List of COs for UG courses under Anna University Regulation 2021

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING	

Semester : I Course Code & Name : C101 & HS3152 PROFESSIONAL ENGLISH - I Year of Study : 2021 – 2022, 2022 – 2023	Level in Bloom's Taxonomy
Cos No.	**Course Outcome**	
C101.1	Communicate clearly both in written and oral forms using appropriate vocabulary and comprehend written text to make inferences.	K2
C101.2	Speak persuasively in academic/work contexts and write biographical details and technical documents cohesively, coherently, and flawlessly using appropriate words.	K2
C101.3	Read, write and speak effectively in a variety of professional and social settings.	K2
C101.4	Comprehend descriptive, narrative, expository and interpretive texts and write using creative, critical, analytical, and evaluative methods.	K2
C101.5	Understand and respond to different spoken and written discourses/excerpts in different accents and write different genres of text adopting various writing strategies.	K2

Semester : I Course Code & Name : C102 & MA3151 MATRICES AND CALCULUS Year of Study : 2021 – 2022, 2022 – 2023	Level in Bloom's Taxonomy
Cos No.	**Course Outcome**	
C102.1	Use the matrix algebra methods for solving practical problems.	K2
C102.2	Apply differential calculus tools in solving various application problems.	K3
C102.3	Use differential calculus ideas on several variable functions.	K3
C102.4	Apply different methods of integration in solving practical problems.	K3
C102.5	Apply multiple integral ideas in solving areas, volumes and other practical problems.	K3

Semester : I Course Code & Name : C103 & PH3151 ENGINEERING PHYSICS Year of Study : 2021 – 2022, 2022 – 2023	Level in Bloom's Taxonomy
Cos No.	**Course Outcome**	
C103.1	Understand the importance of mechanics.	K2
C103.2	Express their knowledge in electromagnetic waves.	K2
C103.3	Demonstrate a strong foundational knowledge in oscillations, optics and lasers.	K3
C103.4	Understand the importance of quantum physics.	K3
C103.5	Comprehend and apply quantum mechanical principles towards the formation of energy bands.	K3

Semester : I Course Code & Name : C104 & CY3151 ENGINEERING CHEMISTRY Year of Study : 2021 – 2022, 2022 – 2023		Level in Bloom's Taxonomy
Cos No.	Course Outcome	
C104.1	Illustrate the importance of water quality parameters, water treatment methods and boiler troubles.	K2
C104.2	Explain the types of nonmaterials, synthesis and its applications.	K2
C104.3	Apply the use of phase rule in metallurgy, basics of composites & its applications.	K2
C104.4	Articulate the fuel types, synthesis and its combustion characteristics .	K2
C104.5	Examine the working principle of alternate energy resources and energy storage devices.	K2

Semester : I Course Code & Name : C105 & GE3151 PROBLEM SOLVING AND PYTHON PROGRAMMING Year of Study : 2021 – 2022, 2022 – 2023		Level in Bloom's Taxonomy
Cos No.	Course Outcome	
C105.1	Develop algorithmic solutions to simple computational problems.	K2
C105.2	Demonstrate simple Python programs	K2
C105.3	Apply control structures, functions and string to write simple program for solving problems.	K2
C105.4	Implement compound data using Python lists, tuples, dictionaries etc.	K2
C105.5	Illustrate read and write data from/to files in Python programs.	K2

Semester : I Course Code & Name : C106 & GE3171 PROBLEM SOLVING AND PYTHON PROGRAMMING LABORATORY Year of Study : 2021 – 2022, 2022 – 2023		Level in Bloom's Taxonomy
Cos No.	Course Outcome	
C106.1	Develop diagrammatic solutions to simple computational problems	K2
C106.2	Execute simple Python programs using simple statements, operators and expressions.	K2
C106.3	Implement various computing strategies for Python-based solutions to real world problems.	K2
C106.4	Apply compound data using python lists, tuples, sets and dictionaries to solve real life problems.	K2
C106.5	Implement read and write data from/to files in python programs.	K2

Semester : I Course Code & Name : C107& BS3171 PHYSICS AND CHEMISTRY LABORATORY Year of Study : 2021 – 2022, 2022 – 2023		**Level in Bloom's Taxonomy**
Cos No.	**Course Outcome**	
C107.1	Understand the functioning of various physics laboratory equipment.	K2
C107.2	Use graphical models to analyze laboratory data.	K2
C107.3	Use mathematical models as a medium for quantitative reasoning and describing physical reality.	K2
C107.4	Access, process and analyze scientific information.	K2
C107.5	Solve problems individually and collaboratively.	K2
Semester : I Course Code & Name : C108 & GE3172 ENGLISH LABORATORY Year of Study : 2021 – 2022, 2022 – 2023		**Level in Bloom's Taxonomy**
Cos No.	Course Outcome	
C108.1	Listen and comprehend complex academic texts.	K2
C108.2	Speak fluently and accurately in formal and informal communicative contexts.	K2
C108.3	Respond to and express opinions effectively in Oral mediums of communication such as debates, Group Discussions, classroom discussions.	K3
C108.4	Differentiate among various types of listening and adopt various speaking strategies to present on different topics or excerpts.	K3
C108.5	Identify paralinguistic cues such as postures, gestures, facial expressions, and eye contact and speak effectively in debates and discussions.	K3
Semester : II Course Code & Name : C109 & HS3252 PROFESSIONAL ENGLISH - II Year of Study : 2021 – 2022, 2022 – 2023		**Level in Bloom's Taxonomy**
Cos No.	Course Outcome	
C109.1	Listen, speak, read and write short technical articles, journals and newspapers.	K2
C109.2	Understand longer technical texts to interpret charts and graphs.	K2
C109.3	Understand longer technical texts to interpret charts and graphs.	K2
C109.4	Write job application letter, resume preparation with email etiquette.	K2

C109.5	Participate in Group Discussion, Writing reports and minutes of meeting	K2

Semester : **II**
Course Code & Name : **C110 & MA3251 STATISTICS AND NUMERICAL METHODS**
Year of Study : **2021 – 2022, 2022 – 2023**

		Level in Bloom's Taxonomy
Cos No.	**Course Outcome**	
C110.1	Apply the concept of testing of hypothesis for small and large samples in real life problems.	K2
C110.2	Apply the basic concepts of classifications of design of experiments in the field of designing engineering problems.	K2
C110.3	Apply the numerical techniques for solving algebraic, transcendental equations, system of linear equations and eigenvalue problems.	K2
C110.4	Make use the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems.	K2
C110.5	Apply the knowledge of various techniques and methods for solving first order ordinary differential equations with initial and boundary conditions in engineering problems.	K2

Semester : **II**
Course Code & Name : **C111 & PH3254 PHYSICS FOR ELECTRONICS ENGINEERING**
Year of Study : **2021 – 2022, 2022 – 2023**

		Level in Bloom's Taxonomy
Cos No.	**Course Outcome**	
C111.1	Elaborate the basics of crystallography and its importance for varied materials properties.	K2
C111.2	Acquire knowledge on the electrical and magnetic properties of materials and their applications.	K2
C111.3	Understand clearly of semiconductor physics and functioning of semiconductor devices.	K2
C111.4	Understand the optical properties of materials and working principles of various optical devices.	K2
C111.5	Express the importance of nanotechnology and nanodevices.	K2

Semester : **II**
Course Code & Name : **C112 & BE3254 ELECTRICAL AND INSTRUMENTATION ENGINEERING**
Year of Study : **2021 – 2022, 2022 – 2023**

		Level in Bloom's Taxonomy
Cos No.	**Course Outcome**	
C112.1	Explain the working of transformer and its mathematical model .	K2
C112.2	Elaborate the principles and characteristics of DC electrical machines	K2
C112.3	Analyze the performance of AC rotating machines.	K2

C112.4	Apply the concepts of measurements and instruments for real time applications.	K2
C112.5	Describe the basic power system concepts and methods.	K2

Semester	:	II	Level in Bloom's Taxonomy
Course Code & Name	:	C113 & GE3251 ENGINEERING GRAPHICS	
Year of Study	:	2021 – 2022, 2022 – 2023	
Cos No.		Course Outcome	
C113.1	Construct the conic sectional curves, cycloidal and involute curves		K2
C113.2	Solve practical problems involving projection of lines.		K2
C113.3	Construct the projection of simple solids and free hand sketches of multiple views from pictorial view of objects.		K2
C113.4	Sketch the section of solids and Development of lateral surfaces of solids.		K2
C113.5	Illustrate the isometric and perspective projections of simple solids.		K3

Semester	:	II	Level in Bloom's Taxonomy
Course Code & Name	:	C114 & EC3251 CIRCUIT ANALYSIS	
Year of Study	:	2021 – 2022, 2022 – 2023	
Cos No.		Course Outcome	
C114.1	Apply the basic concepts of circuit analysis such as Kirchhoff's law, mesh current and node voltage method for analysis of DC and AC circuits.		K2
C114.2	Apply suitable network theorems and analyze AC and DC circuits.		K2
C114.3	Analyze steady state response of any R, L and C circuits.		K2
C114.4	Analyze the transient response for any RC, RL and RLC circuits and frequency response of parallel and series resonance circuits.		K2
C114.5	Analyze the coupled circuits and network topologies .		K2

Semester	:	II	Level in Bloom's Taxonomy
Course Code & Name	:	C115 & GE3271 ENGINEERING PRACTICES LABORATORY	
Year of Study	:	2021 – 2022, 2022 – 2023	
Cos No.		Course Outcome	
C115.1	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.		K2
C115.2	Construct various electrical joints in common household electrical wire work.		K2
C115.3	Perform welding 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.		K2
C115.4	Perform soldering and test simple electronic circuits; Assemble and test simple electronic components on PCB.		K2

C115.5	Demonstrate assemble and dismantle of LED TV and computer/ laptop components.	K2

Semester	:	II	Level in Bloom's Taxonomy
Course Code & Name	:	C116 & EC3271 CIRCUITS ANALYSIS LABORATORY	
Year of Study	:	2021 – 2022, 2022 – 2023	

Cos No.	Course Outcome	
C116.1	Verify Kirchhoff's Current Law and Kirchhoff's Voltage Law	K2
C116.2	Verify Thevenin and Norton Theorems.	K3
C116.3	Verify Superposition, Maximum Power Transfer Theorems.	K4
C116.4	Determine the resonant frequency of series and parallel RLC circuits.	K2
C116.5	Determine the transient response of RL and RC circuits.	K3

Semester	:	II	Level in Bloom's Taxonomy
Course Code & Name	:	C117& GE3272 COMMUNICATION LABORATORY / FOREIGN LANGUAGE	
Year of Study	:	2021 – 2022, 2022 – 2023	

Cos No.	Course Outcome	
C117.1	Speak effectively in group discussions held in a formal / semi-formal context.	K2
C117.2	Discuss, analyse and present concepts and problems from various perspectives to arrive at suitable solutions.	K2
C117.3	Writ emails,letters and effective job applications	K3
C117.4	Write critical reports to convey data and information with clarity and precision.	K3
C117.5	Give appropriate instructions and recommendations for safe execution of tasks.	K3

Semester	:	III	Level in Bloom's Taxonomy
Course Code & Name	:	C201 & MA3355 RANDOM PROCESSES AND LINEAR ALGEBRA	
Year of Study	:	2022 – 2023, 2023-2024	

Cos No.	Course Outcome	
C201.1	Use the fundamental knowledge of the concepts of probability and standard distributions which can describe real life phenomenon.	K2
C201.2	Apply the basic concepts of one and two dimensional random variables in engineering applications.	K3
C201.3	Apply the concept of random processes in engineering disciplines.	K3
C201.4	Students will be able to explain the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts on the topic Vector Spaces.	K3

C201.5	Describe electronics circuits involved in the design of logic gates.	K3

Semester	:	III	Level in Bloom's Taxonomy
Course Code & Name	:	**C202 & EC3354 SIGNALS AND SYSTEMS**	
Year of Study	:	**2022 – 2023, 2023-2024**	
Cos No.		Course Outcome	
C202.1	Determine the characteristics of signals and systems	K3
C202.2	Apply various transforms for continuous time and discrete time signals	K3
C202.3	Determine the response of an LTI System for both continuous time and discrete time input signals.	K3
C202.4	Apply laplace transform and fourier transform to examine continuous time LTI systems.	K3
C202.5	Students will be able to demonstrate accurate and efficient use of advanced algebraic techniques and to demonstrate their mastery by solving non - trivial problems related to the concepts and by proving simple theorems about the statements proven by the text on the topic Linear Transformation and Inner Product Spaces.	K3

Semester	:	III	Level in Bloom's Taxonomy
Course Code & Name	:	**C203& CS3353 C PROGRAMMING AND DATA STRUCTURES**	
Year of Study	:	**2022 – 2023, 2023-2024**	
Cos No.		Course Outcome	
C203.1	Develop C programs for solving technical Application.	K3
C203.2	Apply advanced features for solving real world application.	K3
C203.3	Implement linear data structure operations using functions.	K3
C203.4	Use appropriate non–linear data structure operations for solving a given problem.	K3
C203.5	Apply appropriate sorting and searching algorithms for a given application.	K2

Semester	:	III	Level in Bloom's Taxonomy
Course Code & Name	:	**C204 & EC3353 ELECTRONIC DEVICES AND CIRCUITS**	
Year of Study	:	**2022 – 2023, 2023-2024**	
Cos No.		Course Outcome	
C204.1	Illustrate the structure and working of basic electronic devices.	K3
C204.2	Analyze the frequency response of small signal amplifiers.	K3
C204.3	Analyze the frequency response of small signal amplifiers.	K2
C204.4	Analyze and design and analyze feedback amplifiers and oscillators circuits.	K4

C204.5	Analyze and design the various power amplifiers and DC/DC Converters.	K4

Semester	:	III	Level in Bloom's Taxonomy
Course Code & Name	:	**C205 & EC3351 CONTROL SYSTEMS**	
Year of Study	:	**2022 – 2023, 2023-2024**	
Cos No.		Course Outcome	
C205.1	Compute transfer function modeling of different physical systems using various techniques.		K2
C205.2	Obtain the time response, identify the controllers and determine steady state error of control systems.		K2
C205.3	Illustrate the frequency response characteristics of the system using various plots and design various compensators.		K4
C205.4	Determine the stability of control systems using various methods.		K4
C205.5	Analyze the state space model using state variables and discuss the concepts of sampled data control system.		K4

Semester	:	III	Level in Bloom's Taxonomy
Course Code & Name	:	**C206& EC3352 DIGITAL SYSTEMS DESIGN**	
Year of Study	:	**2022 – 2023, 2023-2024**	
Cos No.		Course Outcome	
C206.1	Apply Boolean algebra and simplification procedures relevant to digital logic.		K1
C206.2	Design various combinational digital circuits using logic gates.		K3
C206.3	Analyse and design synchronous sequential circuits.		K3
C206.4	Analyse and design asynchronous sequential circuits.		K3
C206.5	Design logic gates and use programmable devices.		K3

Semester	:	III	Level in Bloom's Taxonomy
Course Code & Name	:	**C207& EC3361 Electronic Devices and Circuits Laboratory**	
Year of Study	:	**2022 – 2023, 2023-2024**	
C207.1	Examine the characteristics of PN Junction diode, Zener diode and Zener diode regulator.		K2
C207.2	Construct the Full wave rectifier with capacitive filter and sketch its response.		K3
C207.3	Investigate the input-output Characteristics of BJT and drain current and Transfer Characteristics of MOSFET.		K3
C207.4	Analyze the frequency response of CE, CB, CC ,CS and cascode amplifiers.		K3
C207.5	Design differential amplifier and calculate its CMRR.		K4

Semester	:	III	Level in Bloom's Taxonomy
Course Code & Name	:	**C208 & CS3362 C PROGRAMMING & DATA STRUCTURES LABORATORY**	

Year of Study	:	2022 – 2023, 2023-2024	
Cos No.		Course Outcome	
C208.1		Develop C programs for given applications.	K2
C208.2		Implement Linear Data Structures using C.	K2
C208.3		Implement Tree ADT for a given problem.	K3
C208.4		Implement Searching and Sorting Techniques.	K2
C208.5		Implement Various Hashing Techniques.	K4

Semester	:	III	Level in Bloom's Taxonomy
Course Code & Name	:	C209 &GE3361-PROFESSIONAL DEVELOPMENT	
Year of Study	:	2022 – 2023, 2023-2024	
Cos No.		Course Outcome	
C209.1		Use MS Word to create quality documents, by structuring and organizing content for their day to day technical and academic requirements	K2
C209.2		Use MS EXCEL to perform data operations and analytics, record, retrieve data as per requirements and visualize data for ease of understanding.	K2
C209.3		Use MS PowerPoint to create high quality academic presentations by including common tables, charts, graphs, interlinking other elements, and using media objects	K3
C209.4		Perform correlation and regression analytics on standard data sets	K3
C209.5		Present and interpret data using visualization packages in Python.	K3

Semester	:	IV	Level in Bloom's Taxonomy
Course Code & Name	:	C209 & EC3452 ELECTROMAGNETIC FIELDS	
Year of Study	:	2022 – 2023, 2023-2024	
Cos No.		Course Outcome	
C210.1		Apply the basic mathematical concepts of vector analysis	K1
C210.2		Describe the laws associated to static electric field and the properties of conductors and dielectrics.	K2
C210.3		Analyze the field potentials due to static magnetic fields and explain how materials affect electric and magnetic fields.	K2
C2010.4		Analyze the relation between the fields under time varying situations and apply Maxwell's equations to electric and magnetic fields.	K3
C2105		Explain electromagnetic wave propagation in lossy and in lossless media.	K4

Semester	:	IV	Level in Bloom's Taxonomy
Course Code & Name	:	C211 & EC3401 NETWORKS AND SECURITY	
Year of Study	:	2022 – 2023, 2023-2024	
Cos No.		Course Outcome	
C211.1		Characterize the various types of Network Models, layers and its functions.	K4
C211.2		Illustrate the various network layer protocols and routing algorithms.	K4
C211.3		Examine the transport layer protocols and application layer paradigms.	K4

| C211.4 | Determine the network security architecture and algorithms. | K3 |
| C211.5 | Identify the hardware security attacks and its counter measures. | K3 |

Semester	:	IV	Level in Bloom's Taxonomy
Course Code & Name	:	C212& EC3451 LINEAR INTEGRATED CIRCUITS	
Year of Study	:	2022 – 2023, 2023-2024	
Cos No.		Course Outcome	
C212.1		Explain about the basic building blocks of Linear Integrated Circuits.	K3
C212.2		Describe linear and non-linear applications of op-amps.	K3
C212.3		Design applications using Analog multipliers and PLL.	K3
C212.4		Design ADC and DAC using op-amps.	K4
C212.5		Generate waveforms using op-amp circuits and Analyze special function ICs.	K2

Semester	:	IV	Level in Bloom's Taxonomy
Course Code & Name	:	C2142& EC3492 DIGITAL SIGNAL PROCESSING	
Year of Study	:	2022 – 2023, 2023-2024	
Cos No.		Course Outcome	
C212.1		Apply DFT for the analysis of discrete signals & systems.	K3
C212.2		Design Infinite Impulse Response (IIR) filters based on the given specifications.	K3
C212.3		Design Finite Impulse Response (FIR) filters based on the given specifications.	K3
C212.4		Analyse the finite Word length effects in digital systems.	K3
C212.5		Perform multirate signal processing & characterize the functionalities and architecture of DSP processors.	K4

Semester	:	IV	Level in Bloom's Taxonomy
Course Code & Name	:	C213 & EC3491 COMMUNICATION SYSTEMS	
Year of Study	:	2022 – 2023, 2023-2024	
Cos No.		Course Outcome	
C213.1		Analyze the various analog modulation techniques used for communication.	K2
C213.2		Apply the concepts of Random Process, Sampling and Quantization to the design of communication systems.	K2
C213.3		Apply the concepts of Pulse modulation and channel coding techniques.	K3
C213.4		Develop applications using the various band pass signalling schemes.	K2

C213.5	Analyze the importance of demodulation techniques.	K2

Semester	:	IV	Level in Bloom's Taxonomy
Course Code & Name	:	C214 & GE3451 ENVIRONMENTAL SCIENCES AND SUSTAINABILITY	
Year of Study	:	2022 – 2023, 2023-2024	
Cos No.		Course Outcome	
C214.1		Illustrate the importance of environment, biodiversity and its impact on human life.	K2
C214.2		Correlate the causes, effect and control measures of various types of pollution and its case studies.	K4
C214.3		Educate the availability of renewable energy resources and scientific concepts/principles behind them.	K4
C214.4		Articulate the concept of sustainability and management.	K4
C214.5		Gain knowledge on sustainability practices and socio-economical change.	K4

Semester	:	IV	Level in Bloom's Taxonomy
Course Code & Name	:	C215& EC3461 COMMUNICATION SYSTEMS LABORATORY	
Year of Study	:	2022 – 2023, 2023-2024	
Cos No.		Course Outcome	
C215.1		Design AM and FM for specific applications.	K4
C215.2		Compute the sampling frequency for digital modulation.	K4
C215.3		Implement Pulse digital modulation schemes.	K4
C215.4		Implement PAM, PPM and PWM systems.	K4
C215.5		Demonstrate their knowledge in base band signaling schemes through implementation of digital modulation schemes.	K3

Semester	:	IV	Level in Bloom's Taxonomy
Course Code & Name	:	C216 & EC3462 LINEAR INTEGRATED CIRCUITS Laboratory	
Year of Study	:	2022 – 2023, 2023-2024	
C216.1		Analyze the basics of linear integrated circuits and various types of feedback amplifiers.	K2
C216.2		Design the oscillators, amplifiers, Wave shaping circuits and filters using operational amplifiers.	K2
C216.3		Analyze and implement the frequency multiplier using PLL.	K2
C216.4		Design D to A converters using Operational Amplifiers.	K3

C216.5	Analyze the performance of Oscillators, Amplifiers and Multivibrators using SPICE.	K2

Semester	:	V	**Level in Bloom's Taxonomy**
Course Code & Name	:	**C301 & EC3501 WIRELESS COMMUNICATION**	
Year of Study	:	**2023-2024,2024-2025**	

C301.1	Understand The Concept And Design Of A Cellular System.	K3
C301.2	Understand Mobile Radio Propagation And Various Digital Modulation Techniques.	K2
C301.3	Understand The Concepts Of Multiple Access Techniques And Wireless Networks.	K4
C301.4	Characterize a wireless channel and evolve the system design specifications.	K2
C301.5	Design a cellular system based on resource availability and traffic demands.	K4

Semester	:	V	**Level in Bloom's Taxonomy**
Course Code & Name	:	**C302 & EC3552 -VLSI AND CHIP DESIGN**	
Year of Study	:	**2023-2024,2024-2025**	

C302.1	In depth knowledge of MOS technology.	K3
C302.2	Understand Combinational Logic Circuits and Design Principles.	K2
C302.3	Understand Sequential Logic Circuits and Clocking Strategies.	K3
C302.4	Understand Memory architecture and building blocks.	K3
C302.5	Understand the ASIC Design Process and Testing.	K2

Semester	:	V	**Level in Bloom's Taxonomy**
Course Code & Name	:	**C303 & EC3351-TRANSMISSION LINES AND RF SYSTEMS**	
Year of Study	:	**2023-2024,2024-2025**	

C303.1	Explain the characteristics of transmission lines and its losses.	K2
C303.2	Calculate the standing wave ratio and input impedance in high frequency transmission lines.	K1
C303.3	Analyze impedance matching by stubs using Smith Charts.	K2
C303.4	Comprehend the characteristics of TE and TM waves.	K3
C303.5	Design a RF transceiver system for wireless communication.	K2

Semester	:	V	**Level in Bloom's Taxonomy**
Course Code & Name	:	**C304 & CEC345-OPTICAL COMMUNICATION**	
Year of Study	:	**2023-2024,2024-2025**	

C304.1	Realize Basic Elements In Optical Fibers, Different Modes And Configurations.	K2
C304.2	Analyze The Transmission Characteristics Associated With Dispersion And Polarization Techniques.	K2
C304.3	Design Optical Sources And Detectors With Their Use In Optical Communication System.	K3

C304.4	Construct Fiber Optic Receiver Systems, Measurements And Techniques.	K2
C304.5	Design Optical Communication Systems And Its Networks.	K2

Semester	:	V	Level in Bloom's Taxonomy
Course Code & Name	:	**C305 & CEC365 WIRELESS SENSOR NETWORK DESIGN**	
Year of Study	:	**2023-2024,2024-2025**	
C305.1		design solutions for WSNs applications.	K2
C305.2		develop efficient MAC and Routing Protocols	K2
C305.3		design solutions for 6LOWPAN applications	K2
C305.4		develop efficient layered protocols in 6LOWPAN.	K3
C305.5		use Tiny OS and Contiki OS in WSNs and 6LOWPAN applications	K2

Semester	:	V	Level in Bloom's Taxonomy
Course Code & Name	:	**C306 & CEC368 IOT BASED SYSTEMS DESIGN**	
Year of Study	:	**2023-2024,2024-2025**	
C306.1		Articulate the main concepts, key technologies, strength and limitations of IoT.	K5
C306.2		Identify the architecture, infrastructure models of IoT. implementation of digital modulation schemes	K4
C306.3		Analyze the networking and how the sensors are communicated in IoT .	K3
C306.4		Analyze and design different models for IoT implementation.	K3
C306.5		Identify and design the new models for market strategic interaction.	K3

Semester	:	V	Level in Bloom's Taxonomy
Course Code & Name	:	**C307 & MX3084 DISASTER RISK REDUCTION AND MANAGEMENT**	
Year of Study	:	**2023-2024,2024-2025**	
C307.1		To impart knowledge on the concepts of Disaster, Vulnerability and Disaster Risk reduction (DRR)	K3
C307.2		To enhance understanding on Hazards, Vulnerability and Disaster Risk Assessment prevention and risk reduction.	K4
C307.3		To develop disaster response skills by adopting relevant tools and technology.	K4
C307.4		Enhance awareness of institutional processes for Disaster response in the country.	K3
C307.5		Develop rudimentary ability to respond to their surroundings with potential Disaster response in areas where they live, with due sensitivity.	K3

Semester	:	V	Level in Bloom's Taxonomy
Course Code & Name	:	**C308 & EC3561 VLSI LABORATORY**	
Year of Study	:	**2023-2024,2024-2025**	
C308.1		learn Hardware Descriptive Language (Verilog/VHDL).	K2
C308.2		learn the fundamental principles of Digital System Desing using HDL and	K2

	FPGA.	
C308.3	learn the fundamental principles of VLSI circuit design in digital domain .	K3
C308.4	learn the fundamental principles of VLSI circuit design in analog domain	K2
C308.5	provide hands on design experience with EDA platforms.	K5

Semester	:	VI	Level in Bloom's Taxonomy
Course Code & Name	:	C309 & ET3491 EMBEDDED SYSTEMS AND IOT DESIGN	
Year of Study	:	2023-2024,2024-2025	
C309.1		Explain the architecture and features of 8051.	K2
C309.2		Develop a model of an embedded system.	K2
C309.3		List the concepts of real time operating systems.	K2
C309.4		Learn the architecture and protocols of IoT.	K3
C309.5		Design an IoT based system for any application.	K4

Semester	:	VI	Level in Bloom's Taxonomy
Course Code & Name	:	C310 & CS3491 ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING	
Year of Study	:	2023-2024,2024-2025	
C310.1		Use appropriate search algorithms for problem solving.	K2
C310.2		Apply reasoning under uncertainty.	K2
C310.3		Build supervised learning models.	K3
C310.4		Build ensembling and unsupervised models.	K4
C310.5		Build deep learning neural network models.	K4

Semester	:	VI	Level in Bloom's Taxonomy
Course Code & Name	:	C311 & CBM341 BODY AREA NETWORKS	
Year of Study	:	2023-2024,2024-2025	
C311.1		Comprehend and appreciate the significance and role of this course in the present contemporary world.	K2
C311.2		Design a BAN for appropriate application in medicine.	K3
C311.3		Assess the efficiency of communication and the security parameters.	K3
C311.4		Understand the need for medical device regulation and regulations followed in various regions.	K4
C311.5		Extend the concepts of BAN for medical applications.	K4

Semester	:	VI	Level in Bloom's Taxonomy
Course Code & Name	:	C312 & CEC360 UNDERWATER NAVIGATION SYSTEMS	
Year of Study	:	2023-2024,2024-2025	
C312.1		know about the Underwater Navigation System	K2
C312.2		know about the INS and its aiding sensor.	K2

C312.3	know about the challenges involved in underwater navigation	K4
C312.4	study about how navigation system is integrated with manned and unmanned underwater vehicles	K4
C312.5	know about underwater positioning system.	K4

Semester	:	VI	**Level in Bloom's Taxonomy**
Course Code & Name	:	**C313 & CEC352 SATELLITE COMMUNICATION**	
Year of Study	:	**2023-2024,2024-2025**	
C313.1	Identify the satellite orbits	K2
C313.2	Analyze the satellite subsystems	K3
C313.3	Evaluate the satellite link power budget	K3
C313.4	Identify access technology for satellite	K4
C313.5	Design various satellite applications	K4

Semester	:	VI	**Level in Bloom's Taxonomy**
Course Code & Name	:	**C314 & OEE351 RENEWABLE ENERGY SYSTEM**	
Year of Study	:	**2023-2024**	
C314.1	Attained knowledge about various renewable energy technologies	K2
C314.2	Ability to understand and design a PV system.	K2
C314.3	Understand the concept of various wind energy system.	K3
C314.4	Gained knowledge about various possible hybrid energy systems.	K4
C314.5	Attained knowledge about various application of renewable energy technologies.	K4

Semester	:	VI	Level in Bloom's Taxonomy
Course Code & Name	:	**C315 & MX3089 INDUSTRIAL SAFETY**	
Year of Study	:	**2023-2024**	
C315.1	Understand the basic concept of safety.	K2
C315.2	Obtain knowledge of Statutory Regulations and standards.	K2
C315.3	Know about the safety Activities of the Working Place..	K4
C315.4	Analyze on the impact of Occupational Exposures and their Remedies	K4
C315.5	Obtain knowledge of Risk Assessment Techniques	K4

Semester	:	VII	**Level in Bloom's Taxonomy**
Course Code & Name	:	**C401 & GE3751 PRINCIPLES OF MANAGEMENT**	
Year of Study	:	**2024-2025**	
C401.1	Upon completion of the course, students will be able to have clear understanding of managerial functions like planning, organizing, staffing, leading & controlling.	K2
C401.2	Have same basic knowledge on international aspect of management.	K2
C401.3	Ability to understand management concept of organizing	K2
C401.4	Ability to understand management concept of directing.	K4
C401.5	Ability to understand management concept of controlling.	K4

Semester	:	VII	Level in Bloom's Taxonomy
Course Code & Name	:	C402 & OCH353 ENERGY TECHNOLOGY	
Year of Study	:	2024-2025	
C402.1		describe the fundamentals and main characteristics of renewable energy sources and their differences compared to fossil fuels.	K2
C402.2		Students will excel as professionals in the various fields of energy engineering	K2
C402.3		Compare different renewable energy technologies and choose the most appropriate based on local conditions.	K3
C402.4		Explain the technological basis for harnessing renewable energy sources.	K3
C402.5		Identify and critically evaluate current developments and emerging trends within the field of renewable energy technologies and to develop in-depth technical understanding of energy problems at an advanced level.	K3

Semester	:	VII	Level in Bloom's Taxonomy
Course Code & Name	:	C403 & OMG353 DEMOCRACY AND GOOD GOVERNANCE	
Year of Study	:	2024-2025	
C403.1		know about the Indian model of democracy.	K1
C403.2		know about the role and function of key regulatory instutions in india.	K1
C403.3		know about the influence and function of lobbying institutions.	K2
C403.4		know about the political economy of development in india.	K2
C403.5		understand the civil society in india.	K2

Semester	:	VII	Level in Bloom's Taxonomy
Course Code & Name	:	C404& AI3021 IT IN AGRICULTURAL SYSTEM	
Year of Study	:	2024-2025	
C404.1		understand the applications of IT in remote sensing applications such as Drones etc.	K2
C404.2		get a clear understanding of how a greenhouse can be automated and its advantages.	K4
C404.3		apply IT principles and concepts for management of field operations.	K4
C404.4		The students will get an understanding about weather models, their inputs and applications.	K3
C404.5		The students will get an understanding of how IT can be used for e-governance in agriculture.	K4

Semester	:	VII	Level in Bloom's Taxonomy
Course Code & Name	:	C405 & GE3791 HUMAN VALUES AND ETHICS	
Year of Study	:	2024-2025	
C405.1		Identify the importance of democratic, secular and scientific values in	K2

	harmonicons function of social life.	
C405.2	Practice democratic and scientific values in both their personal and professional life.	K2
C405.3	Find rational solutions to social problems.	K2
C405.4	Behave in an ethical manner in society.	K2
C405.5	Practice critical thinking and the pursuit of truth.	K4

Semester	:	VII	Level in Bloom's Taxonomy
Course Code & Name	:	C406 & EC3711 SUMMER INTERNSHIP	
Year of Study	:	2024-2025	
C406.1	Student is able to construct the company profile by compiling the brief history, management structure, products / services offered, key achievements and market performance for his / her organization of internship	K4
C406.2	For his / her organization of internship, the student is able to assess its Strengths, Weaknesses, Opportunities and Threats (SWOT)	K4
C406.3	Student is able to determine the challenges and future potential for his / her internship organization in particular and the sector in general	K4
C406.4	Student is able to test the theoretical learning in practical situations by accomplishing the tasks assigned during the internship period	K4
C406.5	Student is able to apply various soft skills such as time management, positive attitude and communication skills during performance of the tasks assigned in internship organization.	K4

Semester	:	VIII	Level in Bloom's Taxonomy
Course Code & Name	:	C407 &EC3811 PROJECT WORK	
Year of Study	:	2024-2025	
C407.1	Understand the concepts and design process of various electronics circuits and Communication engineering.	K3
C407.2	Develop and implement innovative ideas	K5
C407.3	Identify and solving the real time problems	K4
C407.4	Publish the Research Finding through conference and journals and able to get the Patent	K5
C407.5	Create a platform to enable the students to become an entrepreneur.	K6