

MCA Syllabus – Department of Computer Science, IUST

Semester-I (24 Credit Semester)						
Course Code	Course Name	Paper category	Hours / Week			Credits
			L	T	P	
18 Core Credit Units						
MCA-IT1-C	Programming Concepts in C/C++	Core	2	1	4	5
MCA-IT2-C	Technical Communication	Core	2	1	4	5
MCA-IT3-C	Discrete Mathematics	Core	3	1	0	4
MCA-IT4-C	Computer Organization and Architecture	Core	3	1	0	4
6 Elective Credit Units						
Pool A: 3 Elective Credit Units						
MCA-IE1-DCE	Programming Languages & Paradigm	DCE	2	1	0	3
MCA-IE2-DCE	Management Information System	DCE	2	1	0	3
Pool B: 3 Elective Credit Units						
MCA-IE3-DCE	Web Technologies	DCE	2	0	2	3
MCA-IE4-DCE	E-Commerce	DCE	2	0	2	3
02 Bridge Course Credit (Optional)						
MCA-IB1-BC	Computer Fundamentals	Bridge Course	2	0	0	2



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Course Title:	Programming Concepts in C/C++	Course Code:	MCA-IT1-C
Semester:	1 st	Paper Type:	Core
Credits:	05	Max Marks:	125
Pre Requisite:	-----	Co-Requisite:	MCA-IT3-C
Marks Distribution:	(Mid Term:30, End Term:50, Lab:25, Viva:10, Assignment / Presentations:10)		

COURSE OBJECTIVES:

- The course is designed to provide complete knowledge of C language. Students will be able to develop logics which will help them to create programs, applications in C. Also by learning the basic programming constructs they can easily switch over to any other language in future.
- Develop an in-depth understanding of functional, logic, and object-oriented programming paradigms.
- To practice the fundamental programming methodologies in the C/C++ programming language via laboratory experiences.
- To code, document, test, and implement a well-structured, robust computer program using the C/C++ programming language.
- Perform object oriented programming to develop solutions to problems demonstrating usage of control structures, modularity, I/O and other standard language constructs.
- Demonstrate adeptness of object oriented programming in developing solutions to problems demonstrating usage of data abstraction, encapsulation, and inheritance.

COURSE CONTENT:

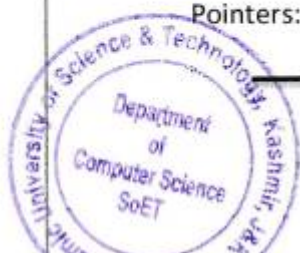
UNIT I

C programming language: Evolution, Features & Importance. Basic Structure of C programs, Character Set, Identifiers, Reserved Words, Data Types, Constants, Variables, Symbolic Constants, Casting and Standard Libraries. Logical and Control Structures: Assignment, Arithmetic, Relational, Logical, Compound, Increment, Decrement, Bitwise Operators & Special Operators. IF, IF – ELSE, Nested IF – ELSE, ?: , SWITCH CASE. Looping Constructs: FOR, WHILE, DO-WHILE, EXIT, BREAK, CONTINUE

Arrays: Types of arrays, Initialization, dynamic arrays. Character Arrays & Strings. String-handling functions.

UNIT II

Functions: Concepts, Elements, Prototypes & Types. Passing Arrays to Functions. Storage classes, Recursion. Command-line arguments. Multifile programming. Preprocessing. Pointers: Concepts, Variables, swapping data, swapping address v/s data, pointers & arrays,



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Pointers to pointers, pointer to strings, pointer arithmetic, additional operators, pointers to functions, void pointers.

Structures and Unions: Syntax & use, members, structures & pointers, array of structures, structures & functions, structure within structures.

UNIT III

OOPS: Evolution and need of C++, Advantages over Procedural programming. Introduction to classes and objects, Basic OOPS programming

C++ Functions: passing arguments to functions, returning values from functions, reference arguments, inline functions, default arguments, object as function argument, returning objects from functions. Constructors and Destructors, Copy Constructors

UNIT IV

Inheritance and Polymorphism: Inheritance and types, Polymorphism (static and dynamic), function overloading, function overriding, virtual functions & operator overloading.

Files: File processing in C & C++. Templates: Concepts, Function & Class templates, Standard Template library: Containers, Algorithms, Iterators and Function objects.

COURSE OUTCOMES:

At the end of the course student will be able to:

- *Formulate simple algorithms for arithmetic and logical problems, translate the algorithms to programs (in C language),*
- *Test and execute the programs and correct syntax and logical errors,*
- *Develop efficient algorithms for solving a problem and implementation.*
- *Use the various constructs of a programming language viz. conditional, iteration and Recursion.*

Text Books:

1. Programming in ANSI C 6th Edition “E. Balaguruswamy”
2. Robert Lafore, “Object Orientation with C++ Programming”, Waite Group

References:

1. Object Oriented Programming with C++ “ E. Balagurusamy”
2. Herbert Schildt, “C++ The Complete Reference”, Tata McGraw Hill
3. Dennis Richie & Kernighan, “C Programming Language”, Prentice Hall
4. Dietel & Dietel, “How to program”, Pearson Education



MCA Syllabus – Department of Computer Science, IUST

Course Title: Technical Communication
Semester: 1st
Credits: 05
Pre Requisite: -----

Course Code: MCA-IT2-C
Paper Type: Core
Max Marks: 125
Co-Requisite: -----

Marks Distribution: (Mid Term:30, End Term:50, Lab:25, Viva:10, Assignment / Presentations:10)

COURSE OBJECTIVES:

The objective of studying Technical Communication course is that it enhances the employability skills and performance at workplace. It provides discussion on modern media tools for enriching presentation skills for preparing PowerPoint slides. Thus acts as a reference for training programs offered by business houses and Industries.

COURSE CONTENT:

UNIT I

Technical Communication: Basics of Technical Communication, Barriers to communication and Technology in Communication. Communication in the Workplace: Problem Solving in Workplace Communication, Human factors in the communication failure. Guidelines for ethical communication. Active Listening: Introduction, types of listening, traits of a good listener, Active vs. Passive listening and implications of good listening.

UNIT II

Introduction to Effective Presentation strategies: defining purpose, analysing audience and locale, organizing contents, preparing outline, visual aids, understanding nuances of delivery, kinesics, proxemics, paralinguistic, chromatics. Interviews: introduction, objectives, types of interviews and job interviews, guidelines for surviving a job interview. Group Communication: Introduction, Group discussion, Organizational Group discussions and meeting conferences.

UNIT III

Paragraph Development: Central Components of a paragraph, length of a paragraph and techniques for paragraph development. The art of condensation, steps for effective précis writing, samples and guidelines.

Reading Comprehension, purpose and reading rate, reasons for poor comprehension, improving comprehension skills, techniques for good comprehension. Memo reports: Purpose of memo reports, elements of a usable memo, interpersonal considerations in writing a memo, common types of memo report.



UNIT IV

Letters and Employment correspondence: Application letters and business correspondence, How applicants are screened for personal qualities, electronic job Hunting. Technical Proposals: Definition, purposes, Types, Characteristics, elements of structure, style and Appearance, evaluation.

Research paper: Introduction, Research paper, Dissertation, Thesis.



COURSE OUTCOMES:

At the end of the course, students will demonstrate proficiency by:

- *Understanding the characteristics of technical writing and the importance of purpose, audience, and genre for written communication in technical fields.*
- *Articulating complex engineering ideas appropriate for targeted audiences.*
- *Planning, drafting, revising, editing, and critiquing technical and professional documents through individual and collaborative writing.*
- *Writing effective technical and business documents that are grammatically and stylistically correct.*
- *Preparing and delivering professional technical presentations through applying principles of effective oral communication and slide design.*
- *Applying principles for the visual display of quantitative information.*
- *Researching, analyzing, synthesizing, and applying information to create technical reports.*
- *Recognizing ethical implications of technical communication in professional contexts.*
- *Understanding the contemporary issues in engineering from an environmental, societal, economic, and global perspective.*

Text Books:

1. William Pfeiffer, Padmaja, "Technical Communication A Practical Approach", Pearson Education.

References:

1. Meenakshi Raman & Sangeeta Sharma, "Technical Communication", Oxford University Press

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Course Title: Discrete Mathematics

Semester: 1st

Credits: 04

Pre Requisite: -----

Marks Distribution: (Mid Term:30, End Term:50, Viva:10, Assignment / Presentations:10)

Course Code: MCA-IT3-C

Paper Type: Core

Max Marks: 100

Co-Requisite: MCA-IT1-C

COURSE OBJECTIVES:

- To familiarize students about set theory concepts, operations and uses in computer sciences.
- To explain concept of Discrete Structures which include Semigroups, Monoids, and Groups together with their uses in computer science and their corresponding structures in computer science
- To explain students concepts like Partially Ordered Sets, Lattices and Finite Boolean Algebra and use in Computer Science.
- Give student a knowledge about finite state Machines and possible modeling of process using finite state Machine concepts.

COURSE CONTENT:

UNIT I

Proposition, Logic, Truth tables, Propositional Equivalence, Logical Equivalence, Predicates & Quantifiers, Sets: operations on sets, Computer representation of sets, Functions: Domain, Range, One-to-One, Onto, Inverses & Composition, Cardinality of a Set, sequences & summations, The growth of functions . Methods of Proof: Different methods of proof, Direct Proof, Indirect Proof, Mathematical Induction for proving algorithms.

UNIT II

Discrete probability, Advanced Counting Techniques: Inclusion-Exclusion, Applications of inclusion-exclusion principle, recurrence relations, solving recurrence relation. Relations: Relations & their properties, Binary Relations, Equivalence relations, Digraphs, Matrix representation of relations & digraphs, Computer representation of relations & digraphs, Transitive Closures, Warshall's Algorithm.

UNIT III

Partially Ordered Sets (Posets), External elements of partially ordered sets, Hasse diagram of partially ordered set, isomorphic ordered set, Lattices: Properties of Lattices, complemented Lattices. Graph theory: Introduction to graphs, Graph Terminology Weighted graphs, Representing Graphs, Connectivity of Graphs: Paths & Circuits, Eulerian & Hamiltonian Paths, Matrix representation of graphs. Graph Coloring. Cyclometric Complexity



UNIT IV

Trees: Rooted trees, Application of trees: Binary Search Trees, Decision Trees, Prefix Codes, Tree traversal, trees & sorting, spanning trees, minimal spanning trees. "Catalans Series (Number), B+ Trees, Red-Black Trees Finite Boolean algebra, Functions on Boolean algebra, Boolean functions as Boolean polynomials. Groups & applications: Subgroups, Semigroups, Monoids, Product & quotients of algebraic structures, Isomorphism, Homomorphism

COURSE OUTCOMES:

At the end of the course student will be able to:

- *Develop mathematical and logical thinking*
- *Express real life problems in terms of predicates, quantifiers, and logical connectives and obtained its solution*
- *Utilize the concepts of relations and functions to solve simple real life problems.*

Text Books:

1. KENNETH H. ROSEN "Discrete Mathematics & Its Applications, Tata McGraw – Hill
2. Ralph P. Grimaldi, Discrete And Combinatorial Mathematics An Applied Introduction

References:

1. LIU "Elements of Discrete Mathematics " Tata McGraw Hill
2. SCHAUMS "Discrete Mathematics" Tata McGraw Hill
3. KOLMAN/REHMAN "Discrete Mathematical Structures" Pearson Education
4. NICODEMI "Discrete Mathematics" CBS



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Course Title: Computer Organization and Architecture

Semester: 1st

Credits: 04

Pre Requisite: -----

Marks Distribution: (Mid Term:30, End Term:50, Viva:10, Assignment / Presentations:10)

Course Code: MCA-IT4-C

Paper Type: Core

Max Marks: 100

Co-Requisite: MCA-IT1-C

COURSE OBJECTIVES:

- To know and understand the main components of a computer system and the considerations in their design.
- To acquire tools for comparison among alternatives.
- To know and understand performance measures, as well as their impact on system architecture.
- To understand the interplay among system components, design trade-offs, etc.

COURSE CONTENT:

UNIT I

Fundamental concepts of computer architecture & organization, Register Organization. Interconnection Structures, Bus Interconnections, Integer/Floating Point Arithmetic & Representation, Instruction Cycle & Interrupts. Instruction Set Characteristics & Functions. Addressing Modes & Formats. Processor Organization: ALU, Design of Arithmetic Circuit, Design of Logic Circuit & Design of ALU.

UNIT II

Control Organization: Hardwired / Micro-Programmed Control, Control Memory, Address Sequencing, Design of Control Unit & Micro-Program Examples. Memory Hierarchy, Main Memory: RAM/ROM Chips. Memory Address Map, Memory Connection to CPU, Associative Memory. Hardware Organization – Match Logic, Read/Write Operation, Cache Memory, Virtual Memory, Memory Management – Associated Hardware, I/O Organization. Peripheral Devices: I/O Interfaces, Asynchronous Data Transfer, Modes of Transfer, Direct Memory Access.

UNIT III

Microprocessor evolution & types, the 8086/8088 microprocessor family-Overview, 8086 internal architecture & software design of 8086/88, Memory address space & data organization, register circuitry, memory segmentation: generating memory address. 8086/88 minimum & maximum mode. System clock, bus cycle & unit states,



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Hardwired organization of memory address space, read & write bus cycles, I/O data transfers & instruction, I/O bus cycles. Pin out diagram of 8086 microprocessor.

UNIT IV

Introduction to Parallel Processing, Basic Parallelization Techniques. Pipelining – Arithmetic & Instruction Pipelining, Vector & Array Processors. RISC, CISC

COURSE OUTCOMES:

At the end of the course student will be able to:

- *Get familiarized with basics of computer hardware and how software interacts with computer hardware.*
- *Understand how computers represent and manipulate data, computer arithmetic and conversion between different number systems.*
- *Understand how Boolean algebra is related to designing computer logic, through simple combinational and sequential logic circuits.*
- *Understand basics of Instruction Set Architecture (ISA).*
- *Understand with a simple computer with hardware design including data format, instruction format, instruction set, addressing modes, bus structure, input/output, memory, Arithmetic/Logic unit, control unit, and data, instruction and address flow.*
- *Design combinational and sequential logic circuits, flip-flops, counters, shift registers, adders, subtractor, multiplexer, demultiplexer, Arithmetic/Logic unit.*
- *Understand concept of memory unit and input/output architecture.*

Text Books:

1. Morris Mano, "Computer System Architecture", PHI.
2. W. Stallings, "computer organization & architecture".

References:

1. V.C. Hamacher, A.G. Vranesic & S.G. Zaky, "Computer Organization", Tata McGraw Hill
2. J.P Hayes, "Computer Architecture & Organization", Tata McGraw Hill
3. M. J. Flynn, "Computer Architecture", Narosa
4. David A. Patterson, John L. Hennessey, " Computer Organization"
5. Govainda Rajalu, "Computer Architecture & Design" TMH



MCA Syllabus – Department of Computer Science, IUST

Course Title: Programming Languages & Paradigm

Semester: 1st

Credits: 03

Pre Requisite: -----

Marks Distribution: (Mid Term:25, End Term:35, Viva:05, Assignment / Presentations:10)

Course Code: MCA-IEI-DCE

Paper Type: DCE

Max Marks: 75

Co-Requisite: MCA-IT1-C

COURSE OBJECTIVES:

- To introduce the major programming paradigms, and the principles and techniques involved in design and implementation of modern programming languages.
- To introduce notations to describe syntax and semantics of programming languages.
- To analyze and explain behavior of simple programs in imperative languages using concepts such as binding, scope, control structures, subprograms and parameter passing mechanisms.
- To introduce the concepts of ADT and object oriented programming for large scale software development.
- To design and extend operational and denotational definitions for basic programming language constructs.
- To prove properties of programs by various formal means, including structural and fix point induction.

COURSE CONTENT:

UNIT I

The role of Programming Languages: Towards Higher Level Languages programming paradigms, Language implementation. Language Description: Syntactic Structures, Expression Notations, Abstract Syntax trees, Lexical Syntax. Data Representation: The role of types, basic types, arrays, unions & variant records, Sets, Pointers, Two String tables, types & error checking. Procedure Activations: Introduction to Procedures, parameter passing methods, nested scope in source text, activation records, lexical scope: procedures as in C.

UNIT II

Object oriented Programming: class declarations in C++, dynamic allocation in C++, Information hiding. Functional Programming : Language of expressions , types, values & operations , approaches to expression evaluation, lexical scope, type checking, Function declaration by cases , Functions as first-class values, Implicit types, data types exception handling. Introduction to Prolog, data structures in Prolog, Programming techniques, controls in Prolog, Cuts



UNIT III

An introduction to concurrent Programming: Parallelism in hardware, Streams: implicit synchronization, concurrency as interleaving, Liveliness properties, safe accesses to shared data concurrency in ADA. Language Description: Semantic Methods, Synthesized attributes, Attribute grammars, natural semantics, Denotational Semantics.

COURSE OUTCOMES:

At the end of the course student will be able to:

- *Develop a greater understanding of the issues involved in programming language design and implementation*
- *Develop an in-depth understanding of functional, logic, and object-oriented programming paradigms*
- *Implement several programs in languages other than the one emphasized in the core curriculum (Java/C++)*
- *Understand design/implementation issues involved with variable allocation and binding, control flow, types, subroutines, parameter passing*
- *Develop an understanding of the compilation process*

Text Books:

1. Ravi Sethi, "Programming Languages ,Concepts & Constructs", Pearson Education
2. Freidman, Wand, Haynes, "Essentials of Programming Languages", PHI.

References:

1. Concepts of Programming Languages Robert .W. Sebesta 8/e, Pearson Education, 2008.
2. Programming languages – Watt, Wiley Dreamtech, 2004.
3. Programming Languages – Louden, Second Edition, Cengage,2003.
4. Programming languages – Ghezzi, 3/e, John Wiley, 1998.
5. Programming Languages Design and Implementation – Pratt and Zelkowitz, Fourth Edition
6. PHI/Pearson Education, 2001.



MCA Syllabus – Department of Computer Science, IUST

Course Title: Management Information System
Semester: 1st
Credits: 03
Pre Requisite: -----

Course Code: MCA-1E2-DCE
Paper Type: DCE
Max Marks: 75
Co-Requisite: MCA-1T2-C

Marks Distribution: (Mid Term:25, End Term:35, Viva:05, Assignment / Presentations:10)

COURSE OBJECTIVES:

The objective of Course Management Information System is to bring a systematic Knowledge of Management Information technology so that it can be appreciated and understood for application in business and industry, thus more emphasis is laid to application of information to business management and thus provides communication with employees, maintain employee records and coordinate work activities.

COURSE CONTENT:

UNIT I

Overview of Management Information Systems: Introduction, Concepts & characteristics, Components of MIS, Role of MIS, Concepts of Data, Information, Knowledge & Intelligence; Framework for Understanding MIS: Robert Anthony's hierarchy of management, MIS: Support to management, Relatedness of MIS with management activities, Attributes of Information system, Relationship between Organization & Information systems.

UNIT II

Introduction to decision making: Structured versus unstructured Decisions, Managerial Decision Making Process, Types of Decisions, Simons Model of decision making, Decision Support Systems: Overview, Concepts, Characteristics & Components, Overview of MBMS

UNIT III

Expert system: Basic Concepts, Comparison of conventional & expert systems, Structure of expert system, "Comparison of ES and DSS." Executive support system: Needs & characteristics, Role of executive support system in organization,

COURSE OUTCOMES:

At the end of the course student will be able to:

- Understand the scope & importance of Management Information Systems
- Understand the concept and applications of DBMS, Systems Engineering Analysis and Design
- Understand & Apply Decision Support Systems Models with Digital Firm



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Text Books:

1. Laudon, "Management Information Systems", Pearson
2. Jawadekar, "Management Information Systems",

References:

1. Kroenke, "Management Information Systems", Mc-Graw Hill.
2. Mudrick R.G., Ross, J.E. and Gleggt, J.R. "Information Systems for Modern Management", PHI.
3. Jayashankar: "Decision Support Systems", Mc-Graw Hill.
4. Stephen Haag & Maeve Cummings, "Information Systems Essentials", McGraw-Hill
5. Ralph Stair, "Principles of Information Systems", ISBN: 0619064897



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Course Title: Web Technologies

Semester: 1st

Credits: 03

Pre Requisite: -----

Marks Distribution: (Mid Term:25, End Term:35, Viva:05, Assignment / Presentations:10)

Course Code: MCA-1E3-DCE

Paper Type: DCE

Max Marks: 75

Co-Requisite: MCA-1T1-C

COURSE OBJECTIVES:

- To provide knowledge on web architecture, web services, client side and server side scripting technologies
- To focus on the development of web-based information systems and web services.
- To design interactive web pages using HTML and Style sheets.
- To provide skills to design interactive and dynamic web sites.
- To provide knowledge for implementing web applications using JavaScript.

COURSE CONTENT:

UNIT I

Web Essentials: Clients, Servers, and Communication. The Internet-Basic Internet Protocols, Introduction, Concept of Internet- History of Internet, Protocols of Internet, World Wide Web, Web browsers, web servers, MIME, URL, HTTP, Web Clients, Web Server, Web sites, Web Applications, types of Web applications, HTTP request-response message.

UNIT II

HTML- Introduction, History of HTML, Versions-Basic XHTML Syntax and Semantics, Structure of HTML Document: HTML Tags, open and closed tags, HTML Editors, Elements, Attributes, Styles, Formatting, working with formatting, form, tables, frames, links, images, lists, multimedia: Audio, video, Graphics: Canvas and SVG, HTML APIs: Geolocation, Drag/Drop, web storage.

UNIT III

Cascading Style Sheets: Introduction, syntax, selectors, colors, backgrounds, borders, Margins, padding, outline, text, Fonts, Icons, Lists, Tables, Display, Max-width, position, CSS Responsive: Viewport, Grid-view, media Queries, Images, video, frameworks and templates. Introduction to Javascript, controls statements, Arrays and functions, pattern matching, Element Access, Event Handling



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COURSE OUTCOMES:

At the end of the course student will be able to:

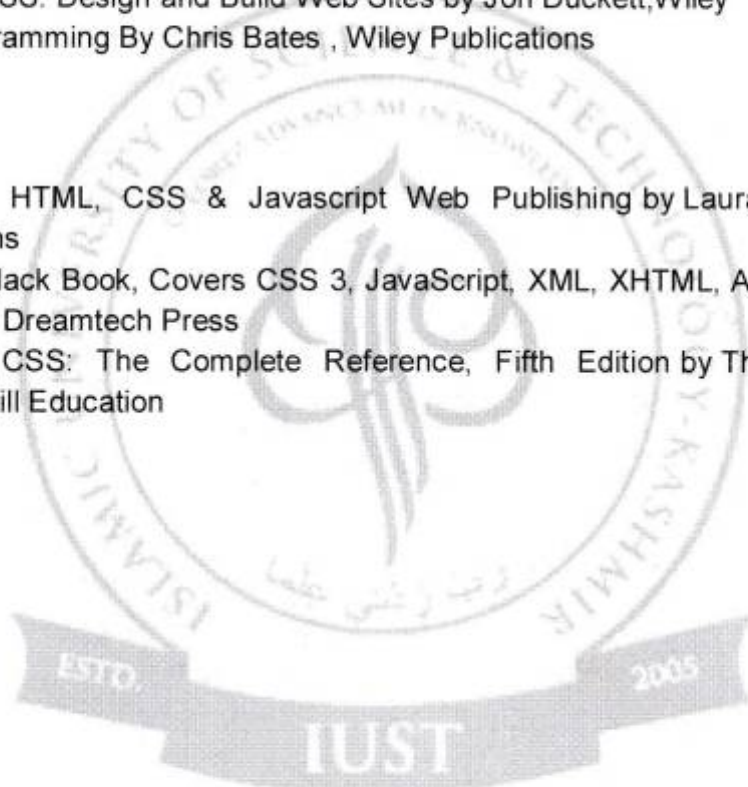
- Understand & Apply (X)HTML(5)+CSS programming
- Demonstrate dynamic webpage development using java script and DHTML
- Design a well formed / valid XML document
- Create a server side ASP application using database

Text Books:

1. HTML5 Black Book by Dreamtech
2. HTML & CSS: Design and Build Web Sites by Jon Duckett,Wiley
3. Web Programming By Chris Bates , Wiley Publications

References:

1. Mastering HTML, CSS & Javascript Web Publishing by Laura Lemay, BPB Publications
2. HTML 5 Black Book, Covers CSS 3, JavaScript, XML, XHTML, AJAX, PHP and jQuery, by Dreamtech Press
3. HTML & CSS: The Complete Reference, Fifth Edition by Thomas Powell, McGraw Hill Education



MCA Syllabus – Department of Computer Science, IUST

Course Title:	E-Commerce	Course Code:	MCA-1E4-DCE
Semester:	1 st	Paper Type:	DCE
Credits:	03	Max Marks:	75
Pre Requisite:	-----	Co-Requisite:	MCA-1E3-DCE, MCA-1E4-DCE
Marks Distribution: (Mid Term:25, End Term:35, Viva:05, Assignment / Presentations:10)			

COURSE OBJECTIVES:

- To provide basic concepts of e-business and e-commerce, including presentation and discussion of the strategies and technologies involved.
- To provide theoretical and practical issues of conducting business over the internet and the Web
- To present methods for evaluating user needs.
- To provide an understanding of E-business Infrastructure, Selling and Marketing on the Web, Web Server Hardware and Software, Business-to-Business strategies, Virtual Communities, Web Portals, E-commerce Software, Payment systems, Security and User Experience.

COURSE CONTENT:

UNIT I

E-Commerce (Introduction and Definition), Goals of E-Commerce, Technical Components Functions, Advantages and Disadvantages, Applications.

The Internet and WWW - Evolution of Internet, Domain Names and Internet Organisation (.edu, .com, mil-gov, .net etc), Internet Service provider.

UNIT II

E commerce business models: key elements of business model, Business to Consumer (B2C) model, B2B model, consumer to consumer model (C2C). Building E commerce- system development life Cycle, choosing software and hardware e commerce, site tools. Benefits of website, Registering a Domain Name, Web promotion. Internet Security, Secure Transaction, Computer Crime (types of Crimes), Threats.

UNIT III

Electronic Data Interchange, Introduction, Concepts of EDI and Limitation, Application of EDI, Disadvantages of EDI, EDI model, Electronic payment System, Introduction, Types, Strategies for developing electronic commerce web sites, Net marketplaces-characteristics of net marketplaces, types of net marketplaces, E distributors, E procurement, Exchanges. Online content providers-digital copyrights and electronic publishing



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COURSE OUTCOMES:

At the end of the course student will be able to:

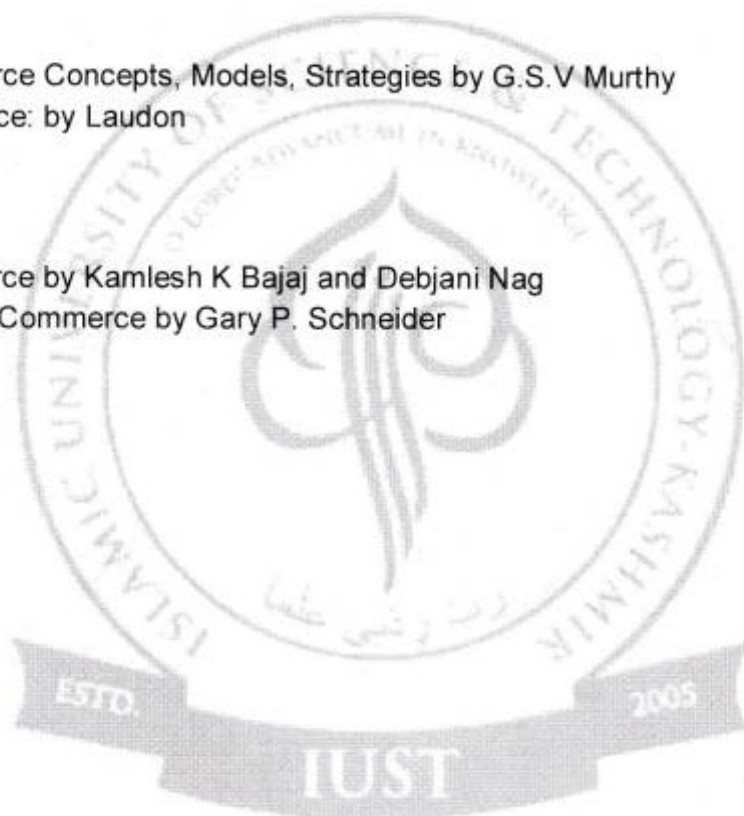
- *Understand the basic business management concepts, technical concepts, legal issues, and privacy relating to E-commerce.*
- *Understand how E-commerce is affecting business enterprises, governments, consumers and people in general.*
- *Describe the infrastructure needed for E-commerce and various electronic payment systems.*

Text Books:

1. E-Commerce Concepts, Models, Strategies by G.S.V Murthy
2. E commerce: by Laudon

References:

1. E-Commerce by Kamlesh K Bajaj and Debjani Nag
2. Electronic Commerce by Gary P. Schneider



MCA Syllabus – Department of Computer Science, IUST

Course Title:	Computer Fundamentals	Course Code:	MCA-1B1-BC
Semester:	1 st	Paper Type:	BC
Credits:	02	Max Marks::	50
Pre Requisite:	-----	Co-Requisite:	MCA-1E3-DCE, MCA-1E1-DCE
Marks Distribution: (Mid Term:15, End Term:25, Viva:05, Assignment / Presentations:05)			

COURSE OBJECTIVE:

The course introduces the students to basic computer concepts. Emphasis of the course is on providing the students with an introduction to programming, programming paradigms, database, basic networking and security. The course also covers digital logic design intended to make students familiar with different types of designs as sequential logic circuits and combinational logic circuits. Widely used software's including word processing, spreadsheets and presentations are studied. Main objectives of the course are to build an appreciation for the fundamental concepts of computers and to become familiar with popular PC productivity software.

COURSE CONTENT:

UNIT I

Computers: History, Generations & Classification. Structure of a Computer System: Basic Components & Block Diagram. I/O devices & Storage Devices. H/W & S/W Concepts, Transforming data into information. Number System. Logic Gates, Boolean Algebra & K-Map. Combinational circuits, Sequential circuits, & Flip Flops. Digital Components: Integrated Circuits, Multiplexers/ Demultiplexers. Operating System: Overview, functions, features & types, Overview of Different Operating Systems. Introduction Disk Operating System (DOS) & Windows. Understanding DOS prompt, working with DOS commands, Config.sys & Autoexec.bat files.

UNIT II

Data Communications & Networking: Overview, features & types. Internet & WWW: Overview, importance, features & applications (Sharing, Browsers, E-Mails, Attachments, Search Engines, & Group Communications).

File Systems: Concepts & types. Databases: Overview, features & types. Programming languages & paradigms: Overview, features & types. Flowcharting. Control structures: conditional, looping & branching logic. Errors & their types. Introduction to Office Tools: Fundamentals of MS-Word, MS-Excel, MS-PowerPoint. PC Management: Disc Management Tools, PC tools, Norton utilities, Disk Doctor. Introduction to Computer Security: Types of infections, Viruses & Bombs, Virus Detection, Prevention & Cure Utilities.



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COURSE OUTCOMES:

At the end of the course student will be able to:

- Understand the basic concepts of computer and its component
- Relate theory and practice of computer architecture
- Illustrate the basic data representation in the computer
- Comprehend the organization of the Control unit, Arithmetic and Logical unit, Memory unit and the I/O unit

Text Books:

1. P. K. Sinha , "Computer Fundamentals, 2005", BPB, New Delhi.
2. Peter Norton, "Introduction to computers", TMH

References:

1. Taxali, "PC Software, 2005", Tata McGraw Hills, New Delhi.
2. Suresh K. Basandra, "Computers Today, 2005", Galgotia Publications.
3. Peter Norton, "Inside the PC, 2001", SAMS Tech Media.
4. Sanjay Saxena, "MS Office for Everyone, 2005", Vikas Publications.
5. Peter Dyson, "Understanding PC Tools", AET Publications.
6. Peter Dyson, "Understanding Norton Utilities", AET Publications.
7. V. RajaRaman, "Introduction to computers", TMH

