

3EC11: ADVANCE MICROCONTROLLER LAB
CREDITS – 1 (LTP: 0,0,2)

Course Objective:

To provide in depth knowledge of ARM Controller, LPC2148 and MSP430 architecture using assembly as well as C language programming.

Teaching and Assessment Scheme:

Teaching Scheme (Hours per Week)			Credits	Assessment Scheme				Total Marks
L	T	P		Theory Marks		Practical Marks		
			ESE	CE	ESE	CE	100	
0	0	2	1	00	00	40		60

List of Experiments:

Sr. No.	Name of Experiment
1.	Introduction to μ Vision IDE for ARM7
2.	To study Load and Store Architecture in ARM7
3.	Write Assembly Language Program using KEIL uvision5 ; a) to add two 32bit numbers. b) to add two 64bit numbers. c) to multiply two 32bit numbers. d) to sort the numbers in ascending order. e) to sort the numbers in descending order. f) to find lowest number among 10 numbers. g) to find lowest number among 10 numbers. h) to divide numbers using repeated subtraction.
4.	a) Interfacing LED on P0 and P1 using LPC 2148 ARM 7 controller. b) Generate Blinking pattern of LED interfaced on P0 and P1 using LPC 2148 ARM 7 controller (using Software delay)
5.	To study and configure TIMER block of ARM 7 controller and generate delay and Blink LED interfaced on P0 using LPC 2148 ARM 7 controller.
6.	To study and configure PWM block of ARM 7 controller and set different brightness level of LED interfaced on P0 using LPC 2148 ARM 7 controller
7.	To study and configure UART block of ARM 7 controller and send "BVM EC DEPARTMENT" string using LPC 2148 ARM 7 controller to PC.
8.	Write a program : a) To Interface LCD using LPC 2148 ARM 7 controller to display string "BVM EC DEPARTMENT". b) To Scroll Message "BVM EC DEPARTMENT" from right to left on LCD using LPC 2148 ARM 7 controller

Sr. No.	Name of Experiment
9.	Write Programs using MSP430 ; a) Data Transfer and Arithmetic Instruction Programming in MSP430 b) Boolean & Logical Instructions Programming in MSP430.
10.	Introduction to MSP430 Kit and Programming Environment with program to work with ports.
11.	Configure timer block with capture/compare channel 0 & 1 to generate different frequency signal on MSP430 kit.
12.	Configure watchdog timer & interval mode on MSP430 kit.
13.	Test various Power Down modes in MSP430 kit.

Course Outcomes (COs) :

1. Understand the need of advance controller in Embedded Systems
2. Familiarize with the assembly level and C programming using ARM Controller.
3. Utilized and understand the Keil μ Vision-3/4 and Code Composer Studio tool.
4. Analyze problems and apply a combination of hardware and software to address the problem.
5. Troubleshoot interactions between software and hardware.
6. Design and implement some applications Using MSP 430 low power microcontroller