



VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN

(Autonomous)



DEPARTMENT OF INFORMATION TECHNOLOGY

Branch / Year / Semester: Information Technology / III / 05

Subject Code / Subject Name: U15IT512 / Microcontroller & Embedded Systems

LESSION PLAN

Session No.	Topics Covered	Duration in Minutes	Teaching AID	Books Referred
UNIT – I				
MICROCONTROLLERS AND EMBEDDED PROCESSORS				
1.	Introduction about microprocessors	45	BB	1
2.	Types of microprocessors	45	BB	1
3.	Introduction to Microcontrollers	45	BB	1
4.	Introduction to Embedded Processors	45	BB	1
5.	Embedded Processors - Architecture	45	BB	1
6.	Microcontrollers survey - four bit	45	BB	1
7.	Microcontrollers survey - eight bit	45	BB	1
8.	Microcontrollers survey - sixteen bit	45	BB	1
9.	Microcontrollers survey - thirty two bit Microcontrollers	45	BB	1
10.	Comparing Microprocessors and Microcontrollers	45	BB	1
11.	Overview of the 8051 family	45	BB	1
12.	Basic architecture of 8051	45	BB	1
UNIT – II				
THE 8051 ARCHITECTURE				
1.	The 8051 Architecture	45	BB	1
2.	Hardware, Oscillator	45	BB	1
3.	Clock-program counter	45	BB	1
4.	Data pointer	45	BB	1
5.	Registers	45	BB	1
6.	Stack and stack pointer	45	BB	1
7.	Special function registers	45	BB	1
8.	Memory organization	45	BB	1
9.	Program memory & data memory	45	BB	1
10.	Input / Output Ports	45	BB	1
11.	External memory counter	45	BB	1
12.	Timer-serial data Input/output, Interrupts	45	BB	1
UNIT – III				
8051 ASSEMBLY LANGUAGE PROGRAMMING				
1.	8051 Assembly Language Programming	45	BB	1
2.	Structure of Assembly language	45	BB	1
3.	Assembling and running an 8051 program	45	BB	1
4.	Addressing modes	45	BB	1
5.	Accessing memory using various addressing modes	45	BB	1

6.	Instruction set	45	BB	1
7.	Arithmetic operations and Programs	45	BB	1
8.	Logical operations and Programs	45	BB	1
9.	Jump and Call instructions and Programs	45	BB	1
10.	I/O Pot Programs	45	BB	1
11.	Single bit instructions and Programs	45	BB	1
12.	Timer and counter - and Programs			
UNIT – IV				
8051 SERIAL COMMUNICATION				
1.	8051 Serial Communication	45	PPT	1
2.	Asynchronous, Synchronous Communication	45	PPT	1
3.	Baud rate calculation	45	BB	1
4.	UART Protocol	45	BB	1
5.	Connection to RS-232	45	PPT	1
6.	Line Driver: MAX232	45	PPT	1
7.	Registers	45	BB	1
8.	Modes of operations	45	BB	1
9.	Serial Communication Programming	45	BB	1
10.	Interrupts Programming	45	BB	1
11.	Programming the 8051 to transfer data serially	45	BB	1
12.	Programming the 8051 to receive data serially	45	BB	1
UNIT – V				
MICROCONTROLLER INTERFACING				
1.	Microcontroller Interfacing	45	PPT	2
2.	Key Board	45	PPT	2
3.	Displays	45	BB	2
4.	Pulse Measurement	45	BB	2
5.	D / A and A/D conversion	45	BB	2
6.	Stepper Motor	45	BB	2
7.	Basic concept of PIC microcontroller	45	BB	2
8.	Addressing Modes	45	PPT	2
9.	Data memory and registers	45	PPT	2
10.	Microcontroller Architecture	45	PPT	2
11.	Pipeline Operation	45	PPT	2
12.	PIC16F Family	45	PPT	2

REFERENCES:	
1.	Muhammed Ali Mazidi, "The 8051 Microcontrollers and Embedded Systems", Second Edition, 2008
2.	Kenneth J. Ayala, "The 8051 Microcontrollers Architecture, Programming & Applications", 2e, Pendram International, 1996/Thomson Learning 2005.