

**DEPARTMENT OF COMPUTER SCIENCE
ALIGARH MUSLIM UNIVERSITY
ALIGARH**

April 16, 2009

**Minutes of the meeting of the Board of Studies of Computer Science, held on
15.04.2009, at 11:00 A.M. in the Department of Computer Science, Aligarh Muslim
University, Aligarh.**

A Special meeting of the Board of Studies of the Department of Computer Science was held on 15.04.2009 at 11:00 a.m. in the Department of Computer Science, A.M.U., Aligarh.

The following members were present:

- | | |
|---|--|
| 1. Prof. Prabhat Kumar | Professor, Deptt. of Electrical Engg.
A.M.U., Aligarh |
| 2. Prof. Mursaleen | Professor, Deptt. of Mathematics
A.M.U., Aligarh |
| 3. Ms. Priti Bala | Lecturer (SG), Deptt. of Computer Science
A.M.U., Aligarh |
| 4. Mr. Jamshed Siddiqui | Lecturer (SG), Deptt. of Computer Science
A.M.U., Aligarh |
| 5. Mr. Suhel Mustajab | Lecturer (SS), Deptt. of Computer Science
A.M.U., Aligarh |
| 6. Mr. Aasim Zafar | Lecturer, Deptt. of Computer Science
A.M.U., Aligarh |
| 7. Mr. Shahid Masood | Lecturer, Deptt. of Computer Science
A.M.U., Aligarh |
| 8. Ms. Sehba Masood | Lecturer, Deptt. of Computer Science
A.M.U., Aligarh |
| 9. Mr. Arman R. Faridi | Lecturer, Deptt. of Computer Science
A.M.U., Aligarh |
| 10. Mr. S. Maheshwari (In chair) | Chairman, Deptt. of Computer Science
A.M.U., Aligarh |

Conti.....

The following assigned members were welcome:

- (1) Prof. Prabhat Kumar
Deptt. of Electrical Engg., AMU
- (2) Prof. Mursaleen,
Deptt. of Mathematics, AMU

The following decisions were taken :

1. Revised and updated the course structure and syllabi of B. Sc. (Computer Maintenance) course as per appendix A
2. Recommended for creation of two posts of Lecturer which was sanctioned in the XI Plan by UGC vide letter No. F-24-12/2009(CII) dated 26.3.2009. Further it was recommended that Net/Ph.D. should not be the essential qualification for the post of Lecturer in Computer Science because it is a professional courses and Net/Ph.D. qualified candidates are not available as has been observed in earlier advertisement and selection committee. Also in Engineering Colleges where MCA Programme is run Lecturers are appointed without Net./Ph.D. qualification as per AICTE norms.
3. Recommended the panel of experts for the posts of Professor/ Reader/Lecturer as per appendix B (not for circulation)

The meeting came to an end with a vote of thanks to the chair.

(S. Maheshwari)
Chairman

Appendix-A
DEPARTMENT OF COMPUTER SCIENCE
ALIGARH MUSLIM UNIVERSITY, ALIGARH

B. Sc. (Hons.) (Computer Maintenance)
(A Three years Bachelor Degree Course)

COURSE STRUCTURE

Part-I

Course No.	Title	Periods/Week		Marks		
		Theo.	Prac.	Sess	Exam	Total
MC-103	Fundamentals of Computer	3	-	10	40	50
MC-104	C and Data Structure	3	-	10	40	50
MC-1P1	Lab : MS-DOS, Windows 98/NT, MS-Office/C Programming	-	6	-	50	50

Part-II

Course No.	Title	Periods/Week		Marks		
		Theo.	Prac.	Sess	Exam	Total
MC-203	PC-Assembly, Trouble Shooting & Computer Security	3	-	10	40	50
MC-204	Database Management System	3	-	10	40	50
MC-2P1	Lab : PC-Assembly & Trouble Shooting, Performance Tuning, Implementing Security Solutions, Oracle & VB.	-	6	-	50	50

Revised on 15.4.2009

Appendix-A
DEPARTMENT OF COMPUTER SCIENCE
ALIGARH MUSLIM UNIVERSITY, ALIGARH

B. Sc. (Hons.) (Computer Maintenance)
(A Three years Bachelor Degree Course)

COURSE STRUCTURE

Part-III

1st Half :

Course No.	Title	Periods/Week		Marks		
		Theo.	Prac.	Sess	Exam	Total
MC-301	Computer Networking Essentials	3	-	10	40	50
MC-302	Introduction to Systems Software	3	-	10	40	50
MC-307	Microprocessors & Support Chips	3	-	10	40	50
MC-306	Digital Computer Organization	3	-	10	40	50
MC-305	Lab : Unix/Linux, Design, Implementation & Administration of Computer Network; 8085 Assembly Language Programming	-	6	50	50	100
<u>2nd Half :</u>						
MC-3P1	Project/Dissertation work (on the job training) 4-5 months Industry Attachment			-	200	200

Revised on 15.4.2009

Appendix-A
DEPARTMENT OF COMPUTER SCIENCE
ALIGARH MUSLIM UNIVERSITY, ALIGARH

B. Sc. (Hons.) Computer Maintenance I-Year

SYLLABUS

COURSE MC-103 FUNDAMENTALS OF COMPUTERS

Sessional Marks : 10

Exam Marks : 40

NOTE : In all five questions are to be set; at least one from each unit. 1/3 more sections are to be set for choice within each unit.

- UNIT-I** Introduction to Digital Computer, Hardware and Software, Range of Applications: Scientific, business, educational, industrial, national level weather forecasting, remote sensing, planning, multilingual applications. Data Processing Concept.
Historical Development of Computers, Generation of Computers, Classification of Computers Based on Size, Cost & Working Principles; (Super, Micro, Mini and Mainframe PC, Workstations, PCXT, PCAT, Analog, Digital etc).
Programming Languages :Classification, Machine Code, Assembly Language, Higher Level Languages, Fourth Generation Languages.
- UNIT—II** Introduction to Computer Arithmetic & Number System, Review of decimal numbers, binary numbers system . conversion of binary to decimal and vice versa, Signed numbers , One's and Two's complement of binary numbers. Binary arithmetic : addition , subtraction , one's complement subtraction, two's complements subtraction. Octal and hexadecimal numbers and their conversion to binary numbers and vice versa .
Data representation : Character Codes- (ASCII, EBCDIC), Error detection and correction codes.
- UNIT-III** I/O Devices: Keyboard, Mouse, Types of monitors (VDU), Touchscreen, CRT, Flat Panel, TFT, Direct View Storage Tube, Printers, Impact and non-impact Printers, Scanner OCR,OMR.
- UNIT-IV** Data Processing Concepts: Data Processing Cycle & Data Processing Operations, Data Processing Tool (MS-Office), CPU, Memory, Factors affecting processing speed.

UNIT-V Categorization of Storage devices : Magnetic storage, Floppy disk, Hard disks, Optical Storage, CD-ROM. Introduction to microprocessor, Operating System, Internet, e-mail. Applications of Internet.

Books : **TEXT BOOKS :**

1. Bhujade M.R. Digital Computer Design Principles.
2. Rajaraman V. and Radha Kirishanan T. - An Introduction to Digital Computer Design

References:

1. Raja Raman V., "Fundamental of Computers" (2nd Edition), Prentice Hall of India, New Delhi 1996.
2. Sanders, D.H., " Computer Today " Mc-Graw Hill. 1988
3. Trainer T.,et al, "Computers' (4th edition) Mc-Graw Hill, 1994.
4. MANO, M - Digital Logic and Computer Design
5. TANEBAUM, A.S. - Structured Computer Organization.
6. MANO, M. "Computer System & Architecture".

Revised on 15.4.2009

Appendix-A
DEPARTMENT OF COMPUTER SCIENCE
ALIGARH MUSLIM UNIVERSITY, ALIGARH

B. Sc. (Hons.) Computer Maintenance I-Year

SYLLABUS

MC-104

C AND DATA STRUCTURE

Sessional Marks : 10

Exam Marks : 40

NOTE : In all five questions are to be set; at least one from each unit. 1/3 more sections are to be set for choice within each unit.

UNIT-I PROGRAMMING CONCEPTS

Algorithm and its characteristics, pseudo code / flowchart, Algorithm involving Decisions and Loops, Developing Algorithms and Sketching Flowcharts for various problems, program, identifiers, variables, constants, primitive data types, operators, expressions, structured data types, compilers & interpreters

Statements and Control Structures: Assignment statement, if then else statements, switch statement, looping statements- while, do while, for, break, continue, input/output statements, functions/procedures

UNIT-II FUNCTIONS, ARRAYS, STRUCTURE AND UNIONS

Storage Classes, Functions, Procedures: Call by Value, by reference and name, Formal parameters and Actual parameters, Recursive Procedures, Pointers, Arrays, Structures and union.

UNIT-III LINEAR DATA STRUCTURE

The notion of data structure, Primitive and non-primitive Data Structures, Arrays, Lists, Stacks, Queues, Linked Lists, Algorithms for manipulating data Structures, Polish Notation, Applications of Linear Data Structures.

UNIT-III NON-LINEAR DATA STRUCTURES

Trees, Binary Trees, Operations on binary Trees, Binary tree Traversal, representation and Manipulation of Binary trees, Binary Search Trees, Heap, Graphs and Digraphs, Basic Definitions, Representation and Manipulation of Graphs in Computer, Balancing Trees, Hash Coding. Applications of Non-linear Data Structures

UNIT-IV SEARCHING, SORTING AND MERGING

Searching Algorithms, Linear and Binary Searching, Sorting Algorithms, Internal and External Sorting, Complexities Of Sorting And Searching Algorithms, Selection sort, Bubble sort, Insertion sort, Merge sort, Heap and Quick Sort, Sorting In Linear Time, Merging.

UNIT-V File Handling in C & Advanced C - Bitwise Operator, Command-line

Arguments, C Preprocessors, Type Qualifier, Variable length argument list., File Handling Memory Models and Pointers.

Introduction to Various Programming paradigms: Concept of Structured Programming, its Advantages, Problem Analysis, program Design Method, program Testing and implementation, Pseudo Code, Stepwise Refinement, Structured Walkthrough, modular Approach of Program Design : Top Down & Bottom up approaches.

Programming Exercises in C: A graded Sheet of assignments/Problems will be given to the students to develop Algorithms/Flowcharts & Programs in C.

TEXT BOOKS :

1. How to solve it by Computer R.G. Dromey
2. A structured Approach to programming, Joan K Hughes, Jay I Michtom. (PHI)
3. Introduction to data structures with Application by Trembley & Sorenson.
4. Programming in C, By Dey and Ghosh, Oxford University Press (2007).
5. Programming using C – Schaum Series

Revised on 15.4.2009

Appendix-A
DEPARTMENT OF COMPUTER SCIENCE
ALIGARH MUSLIM UNIVERSITY, ALIGARH

B. Sc. (Hons.) Computer Maintenance I-Year

SYLLABUS

LAB

COURSE MC-1P1

Pract.Exam/Viva-Voce Marks : 50

Lab : MS-DOS, Windows 98/NT/Xp, MS-Office tools, Word, Excel, PowerPoint, Access, Outlook, C-Programming

(A graded sheet of C- Programming related problems would be given to students as Lab Assignments).

Revised on 15.4.2009

Appendix-A
DEPARTMENT OF COMPUTER SCIENCE
ALIGARH MUSLIM UNIVERSITY, ALIGARH

B. Sc. (Hons.) (Computer Maintenance)- II year

SYLLABUS

MC-203 PC-ASSEMBLY, TROUBLE SHOOTING AND COMPUTER SECURITY

Sessional Marks : 10

Exam Marks : 40

NOTE : In all five questions are to be set; at least one from each unit. 1/3 more sections are to be set for choice within each unit.

UNIT-I PC ASSEMBLING/DISASSEMBLING & its TROUBLE SHOOTING:

Procedure for assembling/disassembling, Safety precautions during trouble-shooting and repair, operating system and boot process, Start-up problems, Run problems.

Introduction to trouble-shooting, Computer Faults, Nature and Types of Faults, Specific trouble-shooting, Symptoms Observation, Symptoms Analysis, Fault Diagnostic programs and tools, Fault Rectification or elimination process, Contributors to system failure.

UNIT-II COMPONENT TROUBLE SHOOTING-I:

Disc Drives: Types of Disc Drive, Assembly of Disc Drive, Trouble shooting Disc Drive.

Motherboard: Form Factors, Motherboard components, Sockets and Slots, Chipsets, BIOS Trouble shooting Motherboards, Soldering and Unsoldering.

Processor types, Types of I/O busses.

UNIT-III COMPONENT TROUBLE SHOOTING-II:

Display screens: Construction of CRT monitors, Video Adapter card, Display problems.

Audio Adapter, Trouble shooting sound cards.

Printer technologies, How printers work, Troubleshooting printer.

Types of keyboard, keyboard problems.

Mouse ports, Mouse trouble shooting, and other I/O problems.

UNIT-IV INFORMATION & COMPUTER SECURITY

Information integrity definition, Ensuring integrity & Computer Security: Definition, concepts and components of security.

Security status on PC, Breaches of Security, Security threats, Counter measures-physical security, software security, network security, password security, Privacy.

UNIT-V SECURITY SOLUTIONS

Computer Viruses : Introduction, Evolution of virus, The menace, The processes of infection, classifications of virus-Boot infectors, system infectors, General .COM and .EXE infectors, Introduction to Firewalls, Introduction, Classification, Architecture; Study, Analysis, Comparison and Installation of Popular (at least five) Anti-virus Systems for stand-alone PCs and for computer Networks. CASE STUDY: Norton's Antivirus, AVG, Panda, McAfee etc.

REFERENCE:

1. Programming in ANSI C : BALAGURUSAMY
2. Repairing and Upgrading of IBM PC : MUELLER (QUE PUBLICATION)
3. IBM PC and Clones : B. GOVINDARAJALU(TMh PUBLICATION)
4. Troubleshooting, Maintaining & Repairing PC : BIGELOW'S (TMh PUBLICATION)
5. The Complete PC Upgrade and Maintenance Guide: MARK MINASI (BPB PUBLICATION)
6. Stallings W. - Cryptography & Network Security : Principles and Practice (PHI)
7. Buchmann J A – Introduction to Cryptography (Springer- Verlag)
8. Baker R. H. – Network Security (McGraw-Hill)
9. Cox – Windows 2000 Security Handbook (TMh)

Revised on 15.4.2009

Appendix-A
DEPARTMENT OF COMPUTER SCIENCE
ALIGARH MUSLIM UNIVERSITY, ALIGARH

B. Sc. (Hons.) (Computer Maintenance)- II year

SYLLABUS

MC-204 DATABASE MANAGEMENT SYSTEM

Sessional Marks : 10

Exam Marks : 40

NOTE : In all five questions are to be set; at least one from each unit. 1/3 more sections are to be set for choice within each unit.

UNIT-I Basic Concepts, Database & Database users, Characteristics of the Database, Database System Concepts and Architecture, Schemas and Instances, DBMS Architecture and Data Independence, Data Modelling using the Entity – Relationship Approach, Categorization of DBMS, Data Models:s Network, Hierchical and Relational databases, Application of DBMS, Data Description Language(DDL), Data manipulation Language(DML) and Data Control Language (DCL).

UNIT-II Design of Databases and SQL :
SQL- A Relational Database Language, Data Definition in SQL, View & Queries in SQL, Specifying Constraint & Indexes in SQL.

Relational Database Design, Normalization of Relational Databases: First, Second, Third, BCNF, Fourth & Fifth Normal Forms; Functional Dependency, Lossless & Dependency preserving decomposition.

UNIT-III ORACLE: Design and Development of a business application (Information System) using ORACLE .

UNIT-IV Introduction to Visual Basic, Visual Basic Essentials; Creating Project, Forms, Modules Procedures, General Declaration, Saving files. Tool box (Textbox, Lebel, Imagebox, Picturebox, Scrollbars, Combobox, Listbox, Checkbox, Option Buttons, etc.) setting properties, Codes Window, Making EXE file.

Designing an Application, Creating Class Modules, Adding Properties; Methods & Events; Using a Class Module, Creating Data Bound Class Modules.

UNIT-V System Management and Security considerations : Data integrity and reliability. Data encryption, Concurrency Control & Recovery Techniques.

References Books :

- Date, C. J., "Introduction to Database Systems".
- Desai, B., " An Introduction to Database Concepts. "
- Elmsari and Navathe, " Fundamentals of Database Syatems."
- Hansen and Hansen, " Database Management and Design."
- Henry F. Korth, A. Silberschatz, Sudershan, "Database system concepts."
- Ullman, J.D., " Principals of Database Syatems."
- Programming MS Visual Basic 6.0 - Francesco & Balena
- Microsoft Visual Basic Desing Patterns Willam Stamatakis
- Visual Basic by Mc. Bride

Revised on 15.4.2009

Appendix-A
DEPARTMENT OF COMPUTER SCIENCE
ALIGARH MUSLIM UNIVERSITY, ALIGARH

B. Sc. (Hons.) (Computer Maintenance)- II year

SYLLABUS

LAB

MC-2P1

Pract.Exam/Viva-Voce Marks : 50

Lab : PC-Assembly & Trouble Shooting, Installation & Configuring of Operating System, Antivirus Software and Firewalls, Using Scan Softwares, Performance tuning of computer Systems, Implementing Security Solutions, Oracle, VB, Developing Applications Programmes using Oracle and VB.

Revised on 15.4.2009

Appendix-A
DEPARTMENT OF COMPUTER SCIENCE
ALIGARH MUSLIM UNIVERSITY, ALIGARH

B. Sc. (Hons.) Computer Maintenance III-Year

SYLLABUS

MC-302

INTRODUCTION TO SYSTEMS SOFTWARE

Sessional Marks : 10

Exam Marks : 40

NOTE : In all four questions are to be set; at least one from each unit. 1/3 more sections are to be set for choice within each unit.

UNIT-I Introduction to Software Processor, Interactive Computing and Program Development, Interpreters, Loader and linkage Editors.
Compiler, Aspect of Compilation, Overview of Compilation Process, Programming Language grammar, Scanning, Parsing, Compilation of expressions, Control Statements.

UNIT-II Operating System and its function, Interaction of operating system with hardware and user programs. Evolution of operating system, Batch Processing, Multiprogramming and time sharing Operating System.

UNIT-III Processor management techniques; Scheduling, types of scheduling, scheduling Policies Deadlocks.
Memory Management Techniques: Real storage, Storage Protection, Contiguous Vs. Non Contiguous storage allocation, Virtual memory, Paging.

UNIT-IV Introduction to UNIX, scheduler, kernel, Swapping, UNIX Shell, UNIX files System.
Various components of DOS, Directory Structure of DOS, Internal/External Commands of DOS, BIOS.

References :

- Deitel, H.M., "An Introduction to Operating Systems",
Addison Wesley Publishing Company 1984.
- Milenkovic, M., "Operating Systems - Concepts and Design",
McGraw Hill International Edition-Computer Science series 1992.
- Peterson, J.L., Abraham Silberschatz, 'Operating System Concepts',
Addison Wesley Publishing Company, 1989.
- Tanenbaum, A.S., "Modern Operating Systems",
Prentice Hall of India Pvt. Ltd., 1995.
- D.M. Dhamdhare, "Compiler Construction"
- Stallings, W. "Operating System"

Revised on 15.4.2009

Appendix-A
DEPARTMENT OF COMPUTER SCIENCE
ALIGARH MUSLIM UNIVERSITY, ALIGARH

B. Sc. (Hons.) Computer Maintenance III-Year

SYLLABUS

MC-301

COMPUTER NETWORKING ESSENTIALS

Sessional Marks : 10

Exam Marks : 40

NOTE : In all four questions are to be set; at least one from each unit. 1/3 more sections are to be set for choice within each unit.

UNIT-I Introduction to Computer Networks: Classification of Networks-LAN, WAN, Internet; Applications and goals of networks, Structure of the communication network, point-to-point, broadcast and multiplex circuits, data flow and physical circuits, Network Topologies, Topologies and Design goals. Hierarchical topology, horizontal topology (Bus), star topology, ring topology, mesh topology. The telephone network, switched and non-switched options, fundamentals of communications theory, channel speed and bit rate, voice communications and analog waveforms, bandwidth and the frequency spectrum, connecting the analog and digital world, digital data & digital signals, the modem, asynchronous and synchronous transmission; Switching- Message, Circuit and Packet Switching.

UNIT-II Fundamentals of Data Transmission: Data Transmission systems and Operations; Encoding: Standard Encoding Schemes; Line Coding Schemes-Unipolar, Polar and Bipolar; Encoding of Digital Data into Analog Signal-ASK, FSK, PSK, QAM; Encoding of Analog Data into Digital Signals-PCM, DPCM, DM; Encoding Analog Data into Analog Signals-Modulation; Error Detection and Correction Techniques; Multiplexing-TDM, FDM, STDM, WDM, DAM, CDMA; Transmission Media: Magnetic media, Twisted wire-pair, Co-axial Cable, Fibre optics; Wireless media-Radio and Microwave Transmission; Satellite Communication; Terminal Handling-Polling Techniques; Serial and Parallel Transmission-Asynchronous and Synchronous Transmission; Media contention Protocols-CSMA, CSMA/CD, Token Passing, Priority Slot, etc.

UNIT-III Layered Protocols and OSI Model: Goals of Layered Protocols, Network design problems, communication between layers, introduction to standard organizations and OSI Reference model, Layers of OSI, OSI status; TCP/IP Reference Model: Overview;

Protocols of various Layers of TCP/IP-ARP, RARP, BOOTP, DHCP, IP, ICMP,IGMP,TCP UDP, DNS, TELNET etc. IP-Addresses; Subnetting and Masking; Routing-RIP, OSPF,BGP.

UNIT-IV LAN: Primary attributes of LAN, Broadband and baseband LANs, IEEE-802 LAN standards, Relationship of the 802 standard to the ISO/CCITT model, LLC and MAC Layer Protocol and data units, LAN topologies, LAN Technologies-Ethernet; ARCNet, Token Ring etc., Setting up Hardware Components of LAN, Cabling Schemes and Techniques-Deciding which cable to use; Maximum Cable Length; Straight-Through Cable Constructions; Rollover Cable Construction; Crossover Cable Construction, Establishing and Installing LAN; Networking and Internetworking Devices-Repeaters, Bridges, Routers, Gateways, other devices.

BOOKS :

- | | |
|----------------------|---|
| 1. Forouzan,B. | Data Communications and Networks, 3 rd Edition, |
| TMH | |
| 2. Tanenbaum, A. S., | Computer Networks, 4 th Edition, PHI |
| 3. Stallings, W., | Data & Computer Communication, 6 th Edition, PHI |

Revised on 15.4.2009

Appendix-A
DEPARTMENT OF COMPUTER SCIENCE
ALIGARH MUSLIM UNIVERSITY, ALIGARH

B. Sc. (Hons.) Computer Maintenance III-Year

SYLLABUS

MC-307

MICROPROCESSOR & SUPPORT CHIPS

Sessional Marks : 10

Exam Marks : 40

NOTE : In all four questions are to be set; at least one from each unit. 1/3 more sections are to be set for choice within each unit.

UNIT-I Microprocessor and its Architecture:

Introduction to microprocessor, Architecture of Microprocessor (8085), pin diagrams of microprocessors, Instruction Cycle, Timing Diagram for 8085 Microprocessor.

UNIT-II Programming of Microprocessor :

Instruction and data format, addressing modes of 8085 Microprocessor, Instruction set of 8085 microprocessor and programming of Microprocessor, Example Programs.

UNIT-III I/O Devices and Their Interfacing :

Address Space Partitioning, Data Transfer Schemes-Synchronous Data Transfer, Asynchronous Data Transfer, Interrupt driven data transfer, DMA data transfer.

UNIT-IV Support Chips :

RAM Chip: 8155/ 8156, ROM Chip : 8355, Programmable Counter/Interval Timer- Intel 8253, Programmable Peripheral Interface (PPI) 8255.

Books :

1. B.Ram, Fundamentals of Microprocessor & Microcomputers D. Rampat Rai Publication
2. IP Mathur, Introduction to Microprocessor-Tata McGraw-Hill Publication, III Edition
3. Malvino, A.P., Digital Computer Electronic, An Introduction to Microcomputer-II Edition Tata
Mc Graw Hill Publication
4. Mark Minasi, The Complete PC Upgrade & Maintenance Guide, bpb Publication, IV Edition

Revised on 15.4.2009

Appendix-A
DEPARTMENT OF COMPUTER SCIENCE
ALIGARH MUSLIM UNIVERSITY, ALIGARH

B. Sc. (Hons.) Computer Maintenance III-Year

SYLLABUS

MC-306

Digital Computer Organization

Sessional Marks : 10

Exam Marks : 40

NOTE : In all four questions are to be set; at least one from each unit. 1/3 more sections are to be set for choice within each unit.

UNIT-I Digital System, parity bit, Basic logic gates, logic system, laws and theorems of Boole algebra, Different ways of implementing exclusive-OR gate.

Sum of product and product of sum representation , Algebraic and karnangh map Simplifications, Combinational system examples- Binary adders, digital (magnitude) comparators, parity checker/generator etc., Decoders/demultiplexers, data selectors/multiplexers, Encoders. Read only memory (ROM), ROM organization and applications, PROMS, EPROMS, PAL and PLA.

UNIT-II Sequential System-clocked S-R flip-flops, J-K and D-type flip-flops, edge triggering, present and clear inputs, J-K Master/Slave flip-flop, Ripple counters , synchrnous, binary counters, decade counters, shift registers, shift and ring counters, up/down counters.

UNIT-III Static and dynamic random access memory (RAM).D/A converters-weighted resistors, ladder and Multiplying types, A/D Converters-parallel, counters, successive approximation and dual slope integration types.

UNIT-IV Memory Organization - Hierarchy of storage, Capacity of storage, Storage Cells, Addressable Memory, Main Storage technologies: Magnetic Core Memory, Semiconductor memory, Memory array Organization: 2D/2 1/2 D Memory, Random Access Memory, Read Only Memory, Cache Memory.

Books : **TEXT BOOKS :**

3. Bhujade M.R. Digital Computer Design Principles.
4. Rajaraman V. and Radha Kirishanan T. - An Introduction to Digital Computer Design.
5. Computer System Organisation & Architecture - B. Ram
6. Computer Organization and Architecture – W. Stallings (PHI)
7. M. Moris Mano : Digital Design .

References:

7. MANO, M - Digital Logic and Computer Design
8. TANEBAUM, A.S. - Structured Computer Organization.
9. MANO, M. “Computer System & Architecture”.
10. M. Moris Mano : Digital Design .

Revised on 15.4.2009

Appendix-A
DEPARTMENT OF COMPUTER SCIENCE
ALIGARH MUSLIM UNIVERSITY, ALIGARH

B. Sc. (Hons.) Computer Maintenance III-Year

SYLLABUS

Sessional Marks : 50

Exam Marks : 50

LAB

MC-305

Lab : Unix/Linux, Shell Programming, Assembly Language and Microprocessor Programming, Design, Implementation & Administration of Computer Network (LAN).

Revised on 15.4.2009