COURSE CODE	COURSE NAME	CO	CO STATEMENT
C310	Microprocessors and Microcontrollers	C310.1	Illustrate the internal architecture of 8086 microprocessor and usage of relevant instruction set based on various addressing modes.
		C310.2	Construct assembly language programs using various assembler directives of 8086 microprocessor.
		C310.3	Develop various interfacing circuits of 8086 microprocessor with programmable peripherals.
		C310.4	Interpret the internal architecture of advanced microprocessors 80386 and 80387.
		C310.5	Construct assembly language programs based on the internal architecture and addressing modes of 8051 microcontroller.
		C310.6	Summarize the architectural features of PIC and ARM32 microcontrollers.
C311	Digital Signal Processing	C311.1	Identify various types of discrete Signals and Systems.
		C311.2	Apply Discrete Fourier Series , Discrete Fourier Transform and Fast Fourier Transform on different discrete signals.
		C311.3	Realize IIR and FIR filters Using Z-Transforms.
		C311.4	Design of IIR and FIR filters as per the specifications of the digital signal processing system
		C311.5	Perform sampling rate conversions on different signals.
		C311.6	Summarie the architecture of DSP processors and peripherals used in DSP system design.
C312	Digital	C312.1	Apply the concept of communication principles to the various digital communication systems.

	Communications	C312.2	Apply various digital modulation techniques to obtain power spectral densities and Bandwidth calculations.
		C312.3	Examine the probability of error for various digital modulation schemes
		C312.4	Interpret the probability of error for different Information channels and its properties.
		C312.5	Distinguish channel capacities for analog and discrete channels using Shannon-Fanon coding theorem.
		C312.6	Analyze and compute different error control coding schemes for the reliable transmission of digital information over the channel.
C313	Microwave Engineering	C313.1	Acquire knowledge of transmission lines and waveguide structures and their usage as elements in impedance matching and filter circuits.
		C313.2	Explain the performance of Wave Guides and Resonators.
		C313.3	Define and calculate the S-parameters for different microwave junctions and components.
		C313.4	Analyze the operation of Microwave O-type tubes like Klystron, Reflex Klystron etc.
		C313.5	Analyze the operation of Microwave tubes like magnetron, travelling wave tube etc.
		C313.6	Summarize the performance of Solid State Microwave Devices, like IMPATT, TRAPATT diodes. Analyze and measure various microwave parameters such as Microwave Power, VSWR, Impedance, Frequency and Attenuation using Microwave test bench.
C314	Bio Medical Engineering	C314.1	Identify various sources of bio-electric potentials in man-instrumentation system.
		C314.2	Interpret how electrodes and transducers are involved in biomedical engineering concepts.
		C314.3	Outline the anatomy of Cardiovascular and respiratory system and their measuring instruments

		C314.4	Summarize the functionality of patient care & monitoring equipment used to identify the malfunction of human body.
		C314.5	Identify the different diagnostic imaging techniques and describe the components in a bio-telemetry system.
		C314.6	Discuss the Importance of monitors, recorders and electrical accident prevention methods.
C315	Microprocessors and Microcontrollers Lab	C315.1	Develop programming skills for data operations and different interfacing circuits of microprocessor and microcontrollers.
		C315.2	Develop 8086 Assembly language programs to demonstrate the arithmetic operations of binary, BCD, ASCII, logical operations and standard DOS functions to display message on screen, reading keys from keyboard with and without echo.
		C315.3	Examine different string, branch and process control based operations in assembly language such as moving string, finding length of string, reverse of string, insertion, deletion, sorting.
		C315.4	Explain the process of interfacing 8086 microprocessor with peripheral control ICs like 8255, 8279, 8251 and 8259.
		C315.5	Develop assembly language programs to make use of parallel ports, timers and serial port of 8051 microcontroller.
		C315.6	Examine the real world applications in C programming using LCD, seven segment, hex keypad and temperature sensor being interfaced with 8051 microcontroller.
C316	Digital Communications Lab	C316.1	Demonstrate the basic building blocks and principle of operation of Digital communication system.
		C316.2	Experiment with multiplexing and de-multiplexing Techniques in a digital communication system.
		C316.3	Compare the pulse code modulation, differential pulse code modulation and delta modulation,

			generation and degeneration techniques.
		C316.4	Examine various digital modulation (FSK, PSK, DPSK), demodulation techniques and their applications
		C316.5	Apply companding techniques in digital communication system.
		C316.6	Illustrate various linear block coding techniques in digital communication system.
C317	Digital Signal Processing Lab	C317.1	Outline the TMS 320C 5X/6X processor architecture & its instructions and demonstrate the working environment of MATLAB & CC Studio for signal processing applications
		C317.2	Analyze the response of discrete time LTI systems using linear and circular convolution methods.
		C317 .3	Design and implementation of FIR filters using windowing techniques such as Rectangular, Triangular and Kaiser.
		C317.4	Design and implementation of analog and IIR low pass and high pass filters
		C317.5	Apply the N-point Fast Fourier Transform (FFT) algorithm on one dimensional signals
		C317.6	Analyze the power spectral density of a given signals.