

  
**MANGALORE UNIVERSITY**  
**Department of Electronics**  
**MSc Electronics**

**ELH 403 - MICROPROCESSORS and MICROCONTROLLER**

**Course Outcome:-**

1. Describes the difference between the Microprocessor and Microcontroller.
2. Details architecture of the Microprocessor 8086,8087,80186, Microcontroller 8051 and its programming aspects.
3. Makes students aware of interrupts and describing about I/O ports to handle external signal
4. Handling Display system, DAC and ADC to performing interface, with real world application devices.
5. Ability to describe application based projects.

**6.**

**Unit – I**

8086 processor - Internal architecture of 8086, Instruction set – Data transfer instruction, Arithmetic instructions – Binary and BCD arithmetic. Branch instructions – conditional and unconditional, Loop instructions, Logical instructions, Flag manipulation, Shift and Rotate instructions, 8086 features - Assembler Directives.

**12 Hours**

**Unit – II**

8086 Interrupts and Interrupt applications, 8086 Maximum mode, Co-processor, Advanced Microprocessors – Introduction, Multiprogramming Concepts, Memory Management Concepts, virtual memory – segmentation scheme, 80286/ 80386 Microprocessor - Internal Architecture.

**12 Hours**

**Unit – III**

8051 Microcontroller - Architecture, Data type and Directives, Flags and PSW, Register Banks and Stack, Addressing Modes, I/O Ports. Instruction set – Data transfer instruction, Arithmetic and logical instructions. Jump, Loop and Call Instructions and Programming.

**12 Hours**

**Books:**

- 1)“Microprocessor and interfacing, programming and hardware”, Douglas V Hall, Tata McGraw Hill, Reprint 2nd Edn, 2000.
- 2)“The 8088 and 8086 Microprocessors: Programming, Interfacing, Software, Hardware, and Applications: Including the 80286, 80386, 80486, and Pentium Processors”, Walter A. Triebel, Avtar Singh, Prentice Hall, 4thEdn.
- 3)“The intel Microprocessor 8086/8088, 80186/80188, 80286, 80386, 80486, PENTIUM and PENTIUM PRO Processor – Architecture, Programming and Interfacing”, Barry B. Brey, Pearson Education Asia, 6thEdn., 2002.
- 4) “The 8051 Microcontroller and Embedded Systems: Using Assembly and C”. Muhammed Ali Mazidi, Pearson Education, 2008.
- 5) “The 8051 Microcontroller Architecture, Programming and Applications”, K. J. Ayala, Penram Int. Pub., 1991.

