

BHARATHIAR UNIVERSITY, COIMBATORE-641 046

B.Sc. PHYSICS DEGREE COURSE

(revised paper with effect from 2015-16 onwards)

NOTE: The syllabi of the following papers for B.Sc. Physics degree for the candidates admitted from the academic year 2015-16 is revised and there is no change in the existing scheme of examination and syllabi of the remaining papers.

1. Practical – IV Digital and Microprocessor
2. Skill based subject I : Office automation
3. Elective II – A : Microprocessors

**PRACTICAL – IV : DIGITAL AND MICROPROCESSOR
(EXAMINATION AT THE END OF SIXTH SEMESTER)**

ANY TWELVE (12) EXPERIMENTS ONLY

1. Verification of Truth tables of IC gates: OR, AND, NOT, XOR, NOR and NAND.
2. NAND as universal building block- AND, OR, NOT
3. Verification of De Morgan's theorem.
4. Boolean Algebra – problem solving
5. Study of RS Flip-Flop.
6. Study of Shift –Registers –Serial in Parallel out
7. Decade counter using 7490.
8. Half Adder
- 9 Full Adder
10. Half Subtractor
11. Full Subtractor.
12. 4 BIT – Binary Adder & Subtractor using 7483.
13. Code converter (Binary to gray and vice versa) & Seven segment Decoder
14. Binary Counter using 7493.
15. Parity check logic.
16. Up/Down Counter using 74190
17. 8085 ALP for 8 bit Addition and Subtraction
18. 8085 ALP for 8 Bit Multiplication
19. 8085 ALP for 8 Bit Division
20. 8085 ALP for finding the Biggest number element in the array

**SKILL BASED SUBJECT I
OFFICE AUTOMATION**

Subject Description: This paper deals with the basics of MS office.

Goal: To learn about the basic concepts of MS word, MS excel and Power point

Unit I BASICS OF COMPUTER Introduction: What is a Computer - Software and Hardware
Hardware Components -Hardware Accessories Operating System Software -Software Applications
Computer Network: LAN - Internet - E-Mail – Browsers- E-Mail – Clients

Unit II MS WORD Setting Page Style - Formmating -Border & Shading –Columns -Header & foot-
Setting Footnotes - Inserting manual Page break - Column break and line break.-Creating sections and
frames- Inserting Clip arts, pictures, and other files-. Anchoring & Wrapping Setting Document Styles
-.Table of Contents -Index - Page Numbering, data &Time, Author etc., -Creating Master Documents
-Web page

Unit III MS EXCEL: Creating worksheet - entering and editing text, numbers, formulas - saving –
Excel functions modifying worksheet range selection copying and moving data - defining names -
inserting of deleting rows of columns - moving around worksheet naming worksheet, copying
inserting of deleting worksheet - formatting, gauging, heading displaying value- changing of selecting
fonts, protesting data using style so templates - reprinting worksheet creating charts - managing date -
what if tables pate tables wraps, macros, linking worksheets.

Unit IV MS POWER POINT Creating a presentation : Setting presentation style - Adding Text to the
presentation Formatting a presentation: Adding style - Color, gradient fills - Arranging objects -
Adding Header & Footer - Slide Background - Slide layout Adding Graphics to the presentation:
Inserting pictures, movies, tables, etc into the presentation - Drawing Pictures using Draw Adding
effects to the presentation:Setting Animation & transition effect - Adding audio and video

Unit V MS Access Introduction: Database concepts - Tables - Queries - Forms - Reports Opening &
Saving database files: Creating Table Design - Indexing - Entering data - Importing data Creating
Queries:SQL statements - Setting relationship - Using wizards-Creating Forms: GUI - Form Creating
& printing reports

Text Books:

1. Step by Step 2007 Microsoft Office System (W/CD) by Curtis Frye, Joyce Cox, Steve Lambert
2. Microsoft Office Word 2007 Plain & Simple by Jerry Joyce & Marianne Moon
3. The Unofficial Guide to Microsoft Office Excel 2007 Julia Kelly & Curt Simmons
4. Microsoft Office Powerpoint 2007 Plain & Simple Nancy Muir

Reference books :

1. Microsoft Office Word 2007 Inside Out Microsoft Press Publication
2. Microsoft Office Excel 2007 Inside Out Microsoft Press Publication
3. Beyond Bullet Points: Using MicrosoftPowerPoint 2007 Microsoft Press Publication
4. Microsoft Office Access 2007 Inside Out Microsoft Press Publication

ELECTIVE II – A
MICROPROCESSORS

No. of Credit Hours : 4 hours per week

Subject Description : This subject deals with the functions and principles of Micro Processors

Goal: To learn about function of micro processors and operate them by learning with different features.

Objectives

On successful completion of this subject the student should have

- The knowledge of basic computer
- To operate the devices with basic idea

UNIT 1 - Microprocessor and Data Representation (12 hrs)

Basic concept – what is Microprocessor, 4, 8, 16, 32 – Organization of Microprocessor – Microprocessor Programming – Instruction – Machine and Mnemonic codes – Machine and Assembly Language Programming – High level Language programming.

Representation of Integers – Positive integers – Maximum Integer – Negative Number representation – Minimum Integer - Representation of Real numbers – Conversion of Real numbers – floating point notation – Representation of Floating numbers. Binary Arithmetic, Addition and Subtraction of Binary Integers.

UNIT 2 - Programming a Microprocessor (12 hrs)

Organization of 8085 – Data and Address buses addressing – The I/O devices – Register in 8085– Instruction types – Classification of Instruction – Addressing modes – Programming the 8085 –The Programming process – machine language programming – Assembler Programming – The instruction format – The Stack – Subroutines.

UNIT 3 - Semi Conductor Memories (12 hrs)

Introduction – Registers – Primary memory – Mass storage, cache – off line backup – memory chips – static and dynamic RAMs, ROMs and their versions characteristics of memories

Memory chip capacity and organization – memory size – combining the chips together with example electrical signals. Static RAM : Organisation of 6264 – Read and write cycle of 6264 – dynamic RAMS : Organisation of 51100 x – Read and write cycle of 51100 x.

UNIT 4 - Microprocessor Timings (12 hrs)

Timing and control unit – Basic concept – The Fetch operation – The executive cycle – Machine cycle and state – Instruction and Data flow – Timing of Intel 8085, 8085 buses – Opcode fetch cycle – Memory and I/O read and write cycle – Interrupt timings – The Halt and Hold states – Register organization – General purpose register – The Stack.

UNIT 5 - Interfacing Memory and I/O Devices (12 hrs)

Introduction – Address space partitioning – The Address map – Address decoding – Using the 1of N decoder – Memory Interfacing – Bus connection and 2 line control – Access time computations – Data transfer schemes – Programmed data transfer – Synchronous transfer – Asynchronous transfer – Interrupt driven data transfer – Direct Memory access data transfer.

Books for Study:

1. Introduction to Microprocessors by Aditya P Mathur (3rd Edition TMH)

Book for Reference:

18. Microprocessors by Goenkar.

19. Microprocessors by K Ramachandran.