

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

January 11, 2010

Minutes of the meeting of the Board of Studies of Computer Science, held on 11.1.2010, at 12:30 p.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 11.1.2010 at 12: 30 p.m. in the Department of Computer Science, A.M.U., Aligarh.

The following members were present:

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|--|---|
| 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. Mr. S. Maheshwari | Reader, Deptt. of Computer Science
A.M.U., Aligarh |
| 4. Ms. Priti Bala | Lecturer (S.G), Deptt. of Computer Science
A.M.U., Aligarh |
| 5. Mr. Suhel Mustajab | Lecturer (S.G), Deptt. of Computer Science
A.M.U., Aligarh |
| 6. Dr. Rafiqul Zaman Khan | Reader, Deptt. of Computer Science
A.M.U., Aligarh |
| 7. Mr. Aasim Zafar | Lecturer, Deptt. of Computer Science
A.M.U., Aligarh |
| 8. Mr. Shahid 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. Dr. Mohammad Ubaidullah Bokhari
(In chair) | Chairman, Deptt. of Computer Science
A.M.U., Aligarh |

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The following decisions was taken:

Considering the popularity & wide acceptance of B.Sc. (Hons.) (Computer Applications) course in the academia as well as in the industry, the BOS recommended that the B.Sc. (Hons.) (Information Technology) and B.Sc. (Hons.) (Computer Maintenance) courses be merged into the existing B.Sc. (Hons.) (Computer Applications) course. Further keeping the interest of the students and to provide larger number of students the opportunities to pursue this course, It has been decided that the intake be increased from existing 30 seats to 60 plus 5 seats for NRI and foreign nationals from the academic session 2010-2011 and onwards. To provide further opportunity for the upward mobility to the pass outs of B.Sc. (Hons.) (Computer Applications) students, BOS considered the possibilities of starting a new course namely, M.Sc. (Computer Science). In this regard BOS recommended to approach UGC and other funding agencies to get the desired financial grant and additional human resources to proceed further. This would provide impetus to the research activities in the area of Computer Science. While discussing the modalities to run the course, BOS decided that the selection procedure for admission will be the same as of that of existing B.Sc. (Hons.) (Computer Applications) Admission Test. The BOS also considered and approved the revised syllabus of B.Sc. (Hons.) (Computer Applications) as given in **Appendix A.**

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

(Dr. Mohammad Ubaidullah Bokhari)
Chairman

Appendix-A
DEPARTMENT OF COMPUTER SCIENCE
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B. Sc. (Hons.) (Computer Applications)
(A three year Bachelor Degree Course)

COURSE STRUCTURE

Part-I Main (Computer Science)		Period/Week		Marks		
Course No.	Title	Theo.	Prac.	Sess.	Exam	Total
CA-101	Fundamentals of Information Technology	3	-	10	40	50
CA-102	Data Structures Using C++	3	-	10	40	50
CA-1P1	Practical (MS-DOS/Windows, MS-Office, C++)	-	6	-	50	50
Subsidiary-I (Mathematics)						
MM-104	Calculus			10	40	50
MM-105	Vector Analysis and Geometry			10	40	50
MM-106	Numerical Analysis			10	40	50
Any one of the following						
Subsidiary-II (Statistics)						
ST-103	Descriptive Statistics			10	40	50
ST-104	Probability Theory			10	40	50
ST-1P1	Practical			-	50	50
Subsidiary-II (Physics)						
PH-103	Mechanics			10	40	50
PH-105	Electricity, Magnetism and E.M. Waves			10	40	50
PH-1P1	Practical			-	50	50

Note: Compulsory papers are same as B.Sc. course.

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COURSE STRUCTURE

Part-II Main (Computer Science)

Course No.	Title	Period/Week		Marks		
		Theo.	Prac.	Sess.	Exam	Total
CA-201	Internet and Web Technology with Java Programming	3	-	10	40	50
CA-202	Database Management System Using Oracle	3	-	10	40	50
CA-2P1	Practical (Oracle, Developer 2000, Java, Javascript etc.)	-	6	-	50	50

Subsidiary-I (Mathematics)						
MM-204	Differential Equations			10	40	50
MM-206	Advance Calculus			10	40	50
MM-207	Algebra-I			10	40	50

Any one of the following

Subsidiary-II (Statistics)						
ST-203	Sample Surveys & Design Expts.			10	40	50
ST-204	Statistics Inference-I			10	40	50
ST-2P1	Practical			-	50	50
Subsidiary-II (Physics)						
PH-203	Optics & Electromagnetic Theory			10	40	50
PH-204	Electronics			10	40	50
PH-2P1	Practical			-	50	50

Note: Compulsory papers are same as B.Sc. course.

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COURSE STRUCTURE

Part-III

1st Half :

Course No.	Title	Period/Week		Marks		
		Theo.	Prac.	Sess.	Exam	Total
CA-301	Introduction to System Software	3	-	10	40	50
CA-302	Information System: Analysis & Design	3	-	10	40	50
Elective-1	Elective Paper-I	3	-	10	40	50
Elective-2	Elective Paper-II	3	-	10	40	50
CA-3P1	Computer Lab & Seminar Presentation	-	6	50	50	100
<u>List of Electives</u>						
EL-301	Computer Communication and Networks					
EL-302	Multimedia Systems and Application					
EL-303	Microprocessor Systems Architecture					
EL-304	Computer System & Network Security					
EL-305	PC Assembly, Maintenance and Trouble Shooting					
<u>2nd Half :</u>						
CA-3P2	Project work (on job training) 4-5 months Industry Attachment			-	200	200

UNIT-V

Introduction to Office Automation Tools :

Basics of MS-Office (Word, Excel, Power Point, Access).

MS-Word: Starting MS-Word. Screen Elements, Components. Creating, operating & savings documents. **Viewing documents.** Editing Text: Inserting, Copying, Moving Deleting. **Converting Case,** Setting page layout, margin setting etc. **Formatting Text:** Applying font style, Font & Point Sizes, Setting indents & Line break, Setting Tabs & Tab Stops, Line& Paragraph Spacing, Aligning Text, Setting Headers & Footers, Page Numbering & Removing Numbers & Bullets. Creating Modifying and Enhancing Tables; Adding Graphics and Drawing. **Spell-Check:** Auto Spell Check, Auto Correct, Find and Replace, Auto text Grammar Check.

Developing Presentations Using Power Point.

Books :

Text Books:

1. **Fundamental of Computers** - V. Rajaraman, PHI.
2. **Schaum's Outline Series:Theory and Problems of Data Processing** - Lipshutz and Lipschutz.
3. **Introduction to Information Technology**-V. Rajaraman, PHI.

Reference Books

1. **Computers today** - Donald Sanders, Mc. Graw Hill.
2. **Computers** ,Trainer T. , et al, Mc. Graw Hill.
3. **DOS** - User Manual.

Appendix-A
DEPARTMENT OF COMPUTER SCIENCE
ALIGARH MUSLIM UNIVERSITY
ALIGARH, U.P. - 202002
INDIA

SYLLABUS

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

CA-102 DATA STRUCTURES USING C++

Sessional Marks : 10

Exam Marks : 40

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

UNIT-I COMPUTER ALGORITHMS:

Problem analysis, Concept and proper properties of Algorithm. Elementary Algorithm Development, Algorithm involving Decisions and Loops, Introduction to Analysis of Algorithm, Testing of an Algorithm and its Efficiency, flowchart and its Applications, Sketching Flowchart for various problems.

UNIT-II RECURSION, SORTING, SEARCHING, MERGING AND LINEAR DATA STRUCTURE :

Recursive Procedures and Algorithms, Internal Sorting and Searching Algorithms, External Sorting, Merging, Complexities of Sorting and Searching Algorithms.

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 PROGRAMMING WITH C++ :

Overview of C++, Data Types, Storage Classes, operators and Expressions, Console I/O, Control Statements, Arrays and Strings; Storage Classes, Pointers, Functions, Procedures : Call by Value, by reference and name, Formal parameters and Actual parameters. Structures and union, File Handling etc., Programming exercises.

UNIT-V 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, Concept of object oriented Programming Paradigm, Characteristic of oops, Objects, Classes Encapsulation, Inheritance. Polymorphism, Benefits of Oop, object oriented Programming in C++ :

Functions (Advance concepts),Classes & objects, constructor & Destructors, Inheritance-Extending class & Polymorphism (Operator & Function overloading).

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. Joan K Hughes, Jay I Michtom.
A structured Approach to programming (PHI)
3. Horowitz, Fundamentals of programming languages
4. Introduction to data structures with Application by Trembley & Sorenson.
5. Programming with C++ : Schaum Series by Hubbard
6. C++ - A complete reference : Herbert Schildt.
7. Object Oriented Programming with C++ and JAVA by Samanta (PHI)

Appendix-A
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SYLLABUS

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

LAB

CA-1P1

Pract.Exam/Viva-Voce Marks : 50

1. Introduction to Operating system Like MS-DOS, WINDOWS
2. Basics of C++ Programming (Simple programs)
3. MS-Word: Simple Applications.
4. MS Power Point: Developing Simple Presentations.
5. MS-Access : To Developing small applications using MS-Access.
6. MS Excel : Spreadsheets Handling for small applications.

Individual teachers are responsible for assignments related to their theory classes.

Appendix-A
DEPARTMENT OF COMPUTER SCIENCE
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SYLLABUS

B. Sc. (Hons.) (Computer Applications) - II Year

CA-201 INTERNET & WEB TECHNOLOGY WITH JAVA PROGRAMMING

Sessional Marks : 10

Exam Marks : 40

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

UNIT – I INTRODUCTION : History of the WEB, Internet, Communicating on the Internet, Internet domain, IP Address, Brief Overview of TCP/IP and its services World Wide Web (WWW), WWW attributes, Web Client and Web Server, Web sites, Web Addresses and Web Pages, Hypertext Transfer Protocol (HTTP), Internet Services: Connecting PC to Internet, E-mail, Search Engine, Usenet and News group, FTP, Video conferencing, Chat, TELNET, Information Retrieval, Browsers, Search engines : Netscape Navigator, Microsoft Internet Explorer, Mosaic, Gopher etc.

UNIT- II Introduction to Core Java : Introduction, Operator, Data types, Variables, Methods & classes, Multithreaded Programming, I/O, Java Applets.

UNIT-III Introduction to J2EE : Distributed Multithreaded Applications, EJB (Enterprise Java Bean), Java Servlet, Java Server Pages.

UNIT-IV WEB DEVELOPMENT TOOLS: Introduction to HTML (Hyper Text Mark Up Language), and DHTML.

JavaScript : Scripting, Client side Scripting, Introduction to JavaScript, Advantages of JavaScript, Web Pages, Hierarchy mode: JavaScript vs Java, Declaration and Expressions, Control Structures and Functions, Properties, Methods Events in JavaScript, Design of interactive Forms, Layers, Image Handling.

-:2:-

Objects in JavaScript : Array Object, Date Object, Math Object, String Object.

UNIT- V VB Script: Introduction to VBScript, Fundamentals of VBScript, Variable, Strings, Constants, Date and Time, Arrays, Control Structure, Decision making, Looping, Objects Methods & events.

Design , Development and Impelmentation of Web applications Using JDK .

Using Scripting Languages : Java Script and VBScript .

Client side Server side Programming : Java Servlets.

HTML/DHTML

REFERENCE BOOKS:

1. Conhert, "Internet 101 ". Addison Wesley.
2. Rebelsky, "Experiments in Java ". Addison Wesley.
3. Balaguruswamy, "Programming in Java", TMH.
4. Sharma and Sharma, Developing Commercial Sites, Addison Wesley.
5. Maruyama, Tamura, Uramoto, "XML & Java Developing Web Applications", Addison Wesley.
6. "Web Programming", Tech Media Series.
7. Stephanie Bodoff, Dale Green," The J2EE Tutorial", Pearson Education

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SYLLABUS

B. Sc. (Hons.) (Computer Applications) - II Year

CA-202 DATABASE MANAGEMENT SYSTEM USING ORACLE

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 Systems. Concepts & Architecture
Date Models, Schemas & Instances
DBMS Architecture & Data Independence
Data Base Languages & Interfaces
Data Modelling using the Entity-Relationship Approach

UNIT-II Relational Model, Languages & Systems
Relational Data Model & Relational Algebra
Relational Model Concepts
Relational Model Constraints
Relational Algebra
SQL - A Relational Database Language
Date Definition in SQL
View & Queries in SQL
Specifying Constraints & Indexes in SQL
Specifying Constraints & Indexes in SQL
A Relational Database Management Systems
ORACLE/INGRES

UNIT-III Relational Data Base Design
Function Dependencies & Normalization for Relational Databases
Functional Dependencies
Normal forms based on primary keys
(1NF, 2NF, 3NF & BCNF)
Loss less join & Dependency preserving decomposition

- UNIT-IV** Concurrency Control & Recovery Techniques
Concurrency Control Techniques
Locking Techniques
Time stamp ordering
Granularity of Data items
Recovery Techniques
Recovery concepts
Database backup and recovery from catastrophic failures.
- UNIT-V** Introduction to Oracle, Oracle database structure, Oracle Processes
Introduction to PL/SQL, PL/SQL data types, PL/SQL environment,
PL/SQL syntax.
Cursors, Use of cursors, Type of cursors.
DATABASE TRIGGERS : Introduction, Use of Database Triggers, Type
of Triggers.
Design and Development of information system using Oracle.

References

Text 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."
- Ivan Bayross, "SQL,PL/SQL"

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SYLLABUS

B. Sc. (Hons.) (Computer Applications) - II Year

LAB

CA-2P1

Pract. Exam/Viva-Voce Marks: 50

LAB : (Oracle, Developer 2000/VB, JavaScript, Java, J2EE Platform, HTML, DHTML, VB Script etc.)

Appendix-A
DEPARTMENT OF COMPUTER SCIENCE
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B. Sc. (Hons.) (Computer Applications) - III Year

SYLLABUS

CA-301 **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, 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"

References :

1. Haryszkiewicz, I.T., "Introduction of Systems Analysis and Design",
Prentice Hall of India, 1989.
2. Rajarman, V., "Analysis and Design of Information Systems",
Prentice Hall of India, 1989.
3. Senn, J.A., "Analysis and Design of Information Systems",
Tata Mc-Graw Hill Book Company, 1986.
4. Whiten, J.K., Bentley, L.D., Beslow, V.M., "Systems Analysis and Design
Methods",
Galgotia Publications Pvt. Ltd., 1994.
5. Booch, G., "Object Oriented Analysis and Design", 2nd Edition,
Benjamin/Cummins Publishing Co. Redwood City, Ca, U.S.A., 1994.
6. Rebecca Wirfs-Brock, et.al, "Designing Object Oriented Software",
Prentice Hall of India, 1996.
7. Rumbaugh, J., Et al "Object Oriented Modelling and Design",
Prentice Hall of India, New Delhi, 1991.

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SYLLABUS

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

Sessional Marks : 50

Exams Mark : 50

CA-3P1 Computer Lab and Seminar Presentation

Computer Lab (Development of Web based applications using J2EE/.NET technologies).
Seminar Presentation on recent trends and technologies.

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SYLLABUS

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

EL-301 COMPUTER COMMUNICATION & NETWORKS

Sessional Marks : 10

Exam Marks : 40

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

COURSE CONTENT

Unit-I Introduction to Networks: Computer Network, Network goals and uses, Network Topologies, Switching: Message, Circuit and Packet switching, Client Server and peer to peer networks, Introduction to standard organizations and OSI models, Layers of OSI model

Unit-II Internetworking with TCP/IP, TCP/IP Protocols: TCP, UDP&IP, IP-Addresses, Transmission media: Magnetic media, Twisted pair, Coaxial cables, Fiber Optics etc. Radio and Microwave transmission, Satellite Communication, Routers, Bridges, Gateways etc.

Unit-III Introduction to Data communication: Fundamentals of data transmission, Channel speed and bit rates, Bandwidth, digital and analog signals, Asynchronous and Synchronous Transmission, Encoding, Error Detection and Corrections, Modulation, Multiplexing, TDM, FDM and STDM, Terminal handling -polling techniques.

Unit-IV Local Area Networks: Introduction to LAN, Primary attributes of LAN, LAN Standards Introduction to Internet, Email, Work experience on LAN e.g.: Novel Netware/ Windows 2000 Professional/UnixWare etc.

Books:

- “Computer Networks”. By Tanenbaum (PHI).
- “Data Communication and Network” By B. Forouzan (TMH).
- “Computer Networking By Kurose” By J. F., Ross, K.W (Pearson India).
- “Data and Computer Communication” By Stallings, W. (PHI).
- “Internetworking with TCP/IP” By Comer & Stevens (PHI).
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SYLLABUS

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

EL-302 MULTIMEDIA SYSTEMS AND APPLICATIONS

Sessional Marks : 10
Exam Marks : 40

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

UNIT-I Introduction to Multimedia, Definition of Multimedia, Components of Multimedia, Applications Areas for Multimedia, Multimedia in business and work, Multimedia Application Characteristics, Requirement for a Multimedia Application.

Stages of Multimedia Projects
Multimedia Hardware, Memory & Storage Device, Communication Devices, Multimedia software's presentation tools,

UNIT-II Multimedia tools for object generations, Video sounds, Image capturing, Authoring tools, Multimedia Authoring Paradigm, Authoring Packages, Standards in Authoring System, Card & page based authoring tools. Multimedia Building Blocks
Text, Sound, MIDI, Digital, Audio and file formats, MIDI under windows Environment Audio & Video Capture.

UNIT-III Multimedia in the Corporate Environment Telephone Network Based Services, Integrated Services Digital Network (ISDN), ATM, Speech Compression & Synthesis
Digital Audio Concepts, Sampling Variables, Loss less compression of sound, Lossy compression & silence compression., Audio Compression and Decompression, Audio Synthesis, MIDI, Speech Recognition and Synthesis, Video Capturing, Images, Multiple Monitors

UNIT-IV Bitmaps, Vector drawing images, Bitmap like formats, Vector like formats Lossy graphic compression, animations, Image standards, JPEG Compression, ZigZag Coding
VIDEO : Video representation, Colors, Video compression, brief survey of speech recognition and generation digital video and image compression,

-:2:-

MPEG standards :MPEG motion video compression, MHEG standards.
Compression and Decompression, Recent development in Multimedia .

References:

- Tay vaughan “Multimedia , Making it work” Osbome Mcgraw Hill.
- Buford “ Multimedia System” Addison Wesley.
- Agrwal & Tiwari “Multimedia System” Excel.
- Mark Nelson “ Data Compression Book” BPB.
- Roschs “ Multimedia Bible” Sams publishing.

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B. Sc. (Hons.) (Computer Applications) – III Year

SYLLABUS

EL-303

MICROPROCESSOR SYSTEM ARCHITECTURE

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 Microprocessors (8085), pin diagrams of microprocessors, 8086 maximum and minimum modes. Instruction Cycle, State Transition diagrams

UNIT-II Programming of Microprocessor :

Instruction and data format, addressing modes of 8085 Microprocessors, Instruction set of 8085 microprocessors and programming of Microprocessors, Example Programs. Timing diagram of 8085.

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 Microcomputer System peripherals:

Support Chips-8156 and its Programming, Programmable Counter/Interval Timer- Intel 8253, 8355 and its programming, 8255 PPI, embedded Processors

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

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SYLLABUS

EL-304 COMPUTER SYSTEM AND NETWORK SECURITY

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 Information integrity definition, Ensuring integrity & Computer Security: Definition, Perverse software, concepts and components of security, Preventive measures and treatment.

UNIT-II Security status on PC, Need for Computer Security, Breaches of Security, Security threats, Counter measures-physical security, software security, network security, password security, Biometrics, Authentication Integrity, Privacy, Web security requirements, secure socket layer(SSL), Secure electronic transaction (SET)

UNIT-III Cryptography : A brief history, Introduction to number theory: Modular Arithmetic, Complexity Theory; Cipher Systems, Block cipher and stream cipher, DES, DES chaining, Triple DES. RSA approach of encryption, Cryptanalysis.

UNIT-IV Computer Viruses : Introduction, Evolution of virus, The menace, The processes of infection, classifications of virus-Boot infectors, system infectors, General .COM and .EXE infectors, Some viruses, Prevention and Cure- Detection, vaccination, inoculation, identification and damage control, Disaster recovery, Introduction to Firewalls, Introduction, Classification, Architecture, Installation & Management; 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.

References Books :

1. Stallings W. - Cryptography & Network Security : Principles and Practice (PHI)
2. Buchmann J A – Introduction to Cryptography (Springer- Verlag)
3. Baker R. H. – Network Security (McGraw-Hill)
4. Cox – Windows 2000 Security Handbook (TMH)

Appendix-A
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B. Sc. (Hons.) (Computer Applications) - III year

SYLLABUS

EL-305 PC-ASSEMBLY, MAINTENANCE AND TROUBLE SHOOTING

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 IBM PC & TROUBLE SHOOTING:

The structure of the PC system, The basic parts of the IBM PC, Central Processing Unit, Memory Modules, Mass Storage, Input and Output, System Configuration.

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-I COMPONENT TROUBLE SHOOTING-I:

Types of Disc Drives, Assembly of Disc Drives, Disk Drive maintenance, How Disk Drive fails, Cleaning Disc Drives, Trouble shooting Disc Drives

Motherboard form factors, Motherboard components, Sockets and Slots, Processor types, Chipsets, BIOS, Types of I/O busses, Trouble shooting Motherboards, Soldering and Unsoldering, Circuit board repairs.

UNIT-III COMPONENT TROUBLE SHOOTING-II:

Display screens, Construction of CRT monitors, Working with on screen controls, Video Adapter card, Display problems.

Audio Adapter, Trouble shooting sound cards.

Printer technologies, How printers work, Preventive maintenance of printer, Troubleshooting printer.

Types of keyboard, Cleaning the keyboard, keyboard problems.

Mouse ports, Cleaning the mouse, Mouse trouble shooting.

UNIT-IV ASSEMBLING/DISASSEMBLING OF PC

Procedure for assembling/disassembling, Safety precautions during trouble-shooting and repair, operating system and boot process, Start-up problems, Run problems. Installation of O.S. like Window, Linux and utility soft ware, disk utilities.

REFERENCE:

1. Repairing and Upgrading of IBM PC : MUELLER (QUE PUBLICATION)
2. IBM PC and Clones : B. GOVINDARAJALU(TM H PUBLICATION)
3. Troubleshooting, Maintaining & Repairing PC : BIGELOW'S (TM H PUBLICATION)
4. The Complete PC Upgrade and Maintenance Guide: MARK MINASI (BPB PUBLICATION)