	2
CO2	3	1	1	2	1	1	2	2	2	1	1	2	2	2
CO3	3	1	1	2	1	1	1	2	2	1	1	1	2	2
CO4	3	3	1	3	1	1	1	3	3	1	1	1	2	2

EC-203C: Electrical Engineering Materials & Semiconductor Devices

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Analyze the physics behind the electrical engineering materials essential for them to work in different industries and also motivate them to do innovative research.
CO2	Apply the knowledge of semiconductors to illustrate the functioning of basic electronic devices.
CO3	Understand the fabrication methods of integrated circuits and characteristics of various devices.
CO4	Explain the operating principles of bipolar junction transistors, field-effect transistors and various power devices.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	3	3	2	2	2	1	2	2	2	3	2	3
CO2	3	3	3	3	2	2	2	1	3	2	2	3	3	3
CO3	3	2	3	3	3	2	2	1	3	2	3	3	3	3
CO4	3	3	3	3	3	2	1	1	2	2	2	3	3	3

EC-205C: Network Analysis and Synthesis

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Apply analogus systems in mechanical and electrical machines using f-v and f-i analogy.
CO2	Find transient response of electrical networks using classical methods and laplace methods.
CO3	Analyze the network functions of various networks and characteristics and parameters of two port networks.
CO4	Solve circuits using graph theory.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	3	3	3	2	2	1	1	1	1	2	3	3
CO2	3	3	3	3	3	2	2	1	1	1	1	2	3	3
CO3	3	3	3	3	3	2	2	1	1	1	2	2	3	3
CO4	3	3	3	3	3	2	2	1	1	1	1	2	3	3
CO5	3	3	3	3	3	2	2	1	1	1	2	2	3	3

EC-207C: Electromechanical Energy Conversion

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Know basics of various types of electric machines, singly excited magnetic field system, dynamic equations.
CO2	Understand theory, various tests, calculate various parameters of transformers.
CO3	Design d.c machine depending on the performance characteristics & use them in various applications.
CO4	Understand the basic principles of Induction machines, synchronous machines and their characteristics

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	2	3	3	3	2	-	2	-	-	2	3	3	1
CO2	3	2	3	3	3	-	1	1	-	-	2	3	3	1
CO3	3	2	3	3	3	1	1	1	-	-	2	2	3	2
CO4	3	2	3	3	3	1	1	1	-	-	2	2	3	3

EI-209C: Electrical Measurement and Measuring Instruments

Course Outcomes: On completion of this course, the successful students should be able to:

CO	Statement
CO1	Compare performance of MC, MI and Dynamometer types of measuring instruments, Energy meters and CRO.
CO2	Determine the circuit parameters using AC and DC bridges.
CO3	Understand the principle and working of various types of Instrument Transformers.
CO4	Analyze the principle and working of various types of wattmeters and energy

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	1	1	1	1	2	1	2	2	1	1	2	2	1	2
CO2	3	2	2	1	3	-	1	1	2	2	2	2	2	2
CO3	3	3	3	2	2	1	1	1	2	2	3	2	2	2
CO4	1	2	1	1	1	1	3	2	2	2	3	2	1	-

EI-211C: Analog Electronics

Course Outcomes: On completion of this course, the successful students should be able to:

CO	Statement
CO1	Understand diodes as a device, rectifier circuits, filter circuits and application of diode as clipper and clamper circuits.
CO2	Learn the concepts of transistor and their characteristics, analysis of transistor amplifier using h parameters.
CO3	Apply the concept of biasing and different biasing techniques and compensation techniques.
CO4	Analyze the concept of hybrid model of transistor at high frequency.
CO5	Understand the concept of FET, V-I characteristics and small signal model of FET. Also discuss biasing of FET and application of FET as VVR.
CO6	Solve the concept of regulated power supply and IC regulator.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	2	3	2	3	3	1	1	1	2	1	1	2	3	2
CO2	3	3	3	3	3	1	1	1	1	2	1	2	3	3
CO3	3	3	3	3	3	1	1	1	1	1	1	2	3	3
CO4	2	3	2	3	3	1	1	1	1	2	2	2	3	3
CO5	2	3	2	3	3	1	1	1	1	2	1	2	3	3
CO6	3	3	3	3	3	1	1	1	1	2	3	3	3	3

4th semester

EI-204C: Signals and Systems

Course Outcomes: On the Completion of this course, the successful students should be able to:

CO	STATEMENT
CO1	Classify the signals as Continuous time and Discrete time.
CO2	Analyze the spectral characteristics of signals using Fourier analysis.
CO3	Classify systems based on their properties and determine the response of LTI system using convolution.
CO4	Identify system properties based on impulse response and Fourier analysis.
CO5	Apply transform techniques to analyze continuous-time and discrete-time signals and systems.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	2	2	2	2	2	1	1	2	2	1	1	2	2	2
CO2	3	2	2	3	2	2	1	2	3	2	2	3	3	2
CO3	3	2	2	2	2	1	1	2	2	1	2	2	3	2
CO4	2	2	2	2	2	1	1	2	2	2	1	2	2	2
CO5	3	2	2	3	2	1	1	2	3	2	2	3	3	2

HAS-206C: Computational Techniques

Course Outcomes: On the Completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Learn about Newton's forward and backward interpolation formula, Central difference interpolation formula, Gauss forward and backward interpolation formula, langrage's interpolation formula and Newton divided difference formulae.
CO2	Understand about the solution of algebraic equation, Transcendental equation and simultaneous algebraic equation
CO3	Apply the solution of trapezoidal rule, Simpson's 1/3 rd and 3/8 rules, Boole's rule and Weddle's rule, Romberg's Integration
CO4	Find the Numerical solution of ODE and PDE

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	3	2	2	2	1	1	3	2	1	3	2	3
CO2	3	2	2	2	2	3	3	2	3	2	3	2	2	3
CO3	3	3	2	2	2	3	2	2	3	2	3	3	2	3
CO4	3	2	2	2	2	2	3	2	3	2	2	3	2	3

EC-208C: Digital Electronics

Course Outcomes: On the Completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Represent numerical values in various number systems and perform number conversions between different number systems.
CO2	Analyze and design digital combinational circuits like decoders, encoders, multiplexers, and de-multiplexers including arithmetic circuits (half adder, full adder, multiplier).
CO3	Analyze sequential digital circuits like flip-flops, registers, counters.
CO4	Understand the nomenclature and technology in the area of memory devices: ROM, RAM, PROM, PLD, FPGAs, etc.
CO5	Learn the importance and need for verification, testing of digital logic and design for testability.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	2	2	2	2	1	1	2	2	1	1	2	2
CO2	3	3	3	3	3	2	1	1	2	1	1	1	2	2
CO3	3	3	2	3	2	2	1	1	2	1	1	1	2	2
CO4	3	3	3	3	2	2	1	1	2	1	1	1	2	2
CO5	3	3	3	3	2	2	1	1	2	1	1	1	2	2

EC-210C: Communication System

Course Outcomes: On the Completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Classify the signals and analyse them using fourier series and fourier transform.
CO2	Compare the performance of AM and FM schemes.
CO3	Analyse the different pulse modulation techniques.
CO4	Compare the different digital modulation techniques.
CO5	Understand the basic concept of noise.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	3	3	3	2	2	1	2	1	2	2	3	3
CO2	3	3	3	3	3	1	1	2	2	2	3	2	3	3
CO3	2	3	3	3	3	2	1	1	2	2	2	2	3	2
CO4	3	3	3	3	3	1	2	1	2	2	3	3	3	3
CO5	3	3	2	3	3	2	3	3	2	2	2	2	3	3

EC-212C: Electro Magnetic Field Theory

Course Outcomes: On the Completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Apply vector calculus to understand the behavior of static electric fields in standard configurations.
CO2	Apply vector calculus to understand the behavior of static magnetic fields in standard configurations.
CO3	Describe and analyze electromagnetic wave propagation in free-space.
CO4	Understand and analyze transmission lines.
CO5	Describe the concepts of transmission line.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	1	1	1	1	1	1	1	1	3	3	3	2	1
CO2	3	2	1	3	3	1	3	1	3	1	3	3	3	3	1
CO3	3	2	2	3	3	1	3	1	3	1	3	3	3	3	1
CO4	1	1	3	2	3	1	1	1	2	3	3	3	2	1	3
CO5	1	1	3	2	2	1	1	1	2	3	3	3	2	1	3

5th Semester
EC-301C: Digital Communication Systems

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Learn Fourier analysis, spectral densities & correlation between signals.
CO2	Apply the concept of information theory, entropy & capacity of various channels.
CO3	Understand the concept of continuous channel , Shannon Theorem , Various error control coding schemes.
CO4	Analyze the concept of random signal theory, Probability, various functions such as PDF, JPDF, density functions, statistical averages, moments & variance.
CO5	Learn the concept of random processes, random variable, Spectral density and optimum filter.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	3	3	2	1	1	2	1	2	1	2	3	2
CO2	3	3	2	2	2	1	1	1	1	2	1	2	3	2
CO3	3	3	2	2	2	1	1	1	1	2	1	2	3	2
CO4	3	3	3	2	2	1	1	1	1	2	1	2	3	2
CO5	3	3	3	2	2	1	1	1	1	2	1	2	3	2

EC-303C: Analog Integrated Circuit

Course Outcomes: On completion of this course, the successful students should be able to:

CO	Statement
CO1	Know the concept of single and multistage amplifier, RC coupled amplifier and effect of emitter by pass capacitor and coupling capacitor on low frequency response of RC coupled amplifier.
CO2	Understand basic concept of negative feedback and their effects, also understand different types of negative feedback.
CO3	Learn the basic concept of oscillators and circuits of RC phase shift and we in bridge oscillator.
CO4	Find the difference between power and voltage amplifier, concept of Class A, Class B and Class C power amplifier, concept of push pull amplifiers.
CO5	Understand basics of Operational amplifier and their linear and non linear application, concept of multivibrator using 555 IC and its applications.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	2	2	2	2	1	1	2	2	1	1	2	2
CO2	3	3	3	3	3	2	1	1	2	1	1	1	2	2
CO3	3	3	2	3	2	2	1	1	2	1	1	1	2	2
CO4	3	3	3	3	2	2	1	1	2	1	1	1	2	2
CO5	3	3	3	3	2	2	1	1	2	1	1	1	2	2

EC-305C:Antenna &Wave Propagation

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Understand the basics and parameter of antenna radiation
CO2	Apply the design and analyses of linear and practical antenna
CO3	Analyze the design and analyses of antenna array
CO4	Learn the wave propagation methods

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	2	2	2	2	1	1	1	1	2	2	2	3	2
CO2	3	2	2	2	1	1	1	1	1	2	2	2	3	2
CO3	3	2	2	2	1	1	1	1	1	2	2	2	3	2
CO4	3	2	2	2	1	1	1	1	1	2	2	2	3	2

EI-307C:Microprocessors & Interfacing

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Understand the architecture and Operations of 8085 and 8086 microprocessor
CO2	Know about the addressing modes & instruction set of 8085 & 8086.
CO3	Get the knowledge about the various types of interrupts of 8085 and 8086 Microprocessor
CO4	Develop an understanding of programming for microprocessors 8085 & 8086 with programming techniques
CO5	Understand various peripheral devices (8255, 8254, 8259 and 8257)

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	2	3	1	2	2	1	1	1	2	1	2	2	3	2
CO2	3	3	3	2	2	1	1	1	2	1	2	2	3	2
CO3	3	3	3	3	2	1	1	2	2	1	2	2	3	2
CO4	3	3	3	2	2	2	1	2	2	1	2	2	3	2
CO5	3	3	3	3	3	2	2	2	1	1	2	2	3	2

EC-309C: Television Engineering

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Understand the various principles used in Television
CO2	Gain knowledge about various elements of Television system and Television standards
CO3	Gain knowledge about the allocation of frequency bands for TV signal transmission
CO4	Analyze the essentials of color Television and its applications
CO5	Learn the concept of color signal transmission and reception

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	2	3	3	2	2	1	1	2	2	2	2	3
CO2	3	3	3	3	3	3	1	2	2	1	1	2	3	3
CO3	3	3	3	3	3	3	1	2	1	1	1	2	3	3
CO4	3	3	3	2	3	2	1	1	1	1	1	1	3	3
CO5	3	2	3	3	3	1	1	2	1	1	2	2	3	3

EI--315C: Power Electronics

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Understand about various power semiconductor devices and their characteristics.
CO2	Analyze the characteristics of different power electronics switches and selection of components for different applications.
CO3	Understand the analysis and design of various single phase and three phase power converter circuits and knowledge of their applications.
CO4	Identify the basic requirements for power electronics based design application.
CO5	Apply the use of power converters in commercial and industrial applications

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	2	3	2	1	1	2	1	1	1	2	1	1	3
CO2	3	3	2	2	2	1	1	1	1	1	3	1	1	3
CO3	3	2	3	2	3	1	1	1	1	1	2	1	1	3
CO4	3	1	1	1	2	1	1	1	1	1	1	1	1	3

6th Semester

E-302: Digital System Design

Course Outcomes: On completion of this course, the successful students should be able to:

CO	Statement
CO1	Develop the knowledge for the use of hardware descriptive language.
CO2	Apply various modelling approaches in VHDL
CO3	Analyse the combinational & Sequential circuits and Simulate using VHDL.
CO4	Interpret the concept of Generics, Configuration, Overloading, Package, Test bench and Subprograms
CO5	Understand the concept of Programmable Logic devices i.e ROM, PLA, PAL, GAL, CPLD and FPGA.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	2	2	2	2	1	-	2	2	2	2	2	3	3
CO2	3	3	3	3	3	1	-	1	2	3	1	2	3	3
CO3	3	3	3	3	3	1	-	1	2	2	1	2	3	3
CO4	3	3	3	3	3	2	-	1	2	3	1	2	3	3
CO5	3	3	3	3	3	2	-	1	1	1	1	2	3	3

EL-304: Control System Engineering

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Design And Analyze multistage amplifier.
CO2	Learn negative feedback circuits .
CO3	Analyze and design various types of oscillators circuits.
CO4	Understand and design solid state power amplifier and tuned circuits.
CO5	Design and analyze operational amplifier and multivibrator using 555 and their application.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	3	3	2	2	1	1	2	2	2	2	3	3
CO2	3	3	3	3	2	2	1	1	2	2	2	2	3	3
CO3	3	3	3	3	2	2	1	1	2	2	2	2	3	3
CO4	3	3	3	3	2	2	1	1	2	2	2	2	3	3
CO5	3	3	3	3	2	2	1	1	2	2	2	2	3	3

ECE-308: MOSIC TECHNOLOGY

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Understand about the trends in semiconductor technology, and how it impacts scaling and performance.
CO2	Learn Layout, Stick diagrams, Fabrication steps, Static and Switching characteristics of inverters.
CO3	Design MOS transistor as a switch and its capacitance.
CO4	Analyze digital systems using MOS circuits.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	3	3	3	2	3	1	2	2	2	3	3	3
CO2	3	3	3	3	3	2	2	2	2	3	3	3	3	3
CO3	3	3	3	3	3	2	2	1	1	2	2	3	3	3
CO4	3	3	3	3	3	2	2	2	3	3	3	3	3	3

ECE-312: Microwave and RADAR Engineering

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Learn the basics and parameter of antenna radiation
CO2	Understand the design and analyses of linear and practical antenna
CO3	Apply the design and analyses of antenna array
CO4	Analyze the wave propagation methods

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	2	2	2	2	1	1	1	1	2	2	2	3	2
CO2	3	2	2	2	1	1	1	1	1	2	2	2	3	2
CO3	3	2	2	2	1	1	1	1	1	2	2	2	3	2
CO4	3	2	2	2	1	1	1	1	1	2	2	2	3	2

CE-201: Data Structures

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Learn the programming of C language from basic to advance level.
CO2	Apply the working of Link-list, Stack Queue along with their usage in real life.
CO3	Analyze the working of binary trees, graphs along with their applications.
CO4	Understand the Concept of Files and their organisation on memory .

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	2	3	3	3	2	1	2	1	2	1	2	1	2	2
CO2	2	3	3	3	1	1	1	1	1	1	1	1	2	3
CO3	2	3	3	3	1	1	1	1	1	1	1	1	2	3
CO4	3	3	3	3	2	1	1	1	1	1	1	1	3	3

ECE-310-312: Wire Communication

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Introduction to the students about various wireless communication systems
CO2	L**e**arn second generation cellular network, third generation wireless network & modern wireless communication systems.
CO3	Understand cellular mobile systems
CO4	Apply cellular system design fundamentals
CO5	Understand multiple access techniques for wireless communication
CO6	Learn wireless networking

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	3	2	2	1	1	1	1	1	1	2	3	2
CO2	3	3	2	2	1	1	1	1	1	1	1	2	3	2
CO3	3	3	2	2	1	1	1	1	1	1	1	2	3	2
CO4	3	3	2	2	1	1	1	1	1	1	1	2	3	2
CO5	3	3	3	2	1	1	1	1	1	1	1	2	3	2
CO6	3	3	2	2	1	1	1	1	1	1	1	2	3	2

8th Semester

E-402: Digital Signal Processing

Course Outcomes: On completion of this course, the successful students should be able to:

CO	Statement
CO1	Analyse about various types of signals and their representation and their implementation on MAT LAB.
CO2	Understand Discrete-Time Systems and their implementation on MAT LAB.
CO3	Know about sampling of signals and their implementation on MAT LAB.
CO4	Understand z-transform, its properties and their implementation on MAT LAB.
CO5	Analyze various types of filters, their structures and their implementation on MAT LAB.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	2	3	3	1	2	0	1	2	2	2	3	3
CO2	3	3	2	3	3	1	2	0	1	1	2	2	3	2
CO3	3	3	3	3	3	1	1	0	1	1	2	2	3	2
CO4	3	3	3	3	3	1	1	0	1	1	2	2	3	2
CO5	3	2	3	3	3	1	1	0	1	1	2	2	3	2

E-402: Computer Networks

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Learn the Concept of OSI and TCP/IP reference model in detail.
CO2	Understand various transmission media error detection and correction mechanism and flow control used in data communication.
CO3	Analyze how the packet reaches from source to destination in communication networks using IP, Physical and Port addresses.
CO4	Find the network security requirement, congestion control and working of protocols used at application layer

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	1	1	2	3	3	2	2	1	2	1	1	1	3	2
CO2	2	2	2	2	2	1	1	1	1	3	2	1	2	2
CO3	2	2	2	2	2	1	1	1	1	3	2	1	2	2
CO4	2	2	2	2	2	1	1	1	2	3	2	1	3	3

ECE-408: Optical Communication System

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Understand Electromagnetic spectrum used for optical communication.
CO2	Recognize and classify the structures of Optical fibre and types.
CO3	Discuss the channel impairments like losses and dispersion.
CO4	Know about advantages of Optical fibre system.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	1	1	1	1	2	1	2	2	1	1	2	2	1	2
CO2	3	2	2	1	3	-	1	1	2	2	2	2	2	2
CO3	3	3	3	2	2	1	1	1	2	2	3	2	2	2
CO4	1	2	1	1	1	1	3	2	2	2	3	2	-	1

EIC-406: Operational Research

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Solve linear programming problems using simplex methods and its modified types.
CO2	Design solution for solving transportation problem and assignment problem.
CO3	Understand new simple models, like: CPM, PERT to improve decision –making and develop critical thinking and objective analysis of decision problems.
CO4	Solve operational problems like budgeting using dynamic programming and be able to obtain an optimum integer solution to an "all integer programming problem.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	3	1	2	1	1	1	2	1	3	1	3	3
CO2	3	3	2	1	2	1	1	1	1	1	3	2	3	2
CO3	3	3	2	1	2	1	1	1	2	1	3	2	3	3
CO4	3	3	3	1	2	1	1	1	1	1	3	2	3	2

ECE-412: Satellite Communication

Course Outcomes: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Learn the evolution, growth of communication satellite & advantages and applications of GEO,MEO &LEO satellite communication.
CO2	Analyze orbital motion of satellite and satellite link design
CO3	Understand digital modulation techniques
CO4	Learn special purpose satellite & laser satellite communication.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	3	2	2	1	1	1	1	1	1	2	3	2
CO2	3	3	2	2	2	1	2	1	1	1	1	2	3	2
CO3	3	3	2	2	1	2	1	1	1	1	1	2	3	2
CO4	3	3	2	2	2	1	1	1	1	1	1	2	3	2

EIC-404: Embedded System Design

Course Objectives: On completion of this course, the successful students should be able to:

CO	**Statement**
CO1	Understand embedded system, microcontrollers and its basis of classification.
CO2	Analyze the operation of microcontrollers 8051 and PIC.
CO3	Learn the working of different working blocks of microcontrollers 8051 and PIC.
CO4	Understand the instruction set and addressing modes of microcontrollers 8051 and PIC.
CO5	Find different inbuilt features/ modules of 8051 and PIC and way of writing assembly language programs using instructions, features and interfacing devices.

Correlation between COs and the Program Outcomes (POs) and Program Specific Outcomes PSOs

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	3	3	2	2	3	3	3	2	3	3	3	2	2
CO2	3	3	3	2	2	3	3	3	2	3	3	3	3	2
CO3	3	3	3	2	2	3	3	3	2	3	3	3	3	2
CO4	3	3	3	3	2	3	3	3	2	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	2	3	3	3	3	2