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
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 - Formmattting -Border & Shading –Columns -Header & footer
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
4. Microsoft Office Powerpoint 2007 Plain & Simple Nancy Muir

Reference books :
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.