

**SEMESTER-III**

COURSE CODE	Category	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTIT401	-	Discrete Structure	60	20	20	-	-	3	1	-	4

**Legends:** L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

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**COURSE OBJECTIVES**

The student will have ability to:

1. To provide the fundamentals of formal techniques for solve the problems in computational domain and algorithm development
2. Apply appropriate mathematical and statistical concepts and operations to interpret data and to solve problems
3. Formulate and evaluate possible solutions to problems, and select and defend the chosen solutions
4. Construct graphs and charts, interpret them, and draw appropriate conclusions

**COURSE OUTCOMES**

1. Understand the notion of mathematical thinking, mathematical proofs, and algorithmic thinking, and be able to apply them in problem solving.
2. Understand the basics of discrete probability and number theory, and be able to apply the methods from these subjects in problem solving.
3. Be able to use effectively algebraic techniques to analyze basic discrete structures and algorithms.
4. Understand asymptotic notation, its significance, and be able to use it to analyze asymptotic performance for some basic algorithmic examples.
5. Understand some basic properties of graphs and related discrete structures, and be able to relate these to practical examples.

**SYLLABUS**

**UNIT-I**

**Unit-I:Set Theory**

Definition of Sets, Venn Diagrams, complements, Cartesian products, power sets, counting principle, cardinality and countability (Countable and Uncountable sets), proofs of some general identities on sets, pigeonhole principle. Relation: Definition, types of relation, composition of relations, domain and range of a relation, pictorial representation of relation, properties of relation, partial ordering relation. Function: Definition and types of function, composition of functions, recursively defined functions.



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#### **Unit-II: Propositional logic**

Proposition logic, basic logic, logical connectives, truth tables, tautologies, contradiction, normal forms (conjunctive and disjunctive), modus ponens and modus tollens, validity, predicate logic, universal and existential quantification. Notion of proof: proof by implication, converse, inverse, contrapositive, negation, and contradiction, direct proof, proof by using truth table, proof by counter example

#### **Unit-III: Graph Theory**

Terminology Graph Representation Graph isomorphism; Connectedness; Various graph properties; Euler & Hamiltonian graph; shortest paths algorithms. Trees: Terminology; Tree traversals; prefix codes; Spanning trees; Minimum spanning trees.

#### **Unit-IV: Algebraic Structure**

Binary composition and its properties definition of algebraic structure; Groyas Semi group, Monoid Groups, Abelian Group, properties of groups, Permutation Groups, Sub Group, Cyclic Group, Rings and Fields (definition and standard results).

#### **Unit-V: Posets, Hasse Diagram and Lattices**

Introduction, ordered set, Hasse diagram of partially, ordered set, isomorphic ordered set, well ordered set, properties of Lattices, bounded and complemented lattices. Combinatorics: Introduction, Permutation and combination, Binomial Theorem, Multinomial Coefficients Recurrence Relation and Generating Function: Introduction to Recurrence Relation and Recursive algorithms, Linear recurrence relations with constant coefficients, Homogeneous solutions, Particular solutions, Total solutions, Generating functions, Solution by method of generating functions.

#### **TEXT BOOKS:**

1. C.L.Liu, "Elements of Discrete Mathematics" Tata McGraw-Hill Edition, 4<sup>th</sup> Edition, 2012.
2. Kenneth H. Rosen, "Discrete Mathematics and its applications", McGraw Hill, 7<sup>th</sup> Edition, 2012.
3. V. Krishnamurthy, "Combinatorics: Theory and Applications", East-West Press, 2<sup>nd</sup> Edition, 2008.
4. Seymour Lipschutz, M.Lipson, "Discrete Mathematics" Tata McGraw Hill, 3<sup>rd</sup> Edition, 2009.

#### **REFERENCES:**

1. Trembley, J.P & Manohar; "Discrete Mathematical Structure with Application CS", McGraw Hill.
2. Bisht, "Discrete Mathematics", Oxford University Press, 2015.
3. Biswal, "Discrete Mathematics & Graph Theory", PHI, 3<sup>rd</sup> Edition, 2011.



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BTCS302		<b>Data Communication</b>	60	20	20	-	-	3	1	-	4

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### **COURSE OBJECTIVES**

1. To understand the concepts of data communications.
2. To be familiar with the Transmission media and Tools.
3. To study the functions of OSI layers.
4. To learn about IEEE standards in computer networking.
5. To get familiarized with different protocols and network components.

### **COURSE OUTCOMES**

Upon completion of the subject, students will be able to:

1. Understand the Process and functions of data communications
2. Understand Transmission media and Tools
3. Understand the functions of OSI layers
4. Understand IEEE standards in computer networking
5. Understand different protocols and network components

### **SYLLABUS**

#### **UNIT-I**

#### **INTRODUCTION**

Data communication Components, Types of Connections, Transmission modes, Network Devices, Topologies, Protocols and Standards, OSI model, Transmission Media, Bandwidth, bit rate, bit length, Baseband and broadband transmission, Attenuation, distortion, noise, Throughput, delay & Jitter.



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#### **UNIT-II**

##### **DATA ENCODING**

Unipolar, Polar, Bipolar, Line & Block codes. Multiplexing: Introduction & History, FDM, TDM, WDM, Synchronous & Statistical TDM. Synchronous and Asynchronous transmission, Serial & Parallel transmission.

#### **UNIT-III**

##### **ERROR DETECTION & CORRECTION**

Correction, Introduction–Block coding–Hamming Distance, CRC, Flow Control and Error control, Stop and Wait, Error Detection and Error Go back– N ARQ, Selective Repeat ARQ, Sliding Window, Piggybacking, Random Access, CSMA/CD, CDMA/CA

#### **UNIT-IV**

##### **NETWORK SWITCHING TECHNIQUES:**

Circuit, Message, Packet & Hybrid switching techniques. X.25, ISDN. Logical addressing, IPV4, IPV6, Address mapping, ARP, RARP, BOOTP and DHCP, User Datagram Protocol, Transmission Control Protocol, SCTP.

#### **UNIT-V**

##### **APPLICATION LAYER PROTOCOLS:**

Domain Name Service Protocol, File Transfer Protocol, TELNET, WWW and Hyper Text Transfer Protocol, Simple Network Management Protocol, Simple Mail Transfer Protocol, Post Office Protocol v3.

##### **TEXT BOOKS:**

1. Behrouz A. Forouzan, “Data communication and Networking”, Tata McGraw– Hill, Fourth Edition, 2011.

##### **REFERENCES:**

1. Larry L. Peterson, Peter S. Davie, “Computer Networks”, Elsevier, Fifth Edition, 2012.
2. William Stallings, “Data and Computer Communication”, Eighth Edition, Pearson Education, 2007.
3. James F. Kurose, Keith W. Ross, “Computer Networking: A Top–Down Approach Featuring the Internet”, Pearson Education, 2005.

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BTIT305	-	<b>Analysis and Design of Algorithms</b>	60	20	20	30	20	3	1	2	5

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**Course Objectives:**

The student will have ability to:

1. Ability to analyze asymptotic runtime complexity of algorithms including formulating recurrence relations. How to develop efficient algorithms for simple computational tasks and reasoning about the correctness of them?
2. The emphasis is on choosing appropriate data structures and designing correct and efficient algorithms to operate on these data structures.
3. Write rigorous correctness proofs for algorithms.
4. Synthesize efficient algorithms in common engineering design situations.

**Course Outcomes:**

1. Define the basic concepts of algorithms and analyze the performance of algorithms.
2. Discuss various algorithm design techniques for developing algorithms.
3. Discuss various searching, sorting and graph traversal algorithms.
4. Understand NP completeness and identify different NP complete problems.
5. Discuss various advanced topics on algorithms.

**Syllabus**

**Unit-I:**

Algorithms, Designing Algorithms, Analyzing Algorithms, Asymptotic Notations, Heap and Heap Sort, Brief Review of Graphs, Sets and Disjoint Set Union, Sorting and Searching Algorithms and their Analysis in terms of Space and Time Complexity. Divide and Conquer: General Method, Binary Search, Merge Sort, Quick Sort, Selection Sort, Strassen's Matrix Multiplication Algorithms.

**Unit-II:**

Greedy Method: General Method, Knapsack Problem, Job Sequencing with Deadlines, Minimum-Cost Spanning Trees, Single Source Shortest Paths.



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#### **Unit-III:**

Dynamic Programming: General Method, Optimal Binary Search Trees, 0/1 Knapsack, The Traveling Salesperson Problem, All Pairs Shortest Paths.

#### **Unit-IV:**

Backtracking: General Method, 8-Queens Problem, Graph Coloring, Hamiltonian Cycles, Sum of Subsets. Branch And Bound: Method, 0/1 Knapsack Problem, Traveling Salesperson Problem, Efficiency Considerations, Techniques for Algebraic Problems, Some Lower Bounds On Parallel Computations.

#### **Unit-V:**

NP Hard and NP Complete Problems: Basic Concepts, Cook's Theorem, NP Hard Graph and NP Scheduling Problems, Some Simplified NP Hard Problems.

#### **References:**

1. *Fundamental of Computer Algorithms, Ellis Horowitz and Sartaj Sahni, Galgotia Publication.*
2. *Introduction to Algorithms, Thomas H Cormen, Charles E Leiserson and Ronald L Rivest, TMH.*
3. *Fundamentals of Algorithms: The Art of Computer Programming Voll, Knuth, Naresh Publications.*
4. *Introduction to Design and Analysis of Algorithm, Goodman, S.E. & Hedetniemi, MGH.*
5. *Algorithms, Dasgupta, TMH.*
6. *Analysis & Design of Algorithm, Ullmann.*
7. *Algorithm Design, Michael T Goodrich and Roberto Tamassia, Wiley India.*

#### **List of experiments:-**

1. Write a program for Iterative and Recursive Binary Search.
2. Write a program for Merge Sort.
3. Write a program for Quick Sort.
4. Write a program for Strassen's Matrix Multiplication.
5. Write a program for minimum spanning trees using Kruskal's algorithm.
6. Write a program for minimum spanning trees using Prim's algorithm.
7. Write a program for single sources shortest path algorithm.
8. Write a program for Floyd-Warshall algorithm.
9. Write a program for traveling salesman problem.
10. Write a program for Hamiltonian cycle problem.

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BTCS303		<b>Principles of Programming Languages</b>	60	20	20	30	20	3	-	2	4

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#### **COURSE OBJECTIVES**

1. To improve the background for choosing appropriate programming languages for certain classes of programming problems.
2. To be able in principle to program in an imperative (or procedural), an object-oriented, a functional, and a logical programming language.
3. To understand the significance of an implementation of a programming language in a compiler or interpreter
4. To Increase the ability to learn new programming languages
5. To Increase the capacity to express programming concepts and choose among alternative ways to express things.

#### **COURSE OUTCOMES**

After completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes:

1. Students will gain insight and develop understanding to the underlying principles and concepts of programming languages. Also Gain an overview of programming language translation process.
2. Students will be able to competent with analyzing programming language design issues related to data types, expressions and control structures.
3. Students will be able to describe the concept of sub-programming with the help of Functions. Also develop understanding with the parameter passing techniques and concept of function overloading.
4. Students will be able to analyze various memory management techniques as well as apply various concepts of object oriented programming.
5. Students will be able to develop understanding with the exception handling concept and gain knowledge of logical and functional programming.



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#### **SYLLABUS**

##### **UNIT-I**

Preliminary Concepts: Reasons for studying, concepts of programming languages, Programming domains, Language Evaluation Criteria, Influences on Language design, Language categories, Programming Paradigms – Imperative, Object Oriented, functional Programming, Logic Programming. Programming Language Implementation – Compilation and Virtual Machines, programming environments.

##### **UNIT-II**

Data types: Introduction, Primitive, Character, User Defined, Array, Associative, Record, Union, Pointer and Reference Types, Design and Implementation uses related to these types. Names, Variable, Concept of Binding, Type Checking, Strong Typing, Type Compatibility, Named Constants, Variable initialization.

##### **UNIT-III**

Expressions and Statements: Arithmetic relational and Boolean expressions, Short circuit evaluation mixed mode assignment, Assignment Statements, Control Structures – Statement Level, Compound Statements, Selection, Iteration, Unconditional Statements, Guarded commands.

##### **UNIT-IV**

Subprograms and Blocks: Fundamentals of Sub-Programs, Scope and Lifetime of Variable, Static and Dynamic Scope, Design Issues of Subprograms and Operations, Local Referencing Environments, Parameter Passing Methods, Overloaded Sub-Programs, Generic Sub-Programs, Design Issues for Functions Overloading and Overloaded Operators, Co-routines.

##### **UNIT-V**

Abstract Data types: Abstractions and Encapsulation, Introductions to Data Abstraction, Static and Stack Based Storage Management. Heap Based Storage Management. Garbage Collection. Object Oriented Programming in SmallTalk, C++, Java, C#, PHP, Perl. Concurrency: Subprogram Level Concurrency, Semaphores, Monitors, Message Passing, Java Threads, C# Threads.

#### **TEXT BOOKS:**

1. Concepts of Programming Languages Robert .W. Sebesta 10/e, Pearson Education, 2008.
2. Programming Language Design Concepts, D. A. Watt, Wiley dreamtech, rp-2007.
3. Programming Languages: Principles and Practices. Louden and Lambart, 3/e, Cengage, 2012

#### **REFERENCES:**

1. Programming Languages: Principles and Paradigms. Gabbrielli and Martini, Springer, 2010.
2. Programming Language Concepts. Peter Sestoft, Springer, 2017.
3. Programming Languages, 2nd Edition, A.B. Tucker, R.E. Noonan, TMH.
4. Terrance W Pratt, "Programming Languages: Design and Implementation" Pearson Edu.

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#### LIST OF EXPERIMENTS:

1. Type compatibility rules of a C compiler.
2. Compare time efficiency to run for matrix multiplication with and without subscript range checking.
3. Investigate the safety of enumeration types. Perform at-least 5 operations to determine what incorrect or silly things are legal.
4. Calculate time efficiency for large number of references to two dimensional array between subscripting and pointer arithmetic
5. Illustrates the order of evaluation of expressions used as actual parameters to a method.
6. Consider the following programming problem: The values of three integer variables—first, second, and third—must be placed in the three variables max, mid, and min, with the obvious meanings, without using arrays or user-defined or predefined subprograms. Write two solutions to this problem, one that uses nested selections and one that does not. Compare the complexity and expected reliability of the two.
7. Produces different behavior depending on whether pass-by-reference or pass-by-value-result is used in its parameter passing.
8. Write a program in some language that has both static and stack dynamic local variables in subprograms. Create six large (at least 100 \* 100) matrices in the subprogram—three static and three stack dynamic. Fill two of the static matrices and two of the stack-dynamic matrices with random numbers in the range of 1 to 100. The code in the subprogram must perform a large number of matrix multiplication operations on the static matrices and time the process. Then it must repeat this with the stack-dynamic matrices. Compare and explain the results.
9. Write an abstract data type for complex numbers, including operations for addition, subtraction, multiplication, division, extraction of each of the parts of a complex number, and construction of a complex number from two floating-point constants, variables, or expressions.
10. Define semaphores in Ada and use them to provide both cooperation and competition synchronization in the shared-buffer example
11. Prepare a case study on C and C++ for Readability, Writability and. Reliability.

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BTIT309	CS	<b>Introduction to Core Java</b>	60	20	20	30	20	2	-	2	3

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### COURSE OBJECTIVES

The student will have ability to:

1. Understand Java Environment for application development.
2. Understand Programming using Object Oriented Technology,
3. Develop computer program to solve specific problems with high performance.
4. Create debug and run java standalone applications.

### COURSE OUTCOMES

Upon completion of the subject, students will be able to:

1. Design new applications using object oriented methodologies.
2. Explore various system libraries
3. Analyze and improve performance of applications.
4. Design Data base connectivity program for simple problems

### SYLLABUS

#### UNIT-I

**The Java Environment:** Basic History of java and its features, JVM, JRE and JDK, its libraries and functionalities, WhyJava? Installing Java, Java Classes and Objects, Variables and data types Conditional and looping constructs, Arrays.

#### UNIT-II

**The Java Language:** Constructors, Inheritance, Packages & Interfaces, Access Specifier, Enumerations, Autoboxing, and Annotations (Metadata) Garbage collection, Nested classes, Inner Classes

#### UNIT-III

**Performance:** Understanding Threads, Needs of Multi-Threaded Programming, Thread Life Cycle, Thread Priorities, Synchronizing Threads, Inter Communication of Threads, The Idea behind Exception, Exceptions & Errors, Types of Exception, Control Flow In Exceptions, JVM reaction to Exceptions, Use of



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try, catch, finally, throw, throws in Exception Handling, In-built and User Defined Exceptions, Checked and Un Checked Exceptions, Generics, Lambda Expressions

#### **UNIT-IV**

**The Java Library:** String Handling, Exploring java.lang, java.util – The Collection Framework, Exploring java.io, Exploring NIO

#### **UNIT-V**

**Database connectivity with JDBC:** Introduction to JDBC, JDBC Drivers & Architecture, CRUD operation using JDBC

#### **TEXT BOOKS:**

1. Herbert Schildt, The Complete Reference Java, Ninth Edition, McGraw Hill, 2014
2. Bert Bates, Kathy Sierra, Head First Java, 2nd Edition, O' Reilly, 2005
3. Cay S Horstman and Gary Cornell, Core Java, Vol I & II, Pearson, 2013
4. Kishore Sharan, Beginning Java 8 Language Features, Apress, 2014
5. E. Balagurusamy, Programming with java A Primer, McGrawHill.
6. Sharanam Shah, Core Java 8 for Beginners, Shroff Publisher

#### **LIST OF EXPERIMENTS:**

1. Write a program to show concept of Class in Java?
2. Write a program showing Type Casting
3. Write a program showing Different type of inheritance
4. Write a program showing Different types of Polymorphism
5. Write a program showing Encapsulation
6. Write a program showing Abstraction
7. Write a Multithreaded program
8. Write a program showing Checked and Unchecked Exception
9. Write a program showing Database connectivity.
10. Write a program showing Simple database Operation(CRUD)

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BTCSMOB301		Mobile App Development III- iOS	--	--	--	--	100	-	-	4	2

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### COURSE OBJECTIVES

The student will have ability to:

1. To describe the basic tools and techniques to develop an iOS application.
2. To illustrate the fundamental concepts of application development for iOS with Swift programming language.
3. To design the user interface (UI) and user's interaction for iOS application.

### COURSE OUTCOMES

Upon completion of the subject, students will be able to:

1. Define key programming terms relevant to Swift and iOS programming.
2. Describe the process of creating an iOS application.
3. Demonstrate programming best practices in Swift.
4. Select the appropriate UI primitives, persistent storage, user interactions, to develop the working iOS application from the concept.

### SYLLABUS

#### UNIT-I

**Introduction:** Introduction to iOS, Mobile application development, Overview of iOS platform, setting up Xcode & tools, MVC design pattern.

Interface Builder Basics: Common system views, Interface Builder Storyboards, project options, default project, create a new project with label and a greet function.

#### UNIT-II

**Introduction to UIKit:** Common system views configuration, Label(UILabel),Image view,Text view,Scroll view, Table view, Toolbars(UIToolbar), Navigation bars, tab bars, Controls, Button, Segmented controls, Sliders, Switches, Date pickers, UIKit User Interface Catalog, Displaying data: Content mode, Unexpected Clipping.



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#### **UNIT-III**

**Auto Layout and Stack Views:** Layout for multiple sizes, Why Auto Layout?, Create alignment constraints, create size constraints, Resolve constraint issues, Safe area layout guide ,resolve constraint warnings, Constraints between siblings, Stack views,stack view attributes, Size classes.

#### **UNIT-IV**

**App Anatomy and Life Cycle:** App life Cycle, break down the delegate, Protocols methods: Did Finish Launching, Will Resign Active, Did Enter Background, Will Enter Foreground, Did Become Active, Will Terminate.

View Controller life Cycle: viewDidLoad, viewWillAppear , viewDidAppear, viewWillDisappear.

#### **UNIT-V**

**User Interactivity and Advanced UI Concepts:** Gestures, Extensions, Delegation, Protocols, Closures, Handling Touches.

Basic iOS Animations: Timer, view based animations, UI dynamics , Alerts, Actions Sheets, Notifications, Segues.

Persistence and Documents: User defaults, Core data, property list, Archiving and Codable, File system, File Manager & CloudKit, Working with the web.

#### **Text Books:**

1. Matthew Mathias, John Gallagher, Swift Programming: The Big Nerd Ranch Guide 2nd edition, 2015.
2. Matt Neuberg , iOS 12 Programming Fundamentals with Swift, O'Reilly; 5<sup>th</sup> edition.
3. App Development with Swift (as available on iBook Store)

#### **Reference Books:**

1. Paris Buttfield-Addison, Jonathon Manning , Tim Nugent Learning Swift: Building Apps for macOS, iOS, and Beyond, O'Reilly Media, Inc., 3rd ed, 2018.
2. Jon Hoffman, Mastering Swift 4, Packt Publishing Limited ,4<sup>th</sup>edition,2017.
3. Vandad Nahavandipoor. iOS 11 Swift Programming Cookbook, O'Reilly Media, 2017
4. S. Yamacli, Beginner's Guide to iOS 11 App Development Using Swift 4: Xcode, Swift and App Design Fundamentals,(1e), USA: CreateSpace Independent Publishing Platform, 2017.

#### **List of Practicals:**

Perform Experiments on each Topic at least 20 Experiments are suggest to Cover the Syllabus.

1. Create an Hello world App.
2. Create an App Using Labels and Buttons.
3. Create an Calculator App using Textviews , Labels and Buttons to perform different mathematical operations.
4. Create an App to demonstrate ImageViwer.
5. Create an App to demonstrate Scrollview.
6. Create an App to demonstrate Tableview.
7. Create an App to demonstrate Toolbar.
8. Create an App to demonstrate Slider.



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9. Create an App to demonstrate Switches.
10. Create an App to demonstrate DatePicker.
11. Create an App Using Auto Layout.
12. Create an App Using Constraints.
13. Create an App to demonstrate Lifecycle of an App.
14. Create an App to demonstrate ViewController Lifecycle.
15. Create an App to demonstrate User Interactivity and Advanced UI Concepts.
16. Create different apps using Timer, Alerts, Actions Sheets and Notifications.
17. Create different apps using view-based animations, UI dynamics and Segues.
18. Create different apps using File system, File Manager & CloudKit.
19. Design and Implement an App.

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BTIT307		<b>Web Development Lab-I(HTML &amp; XML)</b>	-	-	-	30	20	-	-	4	2

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### **COURSE OBJECTIVES**

The student will have ability to:

1. Students will use a variety of design software to organize, create, publish, and manage a web site.
2. This course also puts emphasis on basic concepts of web design
3. Provide you the conceptual and technological developments in the field of Internet and web designing.
4. Course content includes creating a variety of graphic elements including video, animations, rollover effects, backgrounds, and page images

### **COURSE OUTCOMES**

Upon completion of the subject, students will be able to:

1. Create an HTML Documents, and establish adequate formatting for presentation purposes
2. Import, insert and modify images
3. Insert and manipulate tables
4. Establish and maintain internal and external link to available resources
5. Use special effect to make the expressive, evocative documents
6. Insert and manipulate multi-media objects

### **Syllabus:**

#### **UNIT I**

**Introduction to HTML:** What is HTML, HTML Documents, SGML, Basic structure of an HTML document, creating an HTML document, Headers tags, Body tags, Paragraphs formatting, Text Elements, Tag Elements, Special Character elements, Image tags, HTML Table tags and lists: Numbered list, Non- Numbered lists, Definition lists, Anchor tag, Name tag, Hyperlinks – FTP/HTTP/HTTPS, Links with images and buttons, Links to send email messages, Text fonts and styles, background colors/images, Marquee Behavior, Forms related tags. (Action, method, name, inputetc.)

  
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#### **UNIT II**

**HTML5:** Introduction of HTML5, Browser supports, Migration from HTML4 to HTML5, New Elements in HTML5, HTML5 different parts layout of a web page, HTML5 Graphics: Canvas, SVG, HTML Media Tags: Inserting audio files, Inserting video files, Screen control attributes, Media control attributes, HTML Object.

#### **UNIT III**

**CSS:** Introduction of CSS, CSS Syntax CSS Id & Class. CSS Styling: styling Backgrounds, styling Text, styling Fonts, styling Links, styling Lists, styling Tables. CSS Box Model: Border, Outline, Margin, Padding. CSS Advanced: Grouping/Nesting, Dimension, Display, Positioning, Floating, Align, Pseudo-class, Pseudo-element, Navigation Bar, Image Gallery, Image capacity, Image Sprites, Media Types, and Attribute Selectors.

#### **UNIT IV**

**XML:** Introduction of XML, Cross scripting of XML, XML as intermediate language, Difference between XML and HTML, XML DOM, Tree, Syntax, Elements, Attributes, Namespaces, XPath, XML DTD, Applications, XQuery, XML Schema, XML Parser, XHTML: Introduction of XHTML, XHTML rules over the HTML, conversation HTML to XHTML.

#### **UNIT V**

**Java Script:** Introduction to client side scripting, Server side scripting, Java Script Syntax, Variables and Functions, Operators: JavaScript Arithmetic Operators, JavaScript Assignment Operators, JavaScript Popup Boxes, JavaScript Window, Events and Objects, JavaScript Function Call, Validation in WebPages, Introduction of AJAX.

#### **TEXT BOOKS:**

1. Jennifer Niederst Robbins. Learning Web Design, Fifth Edition, O'Reilly Media, Inc, May 2018.
2. Frain and Ben. Responsive Web Design with HTML5 and CSS3, Second Edition, 2015.
3. Nicholas c.Zakas. Java Script for Web Developers, Third edition, 2012.
4. George Q. Huang, K. L Mak. Internet Applications in Product Design and Manufacturing, ISBN: 3540434658, 2003 edition, springer, 2012.

#### **REFERENCES:**

1. Steven M. Schafer, —HTML, XHTML, and CSS Bible, Fifth Edition, WileyIndia, 2010.
2. John Duckett, |Beginning HTML, XHTML, CSS, and JavaScript —, WileyIndia, 2010.
3. Ian Pouncey, Richard York, —Beginning CSS: Cascading Style Sheets for Web Design, 3rd edition, Wiley India, 2011.
4. Achyut S. Godbole, Atul Kahate, Web Technologies, ISBN: 9781259062681, 3rd edition, TMH, 2013.

#### **PRACTICAL LIST:-**

1. Design a Web Page, Insert an image on to the web page such that image is of height 300 and width 300 pixels. The image should have an ALT text in it.
2. Create a Web page that holds a bulleted list of the names of your friends. Make sure that the bullets are in plain circle.





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3. Create a Frame which would hold both the web page that was created earlier. The frame should be split row-wise into equal halves.
4. Create a Web Page to display the marks you got in all subjects of last semester using table.
5. Create a Form having two boxes with labels as First Name and Last Name. The User should not be allowed to enter the names directly in the text boxes. The input has to be given in the prompt box and then entered values should be given in the text boxes.
6. Create a Web Page that has a button in the center of the page. Using mouse events change the Message in the status bar.
7. Design a Web page that accepts Username and Password. Opens a new window when the password corresponds to a particular value is set by the developer Design a Web page that consists of 2 text boxes. When the page is first loaded set the focus to the first textbox. The user should not be allowed to leave the box unless enters a value in it.
8. To convert the HTML code to XHTML code.
9. To study the XML tree.
10. To study of Dreamweaver Tool.
11. To study of a Flash Animation Tool.

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