

M. Sc. II Year		MPH-E303			Semester-III
ELECTIVE PAPER- I		DIGITAL ELECTRONICS & MICROPROCESSOR			
Total Lectures	Time Allotted for End Semester Examination	Marks Allotted for Continuous Assessment	Marks Allotted for End Semester Examination (ESE)	Maximum Marks (MM)	Total Credits
60	3 Hrs	30	70	100	04

NOTE: The question paper shall consist of two sections (Sec.-A and Sec.-B). Sec.-A shall contain 10 short answer type questions of six marks each and student shall be required to attempt any five questions. Sec.-B shall contain 8 descriptive type questions of ten marks each and student shall be required to attempt any four questions. Questions shall be uniformly distributed from the entire syllabus. The previous year paper/model paper can be used as a guideline and the following syllabus should be strictly followed while setting the question paper.

UNIT-I

NUMBER SYSTEM AND LOGIC CIRCUITS

Number systems - Decimal, Binary, Octal, Hexa decimal and their interconversions, The ASCII code, EXCESS-3 code, Gray code and BCD code, Binary addition and subtraction, 2's complements arithmetic, Half adder and full adder, Binary multiplication and division, Transistor as a switch, OR, AND, NOT and NAND logic gates, Boolean algebra: Boolean laws and theorem, Demorgan's theorem, Logic families : RTL, DTL, TTL, ECL, Sum of product and product of sum methods, K-Map; pairs, quads and octets, K-map simplification, Min-term and max- term analysis. **(12 Lectures)**

UNIT-II

DATA PROCESSING CIRCUITS AND FLIP FLOP

Multiplexer and demultiplexer, Decoder, BCD to decimal decoders, Encoders, Parity generators, Checker, Seven segment display, RS, JK, M/S JK, T & D clocked and edge triggered flip-flop and their timing diagrams. **(12 Lectures)**

UNIT-III

REGISTERS AND COUNTERS

Buffer register, Shift register, Controlled shift register, Ripple counter, Frequency counters, Ring counters, Up and down counters, Electronic counters : Counting unit, Gate generator, Universal counter and its modes of operation. **(12 Lectures)**

UNIT-IV

D/A & A/D CONVERSION AND SEMICONDUCTOR MEMORIES

A/D converters: Successive approximation A/D converters, Voltage to time A/D converter, Voltage to frequency A/D converters and dual-slope integrator A/D converters, D/A conversion techniques, Digital voltmeter, Accuracy and consideration, Memory addressing, ROMS, RAMS, DRAMS. **(12 Lectures)**

UNIT-V

8085 MICROPROCESSOR: ARCHITECTURE & OPERATIONS

Microprocessor architecture and its operations, Memory, Input/output (I/O), The 8085 MPU, Instructions classification, instruction format, How to write and execute a simple programme, Instruction timings and operation status, Data transfer (copy) Instructions, Arithmetic operations, Logic operations, Branch operations, Writing assembly language programs, Debugging a program. **(12 Lectures)**

Text Books / Reference Books

1. Digital Principles and Application- A.P. Malvino and Donald P. Leach , TMH, New Delhi
2. Digital Design - M. Morris Mano, PHI, 1998
3. Microprocessor Architecture, Programming and Applications with 8085/8086 by Ramesh S. Gaonkar, Wiley-Eastern Ltd., 1987
4. Microprocessor and Interfacing , Programming and Hardware -Douglas V. Hall, second edition, Mcgraw Hill International Edition, 1992.