Department of Computer Science & Engineering

Lesson Plan &Work-done Diary for AY: 2024-25, EVEN Semester

Course with Code: Microcontrollers– BCS402				**Faculty:**			**Semester & Section:** 4th	
Class No.	**Date planned (DD/MM)**	**Topics to be covered**	**TLP Planned**	**Class No.**	**Date of Conduction (DD/MM)**	**Topics Covered**	**TLP Executed**	**Remarks if any deviation**
MODULE-1								
1		Introduction to the course, Bridge Course: Microprocessors versus Microcontrollers	Chalk & Talk	1				
2		Bridge Course: Embedded systems	Chalk & Talk, PPT	2				
3		ARM Embedded Systems: The RISC design philosophy, The ARM Design Philosophy	Chalk & Talk	3				
4		Embedded System Hardware	PPT	4				
5		EmbeddedSystem Software	PPT	5				
6		ARM Processor Fundamentals: Registers	Chalk & Talk, PPT	6				
7		Current Program Status Register	Chalk & Talk, PPT	7				
8		Pipeline	Chalk & Talk, PPT	8				
9		Exceptions, Interrupts, and the Vector Table	Chalk & Talk, PPT	9				
10		Core Extensions, Revision & Quiz	Chalk & Talk, MS Forms	10				

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MODULE-2								
1		Introduction to the ARM Instruction Set: DataProcessing Instructions	Chalk & Talk, PPT	1				
2		Data Processing Instructions	Chalk & Talk, PPT	2				
3		Branch Instructions	Chalk & Talk, PPT	3				
4		Software Interrupt Instructions	Chalk & Talk, PPT	4				
5		Program Status Register Instructions	Chalk & Talk, PPT	5				
6		Coprocessor Instructions	Chalk & Talk, PPT	6				
7		Loading Constants	Chalk & Talk, PPT	7				
8		Revision, Quiz	Chalk & Talk, PPT, MS forms	8				

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MODULE-3								
1		C Compilers and Optimization: Basic C DataTypes	Chalk & Talk, PPT	1				
2		C Looping Structures	Chalk & Talk, PPT	2				
3		Register Allocation	Chalk & Talk, PPT	3				
4		Function Calls	Chalk & Talk, PPT	4				
5		Pointer Aliasing	Chalk & Talk, PPT	5				
6		Floating Point	Chalk & Talk, PPT	6				
7		Portability Issues	Chalk & Talk, PPT	7				
8		Revision, Quiz	Chalk & Talk, PPT, MS Forms	8				

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MODULE-4								
1		Exception and Interrupt Handling: Exception handling, ARM processor exceptions and modes, Vector Table	Chalk & Talk, PPT	1				
2		Exception priorities, Link register offsets	Chalk & Talk, PPT	2				
3		Interrupts, Assigning interrupts, Interrupt latency	Chalk & Talk, PPT	3				
4		IRQ and FIQ exceptions, Basic interrupt stack design and implementation.	Chalk & Talk, PPT	4				
5		Firmware: Firmware and bootloader	PPT	5				
6		ARM firmware suite, Red Hat redboot	PPT	6				
7		Example: Sandstone, Sandstone Directory Layout, Sandstone Code Structure	PPT	7				
8		Revision & Quiz	Chalk & Talk, PPT, MS forms	8				

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MODULE-5								
1		CACHES: The Memory Hierarchy and Cache Memory, Caches and Memory Management Units	Chalk & Talk, PPT	1				
2		CACHE Architecture: Basic Architecture of a Cache Memory, Basic Operation of a Cache Controller, The Relationship between Cache and Main Memory	Chalk & Talk, PPT	2				
3		Set Associativity	Chalk & Talk, PPT	3				
4		Write Buffers, Measuring Cache Efficiency	Chalk & Talk, PPT	4				
5		CACHE POLICY: Write Policy—Writeback or Writethrough	Chalk & Talk, PPT	5				
6		Cache Line Replacement Policies	Chalk & Talk, PPT	6				
7		Allocation Policy on a Cache Miss. Coprocessor 15 and caches	Chalk & Talk, PPT	7				
8		Revision & Quiz	Chalk & Talk, PPT, MS Forms	8				

	Activity	Planned	Actual	Remarks
1	Theory Classes			
2	Assignments/ Quizzes/ Self-study			
3	Tutorials/ Extra classes			
4	Internal Assessments			
5	ICT based Teaching (% of usage in Curriculum)			

Planning	**Execution**
Faculty Signature:	**Faculty Signature:**
HoD Signature:	**HoD Signature:**