C. ABDUL HAKEEM COLLEGE

Melvisharam, Vellore Dist- 632509, TN, India

Telephone : +91 4172 266487, 266987 | **Fax :** +91 4172 266587

Web : www.cahc.edu.in

SUBJECT LIST

Course B.C.A - Computer Application (A)(U)

Batch 2015-2016

Total Credits 140

S.No	E/D	Cate.	Type	S. Code	S. Name	I.Ma	I.Mi	E.Ma	E.Mi	P M	Cr	Pt
Semester - 1					**Subject Count - 6**			**Total Credits - 22**				
1	E	Theory	Language	U15FTA102	Tamil - I	25	0	75	30	40	4	I
2	E	Theory	Language	U15FUR102	Urdu - I	25	0	75	30	40	4	I
3	E	Theory	English	U15FEN101	English - I	25	0	75	30	40	4	II
4	E	Theory	Main	U15MCA101	Digital logic & Microprocessor	25	0	75	30	40	5	III
5	E	Theory	Allied	U15AMA102	Mathematical Foundation - I (Allied)	25	0	75	30	40	4	III
6	E	Theory	Environmental Studies	U15CES101	Environmental Studies	10	0	40	16	20	2	IV
7	E	Practical	Main	U15MCAP11	Practical - I PC Software Lab	40	0	60	24	40	3	III
Semester - 2					**Subject Count - 7**			**Total Credits - 24**				
1	E	Theory	Language	U15FTA202	Tamil - II	25	0	75	30	40	4	I
2	E	Theory	Language	U15FUR202	Urdu - II	25	0	75	30	40	4	I
3	E	Theory	English	U15FEN201	English - II	25	0	75	30	40	4	II
4	E	Theory	Main	U15MCA201	Programming in C	25	0	75	30	40	4	III
5	E	Practical	Main	U15MCAP21	Practical - II Programming in C Lab	40	0	60	24	40	3	III
6	E	Theory	Allied	U15AMA202	Mathematical Foundation - II (Allied)	25	0	75	30	40	6	III
7	E	Theory	Value Education	U15CVE201	Value Education	10	0	40	16	20	2	IV
8	E	Theory	Soft Skills	U15CSS201	Soft Skills	10	0	40	16	20	1	IV

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S.No	E/D	Cate.	Type	S. Code	S. Name	I.Ma	I.Mi	E.Ma	E.Mi	P M	Cr	Pt
Semester - 3					**Subject Count - 7**			**Total Credits - 24**				
1	E	Theory	Main	U15MCA301	Programming in C++	25	0	75	30	40	4	III
2	E	Theory	Main	U15MCA302	Computer Organization and Architecture	25	0	75	30	40	3	III
3	E	Theory	Main	U15MCA303	E - Commerce	25	0	75	30	40	3	III
4	E	Theory	Allied	U15ACM301	Financial and Management Accounting - I (Allied)	25	0	75	30	40	6	III
5	E	Theory	Soft Skills	U15SCA301	Introduction to Information Technology (SBS - I)	15	0	60	24	30	3	IV
6	E	Practical	Main	U15MCAP31	Practical - III Programming in C++ Lab	40	0	60	24	40	3	III
7	E	Theory	Non Major	U15NUR301	Functional Urdu - I (NME - I)	10	0	40	16	20	2	IV
8	E	Theory	Non Major	U15NTA301	Basic Tamil - I (NME - I)	10	0	40	16	20	2	IV
9	E	Theory	Non Major	U15NBA301	Management Concepts (NME - I)	10	0	40	16	20	2	IV
10	E	Theory	Non Major	U15NCM301	Elements of Accountancy (NME - I)	10	0	40	16	20	2	IV
Semester - 4					**Subject Count - 7**			**Total Credits - 21**				
1	E	Theory	Main	U15MCA401	Data and File Structures	25	0	75	30	40	3	III
2	E	Theory	Main	U15MCA402	Operating System	25	0	75	30	40	3	III
3	E	Theory	Main	U15MCA403	Fundamentals of Algorithms	25	0	75	30	40	3	III
4	E	Theory	Allied	U15ACM401	Financial and Management Accounting - II (Allied)	25	0	75	30	40	4	III
5	E	Theory	Soft Skills	U15SCA401	Computer Networks (SBS - II)	15	0	60	24	30	3	IV
6	E	Practical	Main	U14MCAP41	Practical - IV Data Structures Lab Using C++	40	0	60	24	40	3	III
7	E	Theory	Non Major	U15NUR401	Functional Urdu - II (NME - II)	10	0	40	16	20	2	IV
8	E	Theory	Non Major	U15NTA401	Basic Tamil - II (NME - II)	10	0	40	16	20	2	IV
9	E	Theory	Non Major	U15NEN401	English for Communication (NME - II)	10	0	40	16	20	2	IV
10	E	Theory	Non Major	U15NBA401	Training and Development (NME - II)	10	0	40	16	20	2	IV
11	E	Theory	Non Major	U15NCM401	General Commercial Knowledge (NME - II)	10	0	40	16	20	2	IV
12	E	Theory	Non Major	U15NCH401	Chemistry in Every Day Life (NME - II)	10	0	40	16	20	2	IV

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Batch 2015-2016

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S.No	E/D	Cate.	Type	S. Code	S. Name	I.Ma	I.Mi	E.Ma	E.Mi	P M	Cr	Pt
Semester - 5					**Subject Count - 6**			**Total Credits - 22**				
1	E	Theory	Main	U15MCA501	Database Management System	25	0	75	30	40	5	III
2	E	Theory	Main	U15MCA502	Programming with Java	25	0	75	30	40	5	III
3	E	Theory	Elective	U15ECA501	Computer Graphics (Elective - I)	25	0	75	30	40	3	III
4	E	Theory	Skill Based	U15SCA501	Visual Programming (SBS - III)	15	0	60	24	30	3	IV
5	E	Practical	Main	U15MCAP51	Practical - V VB Oracle Lab	40	0	60	24	30	3	III
6	E	Practical	Main	U15MCAP52	Practical - VI Java Programming Lab	40	0	60	24	30	3	III
Semester - 6					**Subject Count - 8**			**Total Credits - 27**				
1	E	Theory	Main	U15MCA601	Open Source Software	25	0	75	30	40	6	III
2	E	Theory	Main	U15MCA602	Cloud Computing	25	0	75	30	40	5	III
3	E	Theory	Elective	U15ECA601	Software Engineering (Elective - II)	25	0	75	30	40	3	III
4	E	Theory	Skill Based	U15SCA601	Multimedia (SBS - IV)	15	0	60	24	30	3	IV
5	E	Project	Main	U15MCAP60	Project and Viva-Voce	25	0	75	30	40	3	III
6	E	Practical	Main	U15MCAP61	Practical - VII Open Source Software Lab	40	0	60	24	30	3	III
7	E	Practical	Main	U15MCAP62	Practical - VIII Operating System and Multimedia Lab	40	0	60	24	30	3	III
8	E	Theory	Extension Activities	U15CEA601	Extension Activities	0	0	50	20	20	1	V

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for B.Sc., Computer Science & B.C.A., effective from the year 2015-2016

Year: I Year Subject Code : U15MCS101 / U15MCA101 Semester : I

Major - 1 Title: **Digital Logic and Microprocessor**

Credits: 5 Max. Marks. 75

Objective:

- To provide the students basic knowledge of computers and to know the microprocessor architecture

UNIT: 1

Digital Computer-Definition- number systems-conversion from one number system to another system-Binary addition, subtraction, multiplication and division-Compliments and its types-Binary Codes:needs,advantages, BCD,8421,Excess-3 Codes, Gray Codes,Alpha numeric Code-Problems in gray code-Error Detection and Correction Code-Binary Logic-Truth Tables-Problems using Truth Table-Integrated Circuits

Note: 10 Marks Problem and 9 Marks theory

UNIT: 2

Basic Definitions of Boolean Algebra-Axiomatic Definition of Boolean Algebra-Basic theorems,properties-Demorgan theorem-simple problems in Boolean algebra-Boolean functions-Laws of Boolean Algebra-Rules in Boolean Algebra-Duality Theorem-canonical and standard forms-problems in canonical and standard forms-Digital Logic Gates

Note: 9 Marks Problem and 10 Marks theory

UNIT: 3

The Map Method-two,three,four, five variable map-POS Simplifications-SOP Simplifications-Don't Care Conditions-Prime Implicant Method [Queen Mc Clausky Tabulation Method Problem]

Note: 15 Marks Problem and 4 Marks Theory

UNIT: 4

Adder-Subtractor- Encoder-MUX-DeMUX-Problems in MUX-Flip flops and its types-Registers: Shift Registers-Ripple and Synchronous Counters-PLA-Design of ALU, Status Register and Accumulator

Note: Multiplexer Problem [Compulsory in 5 OR 10 Marks]

UNIT: 5

Microprocessor, Microcomputers and Assembly Languages-Introduction to 8085 Assembly Language Programming- Architecture and its Operations-8085 Microprocessor Archietecture and Memory Interfacing,Interfacing I/O Devices,8085 Instructions

Note: 19 Marks theory only

TEXT BOOK:

1. M.Mooris Mano,"Digital Logic and Computer Design",PHI
2. R.S.Gaonkar,"Microprocessor Architecture-Programming and Applications, "Wiley Eastern Limited

REFERENCE BOOKS:

1. A.Mathur,"Introduction to Microprocessor",TMH
2. Lloyd,"Digital Logic and Desisn",PHI

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Syllabus for B.Sc., Computer Science & B.C.A., effective from the year 2015-2016

Year: I Year Subject Code : U15MCS201 / U15MCA201 Semester : II

Major - 2 Title: **Programming in C**

Credits: 4 Max. Marks. 75

Objective:

- To Understand the Programming Fundamentals and the basics of the 'C' Programming Language.
- To be able to build own logic for a given problem and finally develop one's own programs
- To understand the syntax and the semantics of C programming language.

Unit:1

Introduction to C-Structure-Character Set-Delimiters-Keywords-identifiers-Constant-Variables-Data types-Type Conversion-Operators and Expression-Input and Output in c

Unit:2

Decision and Loop Control Statements: if,if-else,break,continue,goto,switch() case,for loop,while,do-while-Arrays:Array initialization-one dimensional array-two dimensional and multidimensional arrays.

Unit:3

Pointers: Features of pointers-pointer declaration-arithmetic operation with pointers-pointers and arrays-array of pointers-pointer to pointers-pointer and strings-void pointers. Function: Definition-function prototypes-Passing arguments-function within a function-recursion

Unit:4

Storage Class:automatic,external,static,register variables-Preprocessor Directive:#define directive-undefining a macro- # include directive-#ifndef directive-#error directive-#line directive-inline directive

Unit: 5

Structures and Unions: declaration-initialization-structures within structures-array of structures-pointer to structures-structure and function-enumerated data types-union-union of structures-Files-creating-processing-opening and closing a data file-command line arguments

TEXT BOOKS:

1. Programming with ANSI and Turbo C,Ashok.N.Kamthane,Pearson Education

REFERENCE BOOKS:

1. Let us C, Kanetkar-BPB publications
2. Programming in C,E. Balagurusamy-TMH
3. The Complete Reference, H.Schild-TMH edition

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Syllabus for B.C.A., effective from the year 2016-2017

Year: II Year Subject Code : U15MCS301 / U15MCA301 Semester : III

Major - 3 Title: **Programming in C++**

Credits: 3 Max. Marks. 75

Objective:

- To understand the basics of Object Oriented Programming and their applications.
- To gain knowledge of objects, Class, Data Abstraction, Encapsulation, Inheritance, Polymorphism and Dynamic Binding.
- To know about constructing programs

Unit: 1

Principles of OOPS-Evolution-Programming Paradigm-Disadvantages of Conventional Programming-Key Concepts of OOPS-advantages and Usage of OOP-Input and Output in C++

C++ Declarations: keywords, tokens-identifiers, data types, type modifier, constant, operators, precedence of operators

Unit: 2

Control Structures- Functions in C++-Classes and Objects-Constructors and Destructors

Unit: 3

Operator overloading and type Conversion-Inheritance

Unit: 4

Pointers and Arrays-Polymorphism and Virtual Functions-Applications with Files

Unit: 5

Templates-Exception Handling-Working with Strings

TEXT BOOK:

1. Ashok N.Kamthane, “Object Oriented Programming with ANSI & Turbo C++”,Pearson Education Publications

REFERENCE BOOKS:

1. E. Balagurusamy,”C++ Programming”T.M.H.Publications
2. Herbert Schildt,”C++ the Complete Reference”T.M.H. Publications
3. Robert Lafore,”OOP with C++”

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Syllabus for B.C.A., effective from the year 2016-2017

Year: II Year Subject Code : U15MCA302 Semester : III

Major - 4 Title: **Computer Organization and Architecture**

Credits: 3 Max. Marks. 75

OBJECTIVES:

- To understand the concepts in modern computer architecture
- To learn the design of Control Unit and ALU of a typical computer
- To learn about the memory, input –output organization of a typical computer
- To learn the concepts of pipelining.

UNIT: 1

What is Computer Architecture?-Organization and Architecture-Structure and Function-Computer Evolution and Performance-Embedded System and the ARM-Computer Components-Computer Function-Interconnection Structures-Bus Interconnection-PCI

UNIT: 2

Cache Memory-Computer Memory System Overview-Cache Memory Principles-Elements of Cache Design: Cache Address-Cache Size-Pentium 4 Cache Organization-ARM Cache Organization

UNIT: 3

Semiconductor Main memory: Organization-DRAM and SRAM-Types of ROM-Chip Logic-Chip Packaging-Module Organization-Interleaved Memory-External Memory: Magnetic Disk-RAID-Optical Memory-Magnetic Tapes

UNIT: 4

Input/output: External Devices-I/O modules-Programmed I/O-Interrupt driven I/O-DMA-Instruction Sets: Characteristics-Types of Operands-Types of Operations-Addressing-Instruction Formats

UNIT: 5

Processor Structure and Function: Processor and Register Organization-Instruction Cycle-Instruction Pipelining- RISCs: Instruction execution characteristics-use of large register file-compiler based register optimization-Reduced Instruction Set architecture-RISC pipelining-RISC versus CISC controversy

TEXT BOOK:

1. "Computer Organization and Archietecture" ,William Stallings,PHI

REFERENCE BOOKS:

1. "Computer Organization" ,Carl Hamacher,Zvonko Vranesic,Safwat Zaky- MGH
2. "Computer System Archietecture",M.Mooris Mano-PHI

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Syllabus for B.C.A., effective from the year 2016-2017

Year: II Year Subject Code : U15MCA303 Semester : III

Major - 5 Title: **E - Commerce**

Credits: 3 Max. Marks. 75

OBJECTIVES:

- To understand the process of Electronic commerce and Business strategy involved in it.

Unit: 1

What is Ecommerce?-Ecommerce Framework-Ecommerce and media Convergence-anatomy of ecommerce applications-consumer applications-organization applications-Network Infrastructure for Ecommerce: Market forces influencing the I-way-components of the i-way-network access equipment-Last Mile-Global Information Distribution Networks and Public Policy Issues shaping the i-way

Unit: 2

The Internet as a Network Infrastructure: internet terminology-chronological history-NSFNET-National Research and Education Network-Globalization of the academic internet-Internet society-internet applications-The business of the Internet Commercialization

Unit: 3

Networks Security and Firewalls-Electronic Commerce and World Wide Web-Consumer Oriented Electronic Commerce

Unit: 4

Electronic Payment System-Inter organizational Commerce and EDI-EDI implementation, MIME and Value Added Networks-Intra Organizational Electronic Commerce

Unit: 5

Corporate Digital Library-Advertising and Marketing on the internet-Consumer Search and Resource Discovery

TEXT BOOK:

1. “Frontiers of Electronic Commerce”, Ravi Kolkata, Andrew B.Whinston Pearson Education

REFERENCE BOOKS:

1. “Understanding Ecommerce”-David Kosiur-Microsoft Press “From EDI to Ecommerce”-Soka, MGH

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Syllabus for B.C.A., effective from the year 2016-2017

Year:	II Year	Subject Code :	U15SCS301 / U15SCA301	Semester :	III
Skill Based - 1	Title:	**Introduction to Information Technology (SBS - I)**			
Credits:	3			Max. Marks. 60	

Objective: To know more about Information technology and current trends

Unit:1

Computer Basics: Evolution-generations-Classifications-Components-Applications- Computer Organization and Architecture: CPU-Communication among various Units-Instruction Format-Instruction Cycle-Instruction Set-Inside a Computer

Unit:2

Computer Memory and Storage: Introduction-Memory Hierarchy-RAM-ROM-Types of Secondary Storage devices-Magnetic Tape-Magnetic Disk and its types-Optical Disk and its types-Mass Storage Devices

Input Output Media: Introduction-types of input and output devices-Computer terminals

Unit:3

Operating System: Introduction-definition-evolution-types-functions

Computer Software: Introduction-Definition-Categories-Installing and uninstalling software-Software piracy-Software Terminologies

Information Technology Basics: Introduction-Information-technology-IT-present scenario-Role of IT-IT and internet-Careers in IT Industry

Unit:4

The Internet: Introduction-Evolution-Basic terms-getting connected to internet-applications- data over internet

Internet Tools: Introduction- Web Browser-Browsing internet-Electronic Mail-Search Engines-Instant Messaging.

Unit:5

Computer Security: Introduction-definition-Malicious Programs-Cryptography-Digital Signature-Fire wall-Users Identification and Authentication-Components of Security Policies.

Emerging Trends in IT: Introduction-Ecommerce-EDI-Mobile Communication-Bluetooth-GPS-Infrared Communications-Smart Card-Imminent Technologies

TEXT BOOK:

- Introduction to Information Technology, ITL Education Solutions Limited, Pearson Educations.

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Syllabus for B.C.A., effective from the year 2016-2017

Year: II Year Subject Code : U15NCS301 / U15NCA301 Semester : III

Non Major -1 Title: **Fundamentals of Computer (NME- I)**

Credits: 2 Max. Marks. 40

Objective: Non Knowing Computer Students Can learn this package

UNIT-I

Introduction: History of Computer- Parts of Computer System - Hardware Devices - Software - Operating System - Examples of Operating systems - Computer Networking - Visual Editor

UNIT-II

Microsoft Word - Microsoft Excel - Microsoft PowerPoint - Microsoft Access

UNIT-III

Introduction to Multimedia - Images - Sound -Video Desktop Publishing - Basics - Page layout Programs - Text Generation - Graphics for DTP - Print Production.

UNIT-IV

Introduction to Internet - Working of Internet- Internet Services - Internet Addressing - E-Mail Basics- Web Development Tools- Introduction to HTML

UNIT-V

Information System - Management Information concepts - Planning Issues and the MIS - Organizing Issues and the MIS - Control Issues and the MIS - Decision Support Systems.

TEXT BOOKS:

1. Sanjay Saxsena, “A First Course in Computer”, Vikas Publishing House, 2000

REFERENCE BOOK:

1. Ron Mansfield, “Working in Microsoft Office”,Tata Mcgraw Hill, 1997
2. . Linda Tway, Sapphiro Pacific Lajolla, “Multimedia in Action”, Academic Press,1995
3. Neil randal “Teach yourself the internet in a week”, Prentice Hall of India, Second Edition, 1996.
4. ITL Edn Solutions,”Introduction to Computer Science“, Pearson Education.

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Syllabus for B.C.A., effective from the year 2016-2017

Year: II Year Subject Code : U15MCS401 / U15MCA401 Semester : IV

Major - 6 Title: **Data and File Structures**

Credits: 3 Max. Marks. 75

Objective:

- To understand the use of the basic data structures along with their applications.
- Understand the use and working of the various data structures.

UNIT: 1

Introduction to Data Structures: Definition-Array-Representation of Arrays-Sparse Matrices-Multidimensional Arrays. **Stacks and Recursion:** Stack-Introduction to recursion-Principles of Recursion-Polish Notation-Evaluation of Polish Expression-Translation from infix form to polish form

UNIT: 2

Queue: Definitions-Implementations of Queues-Circular Queues-Applications of queues-linked queues-polynomial arithmetic-**List:** list Specification-implementation of lists-strings-linked list in arrays

UNIT: 3

Sorting & Searching: Searching-Introduction, definition & notation-Sequential Search-Binary Search-**Sorting:** Definition-Insertion Sort-Selection Sort-Shell Sort-Divide & Conquer Sorting-Merge Sort-Quick Sort –Heap Sort

UNIT: 4

Tables & Information Retrieval: Tables & information Retrieval-introduction-rectangular arrays-tables of various shapes-abstract tables, Radix Sort-Hashing. **File Structures:** Concept of fields-records & files-sequential file organization-variable length records & text files.

UNIT: 5

Trees: Binary Tree-Building a binary search tree-AVL trees-Splay trees-Orchards-B-tree-Red black trees. **Graphs:** Definition-Undirected & directed graphs-traversal-topological sorting-Shortest Path

TEXT BOOK:

1. Robert L Kruse , "Data Structures & Program Design",TMH
2. Schaum's outline series, "Data Structure", TMH

REFERENCE BOOK:

1. Ellis Horowitz & Sartaj Sahni " Fundamentals of Data Structures, Galgotia Booksource
2. Tanenbaum, " Data Structures Using C" ,TMH
3. A.K. Sharma, " Data Structure Using C", Pearson Education
4. P. S. Deshpande and O.G. Kakde, "C & Data Structure", Wiley Dreamtech,

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Syllabus for B.C.A., effective from the year 2016-2017

Year: II Year Subject Code : U15MCA402 Semester : IV

Major - 7 Title: **Operating System**

Credits: 3 Max. Marks. 75

Objective:

• To understand the services provided by an operating system.

Unit: 1

Operating System-Introduction-Definition-Computer System Structures-Operating System Structures-Process Management- Threads

Unit: 2

CPU Scheduling-Process Synchronization-Deadlocks-Memory Management-Virtual Memory-File System Interface-File System Implementations-I/O Systems

Unit: 3

Mass Storage Structures-Distributed Systems-Distributed File Systems-Distributed Co-ordination

Unit: 4

Protection –Security-Linux System-Case Studies

Unit: 5

Shell Basics-Script Basics-Working with Files-Processes-Variables-Substitutions-Quoting-Flow Control-Loop-Parameter-input/output-Functions-Text Filters-Filtering Text using regular Expression-Filtering text with awk-Miscelleanous tools

TEXT BOOK:

1. Silberschatz,Galvin and gagne “OS Concepts” ,Wiley Publications
2. Sams Teach Yourself Shell Programming in 24 Hours
3. William Stallings,”Operating Systems”,Pearson Educations
4. Andrew.S.Tanenbaum,”Modern Operating Systems” EEE publications
5. Recent Journals and Web Sites
6. D.M.Dhamdhere, “System Programming and OS”,TMH

REFERENCE BOOKS:

1. Haldar/Aravind, “Operating System”, Pearson Edu.
2. Madnick E., Donovan J., “Operating Systems”, Tata McGraw Hill

An Introduction to Operating Systems: Concepts & Practice, Bhatt, PHI

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Syllabus for B.C.A., effective from the year 2016-2017

Year: II Year Subject Code : U15MCA403 Semester : IV

Major - 8 Title: **Fundamentals of Algorithms**

Credits: 3 Max. Marks. 75

OBJECTIVE: To learn more knowledge in algorithm

UNIT: 1

Introduction to Algorithms-analyzing algorithms-**Divide and Conquer:** General Methods-Binary Search-Finding the maximum and minimum-merge sort-quick sort-selection sort-Strassen's Matrix Multiplication

UNIT: 2

The Greedy Method: General Method-Optimal Storage on tapes-Knapsack Problem-Job Sequencing with deadlines-Optimal merge patters-Minimum Spanning Trees-Single Source Shortest Paths

UNIT: 3

Dynamic Programming: General Method-Multistage graphs-All pairs Shortest path-Optimal binary Search trees-Travelling Salesperson Problem-Flowshop Scheduling

UNIT: 4

Basic Search and Traversal Techniques: Techniques-Code Optimization-AND/OR graphs-Game trees

UNIT: 5

Back Tracking: General Method- 8 Queens Problem-Sum of Subsets-Graph Coloring-Hamilton Cycles-Knapsack Problems

Branch & Bound: General Methods-Travelling Salesperson problem

Note: Topics involved in analysis and related theorems are not included in the syllabus.

TEXT BOOK:

Ellis Horowitz and Sartaj Sahni," Fundamentals of Computer Algorithms"

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Syllabus for B.C.A., effective from the year 2016-2017

Year: II Year Subject Code : U15SCS401 / U15SCA401 Semester : IV

Skill Based - 2 Title: **Computer Networks (SBS - II)**

Credits: 3 Max. Marks. 60

Objective:

- The aim of this course is to allow students to develop background knowledge as well as core expertise in networking technologies, which one of the fastest growing industries is in today's world.
- The students will be exposed different types of media, multiplexing, switched networks, the Internet, TCP/IP suite, fiber-optic communications and the state-of-art networking applications.
- Various transmission media, their comparative study, fiber optics and wireless media
- Categories and topologies of networks (LAN and WAN) and TCP/IP) and protocol suites, Channel error detection and correction, MAC protocols, Ethernet and WLAN, Details of IP operations in the Internet and associated routing principles

Unit: 1

Computer Networks-Definition-Uses –Network Hardware-Network Software-Reference Models-Guided Transmission Media-Wireless Transmission-Communication Satellite-Switching and its types-Cable Television

Unit: 2

Data link Layer-Design Issues-Error detection and Correction-Elementary Data Link protocols-Sliding Window Protocols-Protocol verifications-High level Data Link Control-Multiple Access Protocols

Unit: 3

Ethernet-Bluetooth-Data link Layer Switching-Network Layer Design Issues-Routing Algorithms

Unit: 4

Congestion Control Algorithms-Quality of Service-Internetworking-Network Layer in the Internet

Unit: 5

Transport Layer-Services-Elements of Transport Protocols-UDP-TCP-DNS-Electronic Mail-WWW

TEXT BOOK:

1. Andrew S.Tanenbaum ,"Computer Networks" Pearson Education

REFERENCE BOOKS:

1. Behrouz A. Forouzan, "Data Communication and Networking", 2nd edition, Tata McGraw Hill.
2. D. E. Comer, "Internetworking with TCP/IP", Pearson Education Asia
3. William Stallings, "Data and computer communications", Pearson education Asia

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for B.C.A., effective from the year 2016-2017

Year: II Year Subject Code : U15NCS401 / U15NCA401 Semester : IV

Non Major - 2 Title: **Internet And Its Applications (NME - II)**

Credits: 2 Max. Marks. 40

Objective:

User can know more about internet usage & its applications, able to design a simple web page

UNIT- I

Introduction to Computers - Programming Language- types History of Internet Personal Computers- History of World Wide Web- Micro software .NET Java-Web resources.

UNIT - II

Web Browsers- Internet Explorer- connecting to Internet Features of Internet explorer6 Searching the Internet- online help and tutorials- File Transmission Protocol (FTP) Browser settings.

UNIT III

Attaching a file, Electronic mail: Creating an E-mail id, Sending and Receiving mails-attaching a file-Instance messaging- other web browsers.

UNIT IV

Introduction to HTML headers- Linking- Images-special characters and line breaks- unordered lists- simple HTML programs.

UNIT V

E-marketing consumer tracking Electronic advertising search engine-CRM- credit card Payments- Digital cash - e wallets - smart card.

TEXT BOOK:

1. "Internet and World Wide Web ",Third edition H.M.Deital, P.J. Deital and A.B.Goldberg-PHI

RERFERENCE BOOK:

1. "The Internet- Complete Reference", Harley Hahn, Tata McGraw hill

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Syllabus for B.Sc., Computer Science effective from the Batch 2015-2016

Year: III Year Subject Code : **U15MCS501** / U15MCA501 Semester : V

Major - 5 Title: **Database Management System**

Credits: 3 Max. Marks. 75

Objective:

- To understand difference between storing data in File Management System & DBMS and advantages of DBMS.
- To understand conceptual and physical design of a database.
- To understand RDBMS and queries to design database and manipulate data in it.
- To know basic database backup and recovery.

Unit: 1

Introduction of DB system-Database system architecture [Chapter 1 & 2]

Unit: 2

The Relational Algebra & Calculus, Relational Query Languages [Chapter 4 & 5]

Unit: 3

ER Model, EER Model, Introduction to Database design, Functional dependency & decomposition [Chapter 6, 7 ,8 & 9]

Unit: 4

Normalization, Query Processing and optimization, database recovery system, database security [Chapter 10, 11, 13 & 14]

Unit: 5

Oracle-Features-Advantages-PL/SQL Block-PL/SQL procedure- PL/SQL Function-Cursor Management-Triggers-Exception Handling

TEXT BOOKS:

1. Singh,"DB Systems-Concepts,Design and Applications" Pearson Education [Units 1 to 4]
2. Micheal Abbey and Micheal J.Corey,"Oracle-A Beginners Guide", TMH [Units 5]

REFERENCE BOOKS:

1. R. Elmarsi and SB Navathe, "Fundamentals of Database Systems", Pearson Education
2. Ramakrishnan and Gherke, "Database Management Systems", TMH.
3. Jim Melton, Alan Simon, "Understanding the new SQL: A complete Guide", Morgan Kaufmann Publishers
4. A. K. Majumdar, P. Battacharya, "Data Base Management Systems', TMH
5. Bipin Desai, "An Introduction to database Systems", Galgotia Publications.
6. Abraham Silberschatz,H.F.Korth and S.Sudarshan, "Database System Concepts"-Mc Graw Hill Publications
7. Gerald V.Post,"DBMS" Mc Graw Hill Publications
8. Micheal Abbey and Micheal J.Corey,"Oracle-A Beginners Guide", TMH
9. Alexis Leon and Mathews Leon, "Essential of DBMS",Vijay Nicole Publications
10. Atul Kahate,"Introduction to DBMS",Pearson Education

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Syllabus for B.Sc., Computer Science effective from the Batch 2015-2016

Year: III Year Subject Code : **U15MCS502** / U15MCA502 Semester : V

Major - 6 Title: **Programming with Java**

Credits: 3 Max. Marks. 75

Objective:

- To make students well versed with programming in java.

Unit: 1

OOP and Java-The Primaries-Control Statement [Chapter 1, 2 & 3]

Unit: 2

Arrays and Methods, Classes and Objects-Inheritance and Polymorphism [Chapter 4, 5 & 6]

Unit:3

Interfaces and Packages-Applets-Abstract Windowing Toolkit-I [Chapter 7,8 & 9]

Unit:4

Abstract Windowing Toolkit-II - Exception Handling – Multithreading [Chapter 10,11 & 12]

Unit:5

I/O streams – Networkiong – The Java.lang Package [Chapter 13,14 & 15]

TEXT BOOKS:

1. C.Muthu, “Essentials of Java Programming”, Vijay Nicole Publications

REFERENCE BOOKS:

1. Patrick Naughton and Herbert Schildt, “Java-2 The Complete Reference”, TMH.
2. Y. Daniel Liang, “Introduction to Java Programming, Comprehensive Version” Pearson.
3. Krishnamoorthy. R, & Prabhu S ,”Internet and Java Programming”, New Age Intl.
4. David Flanagan, Jim Farley, William Crawford and Kris Magnusson, “Java Enterprise in a Nutshell”, O’Reilly.
5. Deitel and Deitel,”Java how to program”,PHI Publications
6. E.Balagurusamy,” Programming In Java”,TMH Publications
7. Peter Norton,”Peter Norton Guide to Java Programming”,Techmedia Publications

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Syllabus for B.C.A., effective from the Batch 2015-2016

Year: III Year Subject Code : U15ECA501 Semester : V

Elective -1 Title: B. Computer Graphics (Elective - I)

Credits: 3 Max. Marks. 75

Objective:

To understand the graphics applications and its use.

Unit: 1

Introduction to Computer Graphics- Video Display Devices- Raster Scan Systems- Random Scan System- Interactive Input Devices-Hard Copy Devices-Graphics Software-Output Primitives-Line Drawing algorithms-Initializing Lines-Line Function-Circle Generating Algorithms

Unit: 2

Attributes of Output Primitives-Line Attributes-Color and Grayscale Style-area filling algorithms-Character Attributes-Inquiry Functions-Two dimensional transformation-basic transformation-composite transformation-matrix representation-other transformations

Unit: 3

Two dimensional Viewing-Window to viewport co-ordinates transformation-Clipping Algorithm-Interactive input methods-Physical input devices- Logical Classification of input devices-interactive picture construction methods

Unit: 4

Three dimensional concepts- 3D display methods-Parallel projection-Perspective Projection-Depth Cueing-Visible line and Surface identification- 3D transformations

Unit : 5

3D Viewing-Projection-Viewing transformation-Implementation of viewing operations-Hidden Surface and Hidden Line removal-Back face Removals

TEXT BOOKS:

1. D.Hearn and M.P.Baker," Computer Graphics",Pearson Education

REFERENCE BOOK:

1. Foley, Van Dam, Feiner, Hughes, Computer Graphics Principles & Practice, Pearson
2. Chennakesava R. Alavla "Computer Graphics", PHI Learning Pvt. Limited
3. W.M.Newman and R.F.Sproull, " Principles of Interactive Computer Graphics", MGH editions
4. Malay K.Pkhira,"Computer Graphics, Multimedia and Animation",PHI edition

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Syllabus for B.Sc., Computer Science effective from the Batch 2015-2016

Year: III Year Subject Code : **U15SCS501** / U15SCA501 Semester : V

Skill Based -3 Title: **Visual Programming (SBS - III)**

Credits: 3 Max. Marks. 60

Objective:

- To know more about Visual Basic Codings

UNIT: 1

Getting Started-The VB environment and help system-Customizing a form and writing simple programs [Chapter 1 to 3]

UNIT:2

First steps in building the user interface-first step in programming-displaying information [Chapter 4 to 6]

UNIT:3

Controlling program flow – built in function – writing functions and procedures [Chapter 7 to 9]

UNIT:4

Organizing information via code – Organizing information via Controls – Building large projects [Chapter 10 to 12]

UNIT:5

VB Objects and an introduction to OOP-Finishing the interface-Tools and Techniques for testing, debugging and optimization [Chapter 13 to 15]

TEXT BOOKS:

1. VB 6 from the ground up, Gary Cornell-MGH

REFERENCE BOOKS:

1. VB 6 Programming-CDG TMH publications
2. VB 6 –Content Development Group-TMH
3. VB 6 How to program,Deitel and Associates-Pearson Education.

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Syllabus for B.Sc., Computer Science effective from the Batch 2015-2016

Year: III Year Subject Code : **U15MCS601** / U15MCA601 Semester : VI

Major - 7 Title: **Open Source Software**

Credits: 3 Max. Marks. 75

OBJECTIVE:

To equip the students with basic programming skill in web programming

UNIT I: HTML

Introduction to HTML-tags-structure-title & footers-text formatting-text styles-list-adding graphics to HTML documents-tables-linking documents-frames-DHTML: Cascading Style Sheet-Class: External Style Sheet

UNIT II: VB Script

VB Script-Basics-Working with Arrays-Constants-The Scope and lifetime of a Variable-VB Script Operators-Flow control-Subroutines and Functions Procedures-Coding Conventions

UNIT III: JAVA SCRIPT

Introduction to JavaScript –Advantages-Writing java script into HTML –Data types-variable-array-operator-functions-Dialog boxes-java script document object model

UNIT IV: MYSQL & PHP

MYSQL–introductions-Benefits-Instruction for installing MYSQL-instruction for setting up-MYSQL user account-Creating a database in MYSQL

PHP: PHP & HTML-Basics of PHP-data types-variables-constant-operators-arrays-Conditional statement-looping

UNIT V: PHP

PHP functions: user defined functions-built in functions-PHP server variable-working with date & time-performing mathematical operations- Working with string functions-working with forms-debugging and errors

TEXT BOOKS:

1. I. Bayross, Web Enable Commercial Application Development Using HTML,DHTML, Javascript, Pen CGI, BPB Publications
2. VB Script Basics-Dani Vainstain, BPB

REFERENCE BOOKS:

1. T. A. Powell, Complete Reference HTML (Third Edition),TMH
2. J. Jaworski, Mastering Javascript, BPB Publications
3. Internet Programming with VB Script and Java Script, Thomson Learning , HathleenKalata
4. Powel, Thomas Schneider,Fritz, Java Script" The Complete Reference",TMH
5. Deitel & Deitel ,internet & world wide web How to program, Pearson Education
6. Eddie Jackson ,"VB Script" BPB

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Syllabus for B.Sc., Computer Science effective from the Batch 2015-2016

Year: III Year Subject Code : **U15MCS602** / U15MCA602 Semester : VI

Major - 8 Title: **Cloud Computing**

Credits: 3 Max. Marks. 75

Objectives:

- To know the latest trend in cloud

UNIT: 1

Introduction to Cloud Computing- Migrating into a Cloud-Enriching the integration as a service paradigm for the cloud era-Enterprise Cloud Computing Paradigm

UNIT: 2

Infrastructure as A Service [IAAS]: Virtual Machines Provisioning and migration services-On the Management of Virtual Machines for Cloud Infrastructures-Enriching Cloud Computing Environment using a Cluster as a Service

UNIT: 3

Secure Distributed Data Storage in Cloud Computing-Integration of Private and Public Clouds-CometCloud

UNIT: 4

T-Systems' Cloud-Based Solutions for Business Applications-Workflow engine for Clouds-Understanding scientific applications for cloud environment

UNIT: 5

The MapReduce Programming Model and Implementations-An architecture for Federated Cloud Computing-SLA Management in Cloud Computing:A Service Providers's Perspective-Performance Prediction for HPC on Clouds

NOTE: Case Studies Excluded [in all the Five Units]

TEXT BOOK:

1. Cloud Computing Principles and Paradigms,Rajkumar Buyya,James Broberg and Andrzej Goscinski-Wiley [A John Wiley & Sons,Inc.,Publications

REFERENCE BOOKS:

1. Cloud Computing Principles and Paradigms, T.S.Mohan,Pethuru Raj-TMH
2. Cloud Computing , Tariq Ellahi,Benoit Hudzia, Hui Li, Malik A.Lindner and Philip Robinson,Pearson Education.

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Syllabus for B.Sc., Computer Science effective from the Batch 2015-2016

Year: III Year Subject Code : **U15ECS601** / U15ECA601 Semester : VI

Elective - 2 Title: **Software Engineering (Elective - II)**

Credits: 3 Max. Marks. 75

Objective:

- To understand the importance, limitations and challenges of processes involved in software development.
- To gain knowledge of various software models.
- To gain knowledge of various software design activities.
- To learn cost estimation, software testing, Maintenance and debugging**.**

UNIT: 1

Introduction to Software Engineering-A Generic View of Process-Process Models [Chapter -1,2 & 3]

UNIT: 2

An Agile view of Process-Software engineering practice-System Engineering [Chapter -4,5 & 6]

UNIT: 3

Requirements Engineering-Building the analysis Model-Design Engineering [Chapter-7,8 & 9]

UNIT: 4

Crerating an Architectural Design-Modeling Component Level design-Performing User Interface Deisn [Chapter-10,11 & 12]

UNIT:5

Testing Strategies –Testing Tactics-Product Metrics [Chapter-13,14 & 15]

TEXT BOOKS:

1. Software Engineering Practitioner's Approach by Roger S. Pressman, Sixth Edition

REFERENCE BOOK:

1. An integrated approach to Software Engineering by Pankaj Jalote
2. Jibitesh Mishra and Ashok Mohanty, "Software Engineering", Pearson
3. James Peter, W. Pedrycz, "Software Engineering: An Engineering Approach", John Wiley & Sons.
4. Software Engineering Concepts by Richard and Fairley

Year: III Year Subject Code : **U15SCS601** / U15SCA601 Semester : VI

Skill Based - 4 Title: **Multimedia (SBS - IV)**

Credits: 3 Max. Marks. 60

Objectives:

- To get the Knowledge about the basics concepts of multimedia and its applications.
- To get the knowledge of its relevance with internet and its future aspects.

Unit:1

Components of Multimedia-Hardware Essentials-Setting up the Software-Understanding Digital Data-Digital Audio [Chapter 1 to 5]

UNIT: II

Sound Card-Audio Recording and editing techniques-MP3 Revolution-MIDI Fundamentals-Working with MIDI [Chapter 6 to 10]

UNIT: III

Designing Texts-World of Colours-Digital Imaging-Scanning and digital Photography-Graphics Editing [Chapter 11 to 15]

UNIT: IV

Fundamentals of Computer Animation-Developing Animation for multimedia Projects-Introducing Digital Video-Digital Video Production Techniques-Project Conceptualization, design and development [Chapter 16 to 20]

UNIT: V

Multimedia Authoring-Project Planning and Costing-Multimedia Skill Sets and Career Opportunities-Compact Discs-CD Replication Process-Digital Versatile Discs
[Chapter 21 to 26]

TEXT BOOKS:

1. S.Gokul, “Multimedia Magic” BPB Publications

REFERENCE BOOKS:

1. Multimedia BASICS – Weixel, Fulton, Barksdale, Morse, Thomson Brooks/Cole – ESWAR Press
2. Multimedia & Web Design – Vikas Gupta, Dreamtech Press
3. Adobe Premiere Pro Bible – Droblas, Greenberg , Wiley – India
4. Digital Multimedia – Chapman & Chapman, Wiley – Dreamtech
5. Fundamentals of Multimedia – ZeNinan Li, Mark Drew, Pearson – PrenticeHall
6. Multimedia: Making It Work – Tay Vaughan (TATA McGRAW-HILL)
7. Multimedia: Computing Communications & Applications – Ralf Steinmetz and Klara Nahrstedt, Pearson Education