EC6504   MICROPROCESSOR AND MICROCONTROLLER   L T P C
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OBJECTIVES:
The student should be made to:
• Study the Architecture of 8086 microprocessor.
• Learn the design aspects of I/O and Memory Interfacing circuits.
• Study about communication and bus interfacing.
• Study the Architecture of 8051 microcontroller.

UNIT I   THE 8086 MICROPROCESSOR   9
Introduction to 8086 – Microprocessor architecture – Addressing modes - Instruction set
and assembler directives – Assembly language programming – Modular Programming -
Linking and Relocation - Stacks - Procedures – Macros – Interrupts and interrupt service
routines – Byte and String Manipulation.

UNIT II   8086 SYSTEM BUS STRUCTURE   9
8086 signals – Basic configurations – System bus timing –System design using 8086 –
IO programming – Introduction to Multiprogramming – System Bus Structure –
Multiprocessor configurations – Coprocessor, Closely coupled and loosely Coupled
configurations – Introduction to advanced processors.

UNIT III   I/O INTERFACING   9
Memory Interfacing and I/O interfacing - Parallel communication interface – Serial
communication interface – D/A and A/D Interface - Timer – Keyboard /display controller
– Interrupt controller – DMA controller – Programming and applications Case studies:
Traffic Light control, LED display , LCD display, Keyboard display interface and Alarm
Controller.

UNIT IV   MICROCONTROLLER   9
Architecture of 8051 – Special Function Registers(SFRs) - I/O Pins Ports and Circuits -
Instruction set - Addressing modes - Assembly language programming.

UNIT V   INTERFACING MICROCONTROLLER   9
Programming 8051 Timers - Serial Port Programming - Interrupts Programming – LCD &
Keyboard Interfacing - ADC, DAC & Sensor Interfacing - External Memory Interface-
Stepper Motor and Waveform generation.
                                                  TOTAL: 45 PERIODS

OUTCOMES:
At the end of the course, the student should be able to:
• Design and implement programs on 8086 microprocessor.
• Design I/O circuits.
• Design Memory Interfacing circuits.
• Design and implement 8051 microcontroller based systems.

TEXT BOOKS:
1. Yu-Cheng Liu, Glenn A.Gibson, "Microcomputer Systems: The 8086 / 8088 Family -
Architecture, Programming and Design", Second Edition, Prentice Hall of India, 2007.
2. Mohamed Ali Mazidi, Janice Gillispie Mazidi, Rolin McKinlay, "The 8051
Microcontroller and Embedded Systems: Using Assembly and C", Second Edition,
Pearson Education, 2011
REFERENCE:
1. Doughlas V.Hall, "Microprocessors and Interfacing, Programming and
Hardware:,TMH, 2012