Department of Electronics and Telecommunication Engineering SGSITS Indore
LECTURE PLAN
EC35661- Embedded Systems
III YR B.TECH. Session – January-June 2024

Lecture No.	
1	Overview and discussion about the syllabus
2	**Unit 1:** Introduction about embedded systems and its applications
3	Types of Embedded systems and their component selections
4	Architecture of AVR micro-controller (AVR ATMEGA 8/16/32): Internal Registers, clock circuitry, bus system
5	Discussion about internal memory architecture and memory access tech of AVR
6	Assembly language instructions sets of AVR micro-controller and its programming development on IDE
7	**Unit 2:** Discussion about the IO ports and their access with AVR programming
8	Description about timer and counter circuitry of AVR and its programming for various applications
9	Use of timer circuitry for delay generation and observation of waveforms generation on display units
10	Application design with display units such as LEDs, LCD with proper interfacing with AVR
11	Interfacing scheme design of DC, stepper motors with AVR micro-controller
12	Interfacing various wireless modules LoRA, ZigBee with AVR for application developments
13	**Unit 3:** Internal architecture of MSP430 micro-controller and its features
14	Internal view of available memories of MSP430 and its access to micro-controller
15	Discussion about the assembly language instructions of MSP430
16	Assembly language programming of MSP 430 and addressing modes
17	Analog/Digital input output systems of MSP430
18	Low power modes of MSP430 and their usage
19	**Unit 4:** Clock generation for MSP 430 and reset circuitry
20	Interrupt system and actuation for MSP 430
21	Timer and counter circuitry of MSP 430 with proper activation and usage
22	IDE discussion and its features for embedded *C* programming of MSP430
22	Serial communication with MSP 430 with USART and modem
23	Interfacing with various devices to implement real time applications
24	**Unit 5:** Introduction of ARM controller and its profile discussion
25	Memory and I/O port handling with ARM micro-controller
26	Pipelining features of ARM controller and its effects on the performance
27	Assembly language programming discussion on STM32 IDE
28	Requirement of Real Time Operating System (RTOS) and its implementation
29	Interrupt procedure and its handling in Real Time Operating System (RTOS)
30	Real time application development with STM32 ARM micro-controller