

MANGALORE UNIVERSITY
Department of Physics
MSc Physics

PHS 554: ELECTRONICS III

(52 Hrs.)

Course outcome

- CO1 The candidate will have the knowledge on 8085 microprocessor architecture.
- CO2 The candidate will be able program 8085 microprocessor.
- CO3 Will be able to write programs with Stack and subroutines.
- CO4 Will have knowledge of 16 bit microprocessors.

Unit I Review of binary and hexadecimal number system - negative number representation.

Basic structure of computer systems – Microprocessors, Single chip micro controller system. Introduction to CPU architecture and interfacing the devices. Instruction classification, instruction, data format and storage.

8085 architecture - register organization – Memory, input and output devices, Example of microcomputer system. 8085 instruction set – classification.

Instruction cycle, machine cycle, timing diagram.

[13 hrs]

Unit II Programming with 8085.

8085 instructions – data transfer, arithmetic, logic and branch operations. Writing assembly language programs. Programming techniques with additional instructions. Counters and time delays.

[13 hrs]

Unit III Stack and subroutines, conditional CALL and RETURN instructions.

Interrupts – 8085 interrupts – vectored interrupts, software interrupt instructions.

[13 hrs]

Unit IV Peripherals: 8155, 8255, 8254, 8259A, DMA 8237.

Interfacing data converters – ADC and DAC

Introduction to 16 bit microprocessors. 8086/8088

[13 hrs]

Reference Books:

1. Gaonkar R S, 'Microprocessor architecture, programming and applications with the 8085', IV Edn. (Penram International, 2000)
2. Hall D V, 'Microprocessors and interfacing, programming and hardware', II Edn. (Tata McGraw Hill, 1992)
3. Mazidi M A & Mazidi J G, 'The 8051 Microcontroller', (Pearson Education Asia, 2001).
4. Ayala Kenneth J, 'The 8051 microcontroller' (Penram International, 1996)
5. Ayala K J, 'The 8086 Microprocessor', (Penram International, 1995)

