Subject: BCA in Web Science

(3 years/6 semesters)

OFFERED UNDER THE STATUTE OF

"SPECIALIZED PROGRAMME"

OF

UNIVERSITY OF MYSORE

Credit Based Choice Based Continuous Assessment System

Academic Year beginning 2015-2016

SYLLABUS

BCA in Web Science

6 Semesters - 3 Years

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Head of Academics

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Bangalore

SEMESTER 1

Course Code	Course Title	L: T: P	Hours/ week	Credit
1.1	English - I	2-1-0	2+2	3
1.2	Indian Language/Foreign language	2-1-0	2+2	3
1.3	Mathematics - I	3-1-0	3+2	4
1.4	Fundamentals of Computer	2-1-1	2+2+2	4
1.5	Programming Concepts using C	2-1-1	2+2+2	4
1.6	Introduction to Graphic Design	2-1-1	2+2+2	4
				Total : 22

SEMESTER 2

Course Code	Course Title	L: T: P	Hours/ week	Credit
2.1	English - II	2-1-0	2+2	3
2.2	Indian Language/Foreign language	2-1-0	2+2	3
2.3	Mathematics - II	3-1-0	3+2	4
2.4	Introduction to Web Programming	2-1-1	2+2+2	4
2.5	Object Oriented Programming using C++	2-1-1	2+2+2	4
2.6	Advance Graphic Design	2-1-1	2+2+2	4
				Total : 22

SEMESTER 3

Course Code	Course Title	L: T: P	Hours/ week	Credit
3.1	Operating System	2-1-0	2+2+0	3
3.2	Data Base Management System	3-1-1	3+2+2	5
3.3	Data Communication and Networking	3-1-0	3+2	4
3.4	Data Structure and Algorithms	3-1-1	3+2+2	5
3.5	Digital Animation	2-2-1	2+4+2	5
				Total : 22

SEMESTER 4

Course Code	Course Title	L: T: P	Hours/ week	Credit
4.1	**Indian Constitution**	**2-1-0**	**2+2**	**3**
4.2	**Word Press**	**1-1-1**	**1+2+2**	**3**
4.3	**Software Engineering**	**2-1-1**	**2+2+2**	**4**
4.4	**Core Java**	**2-1-1**	**2+2+2**	**4**
4.5	**Social Media Marketing**	**2-2-0**	**2+4**	**4**
4.6	**Web Designing and Animation**	**2-1-1**	**2+2+2**	**4**
				Total : 22

SEMESTER 5

Course Code	Course Title	L: T: P	Hours/ week	Credit
5.1	**Environmental Studies**	**2-1-0**	**2+2**	**3**
5.2	**PHP & MySQL**	**3-1-1**	**3+2+2**	**5**
5.3	**Microsoft Visual Basic 6**	**2-1-1**	**2+2+2**	**4**
5.4	**Organizational Behaviour**	**2-1-0**	**2+2+0**	**3**
5.5	**Audio and Video Editing**	**2-2-1**	**2+4+2**	**5**
5.6	**Preparation for Project Work (6.4 BCAWS)**	**0-1-1**	**0+2+2**	**2**
				Total : 22

SEMESTER 6

Course Code	Course Title	L: T: P	Hours/ week	Credit
6.1	**UNIX**	**2-1-1**	**2+2+2**	**4**
6.2	**Internet Programming and Cyber Law**	**2-1-1**	**2+2+2**	**4**
6.3	**Mobile Application Development**	**2-1-1**	**2+2+2**	**4**
6.4	**Project**	**0-1-7**	**0+2+14**	**8**
				Total :20

SEMESTER: I

1.1 BCA-WS **English I**

Credit Pattern

L:T:P = 2:1:0

Lecture hours/week = 2

Tutorial hours/week = 2

All Units are of equal weight

Objectives:

Syllabus:

Unit 1 : 15 hours

Unit 2 : 15 hours

Unit 3 : 15 hours

Unit 4 : 15 hours

Expected Outcome :

Reference Books :

Text Books :

1.2 BCA-WS	**Optional Language**	**Credit Pattern** **L:T:P = 2:1:0** **Lecture hours/week = 2** **Tutorial hours/week = 2** **All Units are of equal weight**

Objectives:

Syllabus:

Unit 1 :	15 hours
Unit 2 :	15 hours
Unit 3 :	15 hours
Unit 4 :	15 hours

Expected Outcome :

Reference Books :

Text Books :

1.3 BCA-WS **Mathematics - I** **Credit Pattern**

L:T:P = 2:1:0

Lecture hours/week = 2

Tutorial hours/week = 2

All Units are of equal weight

Objectives: To familiarize students with fundamental mathematics useful for Web Development.

Syllabus:

Unit 1 **Hours 14**

- **MATRICES** : Introduction to matrices, types of matrices, addition, subtraction and multiplication of two matrices, transpose, elementary row and column operations, finding adjoint of a matrix, inverse of a matrix, solving linear equation using matrix theory.
- **DETERMINANTS** : Calculation of determinants (up to 3rd order), properties of determinants, minor of an element, cofactor of an element, Cramer's rule in two variables, Eigen values and Eigen vectors.

Unit 2 **Hours 16**

Trigonometry:

i) Definition of radian (no proof for constant angle)

ii) Problems on conversion of radians to degree and vice versa

Trigonometric functions and identities:

Simple problems

Graphs of Trigonometric functions: for sine, cos and tan functions.

Allied angles: Problems thereon.

Unit 3 **Hours 15**

Analytical Geometry

i) Problems on distance formula - Proving parallelogram, square, rhombus, equilateral triangle, Co linear it y.

ii) Problems on section formula - internal division , external division , mid point

formula, centroid of a triangle.

iii) problems on area of a triangle.

Unit 4 **Hours 15**

Straight lines:

i) By finding slopes - show that lines are parallel and perpendicular.

ii) Finding slopes - when two points are given

iii) equation of straight lines - passing through given point, parallel and perpendicular to given line.

iv) Problems on intercept form , slope form , normal form , two point form.

v) Problems on angle between two lines.

vi) Concurrency of three lines and point of concurrency.

Expected Outcome: To Enable students to have knowledge of mathematical Tools for Web development.

Reference Books :

- Mathematics and statistics for management – by P.K Mittal, B.G. Satyaprasad, M.K. Pradeep Kumar Rao by Himalaya Publishing House

1.4 BCAWS Fundamentals Computer DOS $ MS-Office

Credit Pattern

L:T:P = 2:1:1

Lecture hours/week = 2

Tutorial hours/week = 2

Practice hours/Week=2

All units are of equal weight

Objectives: To help students of Computer Application understand the fundamentals of Computer with considerable ease.

Syllabus:

Unit 1 **Hours 12**

Introduction to Computers

History, Generations of Computers, Computer as multipurpose tool - Overview of the Computer system, Applications of computer, looking inside the machine, parts of the computer, information processing cycle, computer shapes and types of computer. Binary and decimal number system – advantages, conversions, basic arithmetic, Basic definitions – hardware, software, firmware, program.

Interacting with Computer

The Keyboard - the mouse - other input devices - The monitor - Printers - Sound systems - Connecting I/O devices to the Computer.

Storing information in a Computer

Types of storage devices - Magnetic storage devices, Optical Storage devices, measuring device performance.

Unit 2 **Hours 18**

Processing Data

Transforming data into information - How a Computer processes data - factors affecting processing speed.

Computer Software

Computer Languages, Types of Software, Operating System-Introduction, Types of Operating System.

Translators. Software Issues: Various types of operating systems and their applications. DOS, fundamentals and Windows operating system.

Unit 3 **Hours 18**

Important features of packages like **MS-WORD, MS-EXCEL** and **MS-Power Point**. Popular Computer brands –specifications and selection Criteria.

Unit 4 **Hours 12**

Information System

What is an information System - types of information Systems - System development life cycle.

Database Management systems

Data and Information - the database - DBMS relationship-working with a database - creating tables - Editing records - querying database - generating report.

Security

The Need for Computer Security, Basic Security Concepts, Threats to Users, Threats to Hardware, Threats to Data, Taking protective measures – Protecting Yourself, Protecting your privacy, Keeping your Data Secure.

Expected Outcome : Students to have adequate knowledge of various disciplines in Computers.

Reference Books:

- Peter Norton's 'Introduction to Computers', Second edition, TMH.
- Computer Fundamentals - P K Sinha, BPB

1.5 BCA-WS **Programming Concepts using C** **Credit Pattern**

L:T:P = 2:1:1

Lecture hours/week = 2

Tutorial hours/week = 2

Practice hours/Week=2

All Units are of equal weight

Objectives : To help students of Computer Application understand the fundamentals of C

Syllabus:

Unit 1 **Hours 15**

Overview of C

Importance of C, Sample C programs, Basic structure of C Programs, Programming style, executing a C Program.

Constants, Variables, and Data Types

Character set, C tokens, Keywords and identifiers, Constants, Variables, Data types, Declaration of variables, Assigning values to variables, Defining symbolic constants

Operators and Expression

Arithmetic of Operators, Relational operators, Logical operators Assignment operators, Increment and decrement operators, Conditional operator, Bit wise operators, Special operators, Arithmetic expressions, Evaluation of expressions, Precedence of arithmetic operators, Type conversions in expressions, Operator precedence and associatively, Mathematical functions.

Managing Input and Output Operations

Reading a character, writing a character, formatted input, formatted output

Unit 2 **Hours 15**

Decision Making and Branching

Decision making with IF statement, Simple IF statement, The IF ELSE statement, Nesting of IF ... ELSE statements, The ELSE IF ladder, the switch statement**,** the **?:** Operator, The GOTO statement.

Decision Making and Looping

The WHILE statement, The DO statement, The FOR statement, Jumps in loops

Arrays

One-dimensional arrays, Two-dimensional arrays, Initializing two-dimensional arrays.

Handling of character strings

Declaring and initializing string variables, Reading strings from terminal, Writing strings to screen, Arithmetic operations on characters, Putting strings together Comparison of two strings, String-handling functions, Table of strings.

Unit 3 **Hours 15**

User-Defined Functions

Need for user-defined functions, multi-function program, The form of C functions Return values and their types, Calling a function Category of functions, Handling of non-integer functions, Nesting of functions, Recursion, Functions with arrays, The scope and lifetime of variables in functions.

Structures and Unions

Structure definition, giving values to members, Structure initialization Comparison of structure variables, Unions, Size of structures

Unit 4 **Hours 15**

Pointers and File Handling

Understanding pointers. Accessing the address of a variable, Declaring and initializing pointers, Accessing a variable through its pointer.

File Handling– Definition and need of file. Defining, Opening, and Closing a file. Input and output operations on files. Random access to files with example programs.

Expected Outcome: The student will have adequate knowledge of C

Reference Books:

- Problem Solving with C, M.T. Somashekara, PHI Learning, New Delhi, 2009
- Programming in ANSI C 2nd Edition by E Balaguruswamy Published by Tata McGraw Hill.
- Computer Concepts and C Programming – P.B.KOTUR

1.6 BCAWS **Introduction to Graphic Design**

Credit Pattern

L:T:P = 2:1:1

Lecture hours/week = 2

Tutorial hours/week = 2

Practice hours/Week=2

All units are of equal weight

Objectives : To Introduce basic tools of graphic designing with Photoshop & CorelDraw.

Syllabus:

Unit 1 **Hours 12**

Image and File Formats

Vector format, Pixel format , File Compression Image formats, File formats, File Compression, Properties of Bitmap Images, Monitor resolution, Image resolution, Resolution for printing, Resolution for display, Pixilation, Interpolation.

Unit 2 **Hours 12**

Color Representation In Computers

RGB, CMYK, Grayscale, Color Pallets. Introduction to Photoshop & Tools, Brushes & Pen Tool, Retouching & Restoring, Selection & Paths, Shapes & Styles, Working with Layers, Properties of Layers & Effects, Filling Colors & Gradients, Mapping and Textures, Scanning , Coloring & Animating,

Unit 3 **Hours 18**

Graphics packages Image formats Vector formats Pixel formats. Coloring Concepts for Animation, File Extension (Formats), Importing the Image in Flash for Composition. With Assignments…. For all the Tools.

Unit 4 **Hours 18**

Photoshop Introduction to Vector Shapes and Bitmaps, Exploring the Photoshop Environment, Using the file Browser Basic Photo Corrections.

Working with Selection Tools Basics, Masks and Channels Retouching and Repairing, Working with Brushes, Customizing Brushes, Speed Painting, Matte Painting, Creating a workspace for painting, Using Color Palette, Painting and Editing. Basic Pen Tool, Techniques, Vectors Masks, Paths and Shapes, Advanced Layer Techniques. Creating Special Effects, Preparing Images for Printing.

Introduction for coreldraw

Screen Setup : nudge , rulers, guidelines , grid

Shape Drawing

rectangle tool, ellipse tool, polygons, freehand tool

Expected Outcome : The student should be comfortable in using all the tools.

Reference Books : Creative Photoshop, Digital Illustration and Art Techniques Covering Photoshop CS3 by Derek Lea, Moving Graphics.

SEMESTER: I

2.1 BCA-WS	**English II**	**Credit Pattern** **L:T:P = 2:1:0** **Lecture hours/week = 2** **Tutorial hours/week = 2** **All Units are of equal weight**

Objectives:

Syllabus:

Unit 1 :	15 hours
Unit 2 :	15 hours
Unit 3 :	15 hours
Unit 4 :	15 hours

Expected Outcome :

Reference Books :

Text Books :

2.2 BCA-WS	**Optional Language**	**Credit Pattern** **L:T:P = 2:1:0** **Lecture hours/week = 2** **Tutorial hours/week = 2** **All Units are of equal weight**

Objectives:

Syllabus:

Unit 1 :	15 hours
Unit 2 :	15 hours
Unit 3 :	15 hours
Unit 4 :	15 hours

Expected Outcome :

Reference Books :

Text Books :

2.3 BCA-WS **Mathematics - II** **Credit Pattern**

L:T:P = 3:1:0

Lecture hours/week = 3

Tutorial hours/week = 2

All Units are of equal weight

Objectives : To familiarize students with Principals of mathematics tools.

Syllabus:

UNIT 1 **Hours 14**

Basics of Set Theory

Notation, Inclusion and Equality of Sets, The Power set, Operations on sets, Venn diagram, Set identities, Ordered pairs and Cartesian Products.

UNIT 2 **Hours 16**

Relations and ordering – Properties of binary relations in a Set, Relation Matrix and the Graph of a Relation, Equivalence Relations, Compatibility Relations, Composition of Binary Relation.

Graph Theory Basic Definitions, Paths and Connectedness, Matrix Representation of Graphs, Trees.

UNIT 3 **Hours 15**

Functions Definition and Introduction, Composition of Functions, Inverse Functions.

UNIT 4 **Hours 15**

Mathematical Logic

Statements and Notation, Connectives, Negation, Conjunction, Disjunction, Statement Formulas and Truth Tables, Conditional and Bi-conditional, Tautologies, Equivalence of Formulas, Tautological Implications.

Expected Outcome: The student should be comfortable in using Decision making tools.

Reference Books:

1. Discrete Mathematical Structures with Applications to Computer Science by J.P. Tremblay, R Manohar 3rd Edition – Tata McGraw Hill.

2. Discrete mathematical structures by B. Kolman, R.C. Busby and S. Ross, 3rd edition.

3. Introduction to discrete mathematics by Liu, C.L., McGraw Hill, 2nd edition, 1985.

2.4 BCAWS **Introduction to Web Programming**

Credit Pattern

L:T:P = 2-1-1

Lecture hours/week = 2

Tutorial hours/week = 2

Practice hours/week = 2

All Units are of equal weights

Objectives: To Enhance student skill in Web Programming Language.

Syllabus:

UNIT 1

Fundamentals of Web **Hours 14**

Introduction to WWW

Introduction to HTML

Internationalization & Accessibility

Character encoding& References

Document Structure

Meta Tag& heading Elements

Body Section

Base Font

Text links

Text Format

Text Resizing

Text Lay outing

Text Listing

HTML images, HTML Links

Colors on the text link

Link Targets, image link, Image Mapping

DIV, SPAN& ADDRESS

INS & DEL Tags, Constructing Tables

Borders & Alignment

Lay out design with frame

Borders, Resizable Windows

Scrollbars, HTML, Forms

Elements& Attributes

Structuring with Field set

Access Key &Tab index

Disabled and Read only Controls

UNIT 2 **Hours 16**

C SS

Introduction to style sheet

Introduction to CSS, Types of style sheet

Types of CSS

Internal

External

Inline/Embedded

Imported

Inserting a CSS, Using multiple sheet

Understanding the cascade

Basic CSS syntax, Background properties

Text properties, Font properties

Border properties, Margin properties

Padding list & table properties

UNIT 3 **Hours 15**

JAVAS CRIPT

Java script introduction, what is java script?

Java script in HTML, Java script statement,

Write & Write ln, values& variables

Literals& comments

Expressions in Java script, Popup boxes, operators

Conditional statements, Loop statements

Object manipulation statements

Working with build-in objects

Array& Boolean Objects

Math & Date Objects

String & Number Objects

Working with Build-in Functions

isNaN( ) function

Parse lnt( ) & parse float( ) function

Exception Handling

Java script Event Handler

Timing Events, Status Bar and Roll Over

Object Model, functions in java script

Navigator Object Hierarchy

Java script Reflection

Window & Frame object

Document & form object

Location & History object

Working with windows & frames

Working with MIME types, playing sounds

UNIT 4 **Hours 15**

DOM

Basics of DOM, DOM hierarchy

DOM methods, functions

Forms collection, table collections

Inner HTML, Nodes &Child Nodes

DOM with HTML &CSS

XML

Introduction; Syntax; Document structure; Document Type definitions; Namespaces; XML schemas;

Displaying raw XML documents; Displaying XML documents with CSS; XSLT style sheets; XML Processors; Web services.

Expected Outcome: student should be able to Design web page by using HTML/CSS/XHTML/Java Script

Reference Books

1. M.Deitel, P.J.Deitel, A.B.Goldberg: Internet & World Wide Web How to program, 3rd Edition, Pearson Education / PHI, 2004.
2. Chris Bates: Web Programming Building Internet Applications, 3rd Edition, Wiley India, 2006.
3. Xue Bai et al: The Web Warrior Guide to Web Programming, Thomson, 2003.
4. Sklar: Principles of web design, 1st Edition, 2008 Cengage Learning India.
5. Sklar: The Web Warrior Guide to Web Design Technologies, 1st Edition, Cengage Learning India.

2.5 BCAWS Object Oriented Programming using C++

Credit Pattern

L:T:P = 2-1-1

Lecture hours/week = 2

Tutorial hours/week = 2

Practice hours/week=2

All Units are of equal weights

Objectives: To introduce basic concepts of Object Oriented Programming by using C++.

Syllabus:

Unit 1 **Hours 12**

Introduction

Procedure-oriented programming, Concepts of Object-oriented programming, benefits of OOP, Applications of OOP, Structure of C++ program.

Fundamentals

Tokens, Keywords, Identifiers and constants, Basic Data Types, User-defined data types, Derived data Types, Symbolic constants, Type compatibility, Declaration of variables, Dynamic initialization of variables, Reference variables, Operators in C++, Scope resolution operator, Member dereferencing operators, Memory management operators, Manipulators, Type cast operator, Expressions and their types, Special assignment expressions, Implicit conversions, Operator overloading, Operator precedence, Control structures.

Functions

The main function, Function prototyping, Call by Reference, Return by Reference, Inline functions, Default arguments, const arguments, Function overloading, Friend and Virtual functions.

Unit 2 **Hours 12**

Classes and Objects

Specifying a Class, Defining member functions, Making an Outside function Inline, Nesting of member functions, Private member functions, Arrays within a Class, Static data members, Static member functions, Arrays of Objects, Objects as function arguments, friendly functions, Returning Objects, const member functions, Pointers to members.

Constructors and Destructors

Constructors, Parameterized constructors, Multiple constructors in a class, Constructors with default arguments, Dynamic initialization of objects, Copy constructor, Dynamic constructor, Constructing

Two-dimensional arrays, const Objects, Destructors.

Operator Overloading and Type Conversions

Defining operator overloading, Overloading unary operators, Overloading Binary operators, Rules for overloading operators, Type conversions.

Unit 3 **Hours 18**

Inheritance and Polymorphism

Introduction, defining derived classes, single inheritance, making a private member inheritable, multilevel inheritance, hierarchical inheritance, hybrid inheritance, virtual base classes, abstract classes, constructors in derived classes, polymorphism – introduction, pointers, pointers to objects, this pointers, pointers to derived classes, virtual functions, pure virtual functions.

Unit 4 **Hours 18**

Console I/O Operations

C++ streams, C++ stream classes, Unformatted I/O operations, Formatted I/O operations, managing output with manipulators.

Files: Classes for file stream operations, opening and closing a file, detecting end of file, more about open(): file modes, file pointers and their manipulations, sequential input and output operations.

Manipulating Strings

Introduction, creating objects, manipulating string objects, relational operations, string characteristics, accessing characteristics in strings, comparing and swapping.

Expected Outcome : Students should be able to do object orient programme using C++.

Reference Books:

1. Object Oriented Programming with C++ , M.T. Somashekara, D.S. Guru, H.S. Nagendraswamy,

K.S. Manjunatha, PHI Learning, New Delhi, 2012

2. Object Oriented Programming with C++ by E. Balaguru Swamy

2.6 BCAWS **Advanced Graphics Design**

Credit Pattern

L:T:P = 2-1-1

Lecture hours/week = 2

Tutorial hours/week = 2

Practice hours/week = 2

All Units are of equal weights

Objectives : To provide the knowledge of graphic design using Photoshop and Coreldraw Software.

Syllabus:

Unit 1

Hours 15

INTRODUCTION TO ADOBE PHOTOSHOP CS4

About Photoshop , Navigating Photoshop, Menus and panels, Opening new files, Opening existing files. Exploring the Toolbox, The New CS4 Applications Bar & the Options Bar,

Exploring Panels & Menus, Creating & Viewing a New Document, Customizing the Interface, Setting Preferences,

- **Working with Images**

  Zooming & Panning an Image

  Working with Multiple Images, Rulers, Guides & Grids

  Undoing Steps with History

  Adjusting Color with the New Adjustments Panel

  The New Masks Panel & Vibrance Color Correction Command

  The New Note Tool & the Save for Web & Devices Interface

  The New Auto-Blend & Auto-Align Layers Commands

  The New 3D Command

1. RESIZING & CROPPING IMAGES

1. Understanding Pixels & Resolution
2. The Image Size Command
3. Interpolation Options
4. Resizing for Print & Web
5. Cropping & Straightening an Image
6. Adjusting Canvas Size & Canvas Rotation

2. WORKING WITH BASIC SELECTIONS

1. Selecting with the Elliptical Marquee Tool
2. Using the Magic Wand & Free Transform Tool
3. Selecting with the Regular & Polygonal Lasso Tools
4. Combining Selections
5. Using the Magnetic Lasso Tool
6. Using the Quick Selection Tool & Refine Edge
7. Modifying Selections

3. GETTING STARTED WITH LAYERS

1. Understanding the Background Layer
2. Creating, Selecting, Linking & Deleting Layers
3. Locking & Merging Layers
4. Copying Layers, Using Perspective & Layer Styles
5. Filling & Grouping Layers
6. Introduction to Blending Modes
7. Blending Modes, Opacity & Fill
8. Creating & Modifying Text

4. PAINTING IN PHOTOSHOP

1. Using the Brush Tool
2. Working with Colors & Swatches
3. Creating & Using Gradients
4. Creating & Working with Brushes
5. Using the Pencil & Eraser Tools
6. Painting with Selections

Unit 2 **Hours 15**

5. PHOTO RETOUCHING

1. The Red Eye Tool
2. The Clone Stamp Tool
3. The Patch Tool & the Healing Brush Tool
4. The Spot Healing Brush Tool
5. The Color Replacement Tool
6. The Toning & Focus Tools
7. Painting with History

9. INTRODUCTION TO COLOR CORRECTION

1. Color Spaces & Color Modes
2. The Variations Command
3. The Auto Commands
4. Adjusting Levels
5. Adjust Curves, Non-Destructively, with Adjustment Layers

10. USING QUICK MASK MODE

1. Quick Mask Options
2. Painting a Selection
3. Saving & Removing a Selection from the Background

11. WORKING WITH THE PEN TOOL

1. Understanding Paths & the Pen Tool
2. Creating Straight & Curved Paths
3. Creating Combo Paths
4. Creating a Clipping Path

12. CREATING SPECIAL EFFECTS

1. Getting Started with Photoshop Filters
2. Smart Filters
3. Creating Text Effects. Blending options.
4. Applying Gradients to Text

13. EXPORTING YOUR WORK

1. Saving with Different File Formats
2. Saving for Web & Devices
3. Printing Options
4. Credits

Unit 3

Hours 15

Coreldraw

Shape Drawing

1. rectangle tool
2. ellipse tool
3. polygons
4. freehand tool

- rectangle tool
- ellipse tool
- polygons
- freehand tool
- bezier
- pen tool
- polyline tool
- tracing by hand

Working with menus.

nodes and lines

- graph paper
- spirals
- perfect shapes
- dimension tool
- artistic media 1
- artistic media 2

1. **Viewing Your Work**

   viewing your work

2. **Transformation**

3. **Edit Menu**

   1. find, replace, undo
   2. duplication
   3. barcodes

4. **Grouping Objects**

   a. grouping and combining

5. **Order**

order

6. Arrange Menu

a. arrange locking

7. Shaping Objects

a. knife tool
b. eraser tool
c. smudge brush
d. roughen brush
e. virtual segment delete
f. weld
g. intersect
h. trim
i. newer shaping

Unit 4

Hours 15

1. Color

a. color theory
b. outlines
c. fountain fills
d. pattern fills
e. texture fills
f. postscript fills
g. mesh fill

h. color palettes

2. Symbols

symbols

3. Effects

a. blends 2
b. contour
c. distortion
d. envelopes
e. extrude
f. drop shadow
g. transparency
h. lens docker
i. perspective
j. powerclips

4. Text

a. artistic text
b. paragraph text
c. text on a path
d. text effects

5. Tools Menu

a. general
b. display

c. edit
d. snaps, dynamic guides
e. warnings, save
f. plug-ins
g. text
h. toolbox
i. customization

Expected Outcome : Student should be able to Design web pages.

- **Reference Books :** Creative Photoshop, Digital Illustration and Art Techniques Covering Photoshop CS3 by Derek Lea, Moving Graphics.

3.1 BCAWS **Operating System**

Credit Pattern

L:T:P = 2-1-1

Lecture hours/week = 2

Tutorial hours/week = 2

Practice hours/week = 2

All Units are of equal weights

Objectives : To enhance students with concepts of Operating System.

Syllabus:

UNIT1 **Hours 15**

Introduction

Definition, Computer system components , User view , system view and system goals , Batch Systems,Multi programmed Systems, Time-Sharing Systems, Real-Time Systems, System Components, Operating system services, System calls and system programs.

Process

Process Concept, process state diagram process Control block , Process Scheduling- Scheduling queues, scheduler, Cooperating process, Interprocess Communication, Threads- meaning , user threads , Kernel Threads, Multithreading Models, Threading Issues,

CPU Scheduling

Basic concepts, Preemptive and Non-preemeptive Scheduling, Scheduling Criteria, Scheduling algorithms-

FCFS, Shortest job first Priority scheduling, Round Robin Scheduling.

UNIT II **Hours 15**

Process Synchronization

The Critical section problem, Solution Approach critical section problem, Bakery Algorithm, Semaphores-Meaning, Types of Semaphores, Synchronization problems- Bounded Buffer Problem, Readers-Writersproblem and Dining Philosophers problem.

Deadlocks

Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance,Deadlock Detection, Recovery from Deadlock

UNIT III **Hours 15**

Memory Management

Introduction, Logical versus physical address space, Dynamic Loading, Dynamic Linking, Swapping,

Contiguous Allocation, Partitioned Memory Allocation, Paging, Segmentation, Segmentation with Paging.

Virtual Memory

Concept, Advantages of Virtual Memory, Implementation of Virtual Memory, Demand Paging, Demand segmentation, Advantages of Demand paging, Page Replacement, Page-Replacement Algorithms- FIFO Algorithm, Optimal Page Replacement Algorithm, and Least Recently used Algorithm, (LRU) Allocation of Frames, Thrashing.

UNIT IV **Hours 15**

File System

File concepts, File Attributes, File Operations, File Types, File Structure, Access Methods, Directory Structure, File-System Structure, Allocation Methods- Contiguous Allocation, Linked Allocation and Indexed Allocation, Free-Space Management.

Expected Outcome: Students should be aware of various concepts of Operating System.

1. Reference Books : Operating System Concepts – 5th edition by Abraham Silberschartz

3.2 BCAWS **DataBase Management System**

Credit Pattern

L:T:P = 3-1-1

Lecture hours/week = 3

Tutorial hours/week = 2

Practice hours/week = 2

All Units are of equal weights

Objectives: To enhance the students with Data base Management System.

Syllabus:

Unit - I **Hours 12**

Introduction: Database and Database Users, Characteristics of the Database Approach, Different people behind DBMS, Implications of Database Approach, Advantages of using DBMS, When not to

use a DBMS. Database System Concepts and architecture: Data Models, Schemas, and Instances. DBMS Architecture and Data Independence., Database languages and interfaces. The database system Environment, Classification of DBMS.

Unit - II **Hours18**

Data Modelling Using the Entity-Relationship Model: High level conceptual Data Models for Database Design with and example., Entity types, Entity sets, attributes, and Keys, ER Model Concepts, Notation for ER Diagrams, Proper naming of Schema Constructs, Relationship types of degree higher than two. Record Storage and Primary File Organization: Secondary Storage Devices. Buffering of Blocks. Placing file Records on Disk. Operations on Files, File of unordered Records (Heap files), Files of Ordered Records (Sorted files), Hashing Techniques, and Other Primary file Organization

Unit - III **Hours 18**

Functional Dependencies and Normalization for Relational Database: Informal Design Guidelines for Relational schemas, Functional Dependencies, Normal Forms Based on Primary Keys., General Definitions of Second and Third Normal Forms Based on Primary Keys., General Definitions of Second and Third Normal Forms, Boyce-Codd Normal Form. Relational Data Model and Relational Algebra: Relational Model Concepts., relational Model Constraints and relational Database Schema, defining Relations, Update Operations on Relations., Basic Relational Algebra Operations, Additional Relational Operations., Examples of queries in the Relational Algebra., Relational Database design Using ER-to-Relational Mapping.

Unit – IV **Hours 12**

Relational Database Language: Data definition in SQL, Queries in SQL, Insert, Delete and Update Statements in SQL, Views in SQL, Specifying General Constraints as Assertions, specifying indexes, Embedded SQL. PL /SQL: Introduction.

Transaction Processing Concepts: Introduction, Transaction and System Concepts, Desirable properties of transaction, Schedules and Recoverability, Serializability of Schedules, Transaction Support in SQL, Locking Techniques for Concurrency Control, Concurrency Control based on time stamp ordering.

Expected Outcome : Students should be aware of Database Management System.

Reference Books : Abrahamsi. Silberschatz, Henry. F. Korth, S. Sudarshan, "Database System Concepts" 6th Edition, McGraw Hill, 2012.

3.3 BCAWS Data Communication and Networking

Credit Pattern

L:T:P = 2-1-0

Lecture hours/week = 3

Tutorial hours/week = 2

All Units are of equal weights

Objectives : To enhance the students with Data Communication and Networking.

Syllabus:

Unit – 1 **Hours 12**

Data Communication, Component and Basic Concepts –

- Introduction
- Characteristics – Delivery, Accuracy, Timeliness and Jitter
- Components – Message, Sender, Receiver, Transmission medium and protocol

Topology – Mesh, Star, Tree, Bus, Ring and Hybrid Topologies

Transmission modes – Simplex, Half Duplex, Full Duplex

Categories of networks – LAN, MAN, WAN

Network Components – Signal Transmission – Analog Signaling, concept of ASK, FSK, PSK, Digital Signaling, concept of Unipolar, Polar, Return-to-Zero(RZ), Biphase, Manchester, Differential Manchester, Non-Return-to-Zero (NRZ), Bit Synchronization, Asynchronous Bit Synchronization and Synchronous Bit Synchronization, Baseband and Broadband Transmissions.

Guided Media – Twisted-Pair Cable, Coaxial Cable, Fiber-Optic Cable

Unguided Media – Radio Wave Transmission Systems, Microwave Transmission Systems, Infrared Transmission Systems and Satellite Communication System.

UNIT – II **Hours 12**

The OSI Model – Functions of all the Seven Layers

Networking Devices – Functions and Applications of Hub, Switches, Bridges, Repeaters

Internetworking Devices – Functions and Applications of Routers and Gateways

IP Addressing – Dynamic IP Addressing, Static IP Addressing, Types of IP Addresses

Protocols –TCP, UDP, IP, IPV4, IPV6, TCP/IP Suite, SMTP, POP3, SNMP, HTTP, FTP, DNS, ICMP IGMP, ARP, RARP, OSPF, BGP, ALOHA

UNIT – III **Hours 18**

Packet Switching Networks – Network Services and Internal Network Operations, Packet Network Topology, Datagrams and Virtual Circuits, Connectionless Packet Switching, Virtual Circuit Packet Switching. Routing Concepts – Routing Tables, Dijkstra's Shortest Path Routing Algorithm, Flooding, Distance Vector Routing, Congestion Control Algorithms-Leaky Bucket Algorithm.

UNIT – IV **Hours 18**

Data Link Issues –Single bit error and Burst Error, concepts of Redundancy, Checksum, Single Bit Error correction and Hamming Code correction method.

Expected Outcome : Students should be aware of Networking and Communication.

Reference Books : Introduction to Data Communications and Networking by Behrouz Forouzan.

2. Computer Networks by Andrew S Tanenbaum.

3. Networking Essentials – Third Edition – Jeffrey S. Beasley, Piyasat Nilkaew

3.4 BCAWS **Data Structure and Algorithms**

Credit Pattern

L:T:P = 3-1-0

Lecture hours/week = 3

Tutorial hours/week = 2

All Units are of equal weights

Objectives : Students should enhance Data Structure and Algorithms.

Syllabus:

UNIT 1 **Hours 12**

Linear Data Structure and their sequential storage representation

Introduction to algorithm- Sequential, Selection and Iteration

Algorithmic notations, Concept and terminology for non-primitive Data structures,

Arrays-Memory Representation of 1D and 2D, Operations on Arrays,

Stacks- Definitions and Concepts, Operations on stacks,

Applications of stacks- Recursion, Infix to postfix, and Evaluating postfix expressions,

Queues- Linear, Circular and Priority Queues

Unit – II **Hours 12**

Pointers and Linked Allocation, Linked linear lists,

Operations on Linear lists using singly linked storage structures

(Insertion, Deletion, Searching-Only on unsorted lists),

Circular linked lists- Memory Representation ,

Doubly linked linear lists- Memory Representation.

UNIT III **Hours 18**

Nonlinear Data Structures

Trees - Definition and concepts, Operations on Binary Trees,

Storage Representations of Binary Trees- Sequential and Linked, Tree Traversal,

Binary Search Tree- Creation and Traversal

UNIT IV **Hours 18**

Sorting and searching

Sorting- Selection sort, Bubble Sort, Insertion Sort, Merge Sort, Quick Sort, Radix sort

Searching- Sequential and Binary searching

Expected Outcome: Students should be aware of Data Structure and Algorithms.

Reference Books :

1. An Introduction to Data Structures with Applications 2nd edition - J.P.Trembly and Sorenson, McGraw Hill 2001.
2. Data structures using C , Aaron M Tenenbaum, Yedidyah Langsam, Pearson
3. Data Structures And Program Design In C, Robert L Cruse, Pearson
4. Systematic Approach to Data Structures Using C by Padma Reddy

3.5 BCAWS	**Digital Animation**	Credit Pattern
		L:T:P = 3-1-1
		Lecture hours/week = 3
		Tutorial hours/week = 2
		Practice hours/week = 2
		All Units are of equal weights

Objectives : To enhance Students knowledge in Digital Animation.

Syllabus:

UNIT 1 **Hours 12**

Animation Principles. Flash is streaming animation for web pages, differences between ***Bitmap-based*** image files and ***Vector-based*** image files. File formats, Create the Cartoons by using Flash Software, Create an Animated Character, Build a Website, Create a Game, Text Properties. InterFace of flash Software, Color Mixer.

UNIT 2 **Hours 18**

Introduction to Adobe Flash ,Introduction of Industry Standard of Flash, Animation & Basic Of Flash, Importing Graphics in to Flash & Applying Advanced Drawing Techniques, Grouping Effects, Using the Library, Understanding the Animation, Using Classic Tween Animation, Using Shape Tween Animation , Morph, Symbols, Including Sound In Animation, Using Layers in Animation, Mask, Animating Using Graphic Symbols, Text Effects, Backgrounds,Advanced Technique of Flash Animation, Character Construction, Character Movements, Keyframe Animation, Final Composition, Rendering Movie, Project.

UNIT 3 **Hours 12**

Tool Box: Selection Tool, Sub-selection Tool, Free transform Tool, Gradient transform Tool, Lasso Tool, Pen Tool, Add anchor point tool, Delete anchor point tool, Convert anchor point tool.Text Tool, Line Tool, Rectangle Tool, Oval Tool, Rectangle Primitive Tool, Oval Primitive Tool,Polystar Tool, Pencil Tool, Brush Tool, Ink Bottle Tool, Paint Bucket Tool, Eye Dropper Tool.Eraser Tool, Hand Tool, Zoom Tool, Stroke color, Fill color.

Unit 4 **Hours 18**

Symbols Difference between Grouped Object, Ungrouped Object. **Graphic, Movie Clip, Buttons**.Types of Animation.Time Line, Layers, Creating Animation, Creating Movie clip Animation, Shape tween Animation. Creating Motion Guide, Masking In Flash.

Expected Outcome : Student should be able to Create Digital Animation using Flash.

Reference Books : Adobe Flash Professional CC, A Creative Guide by lbis Fernandez.

4.1 BCAWS **Indian Constitution**

Credit Pattern

L:T:P = 2-1-0

Lecture hours/week = 2

Tutorial hours/week = 2

All Units are of equal weights

Objectives: Students should made aware of Basics of Indian Constitutions.

Syllabus:

Unit 1 **Hours 12**

Meaning of the term "Constitution"-Its importance-making of the Indian Constitution 1946-49-

Dr.Ambedkar's contribution-Preamble-Method of amending the constitution and its limitation-An over view of constitutional developments.

Unit 2

Hours 18

The democratic institutions created by the Constitution-bicameral system of legislature and cabinet form of government at the Center and States-Role and Position of President and Prime Minister-Adult Franchise System-Election Commission, Panchayat Raj System.

Unit 3

Hours 18

Fundamental Rights and Duties- Their content and significance-Special, rights created in the constitution for Dalits, Backwards, Women, Children and the Religious and Linguistic Minorities.

Unit 4

Hours 12

Enforcing rights through writs: Certiorari, Mandamus,Quo Warranto and Habeas Corpus-public interest Litigation-Directive Principles of State Policy-The need to balance Fundamental Rights with Directive.

Principles-Constitution and sustainable development.

Doctrine of Separation of Powers-Legislative, Executive and Judicial and their composition and functioning in India-Features of Indian Federalism-Center State relations. Measures for national Unit Public Service Commissions.

Expected Outcome: Students should be aware of Basics of Indian Constitutions.

References Books:

1. J.C. Johari, The constitution of India- A Politico-Legal Study-Sterling Publications, Pvt.Ltd.New Delhi.

2. J.N.Pandey:Constitutional Law of India, Allahabad, Central Law Agency, 2002.

3. Granville Austin:The Indian Constitution-Corner Stone of a Nation-Oxford, NewDelhi.2000.

4.2 BCAWS **Word Press** Credit Pattern

L:T:P = 1-1-1

Lecture hours/week = 1

Tutorial hours/week = 2

Practice hours/week = 2

All Units are of equal weights

Objectives : Students should aware creating Web Page by using Word Press.

Syllabus:

Unit 1 **Hours 12**

1. Basic Introduction to the New WordPress .

- Upload & Link to a PDF, Microsoft Word doc, or other doc in WordPress
- Make a Static Page Your Home Page & Hide a Double Home Page Link
- How to Make a "Child" Page (Subpage) and How to Hide a Link in the Pages Side bar Widget

How to Change Your Theme or Install & Activate a New WordPress Theme Login and Log Out, Use the Easy (Visual) Text Editing Window

Unit 2 **Hours 18**

Edit a Page or Post, Create a New Page or Post

- Editing a WordPress Page

- Edit a WordPress Post
- Create a New WordPress Page
- Make a New WordPress Post

How to Insert and Modify Text, Make Text a Link

- How to Add Bold, Italics and Color to Text
- How to Make Text into a Link Using WordPress
- How to Insert Text into a WordPress Post or Page from Microsoft Word or Other Source
- Changing Fonts and Font Size Using WordPress
- More About Changing Fonts and Font Size Using WordPress

Unit 3

Hours 18

Upload and Link to a PDF, Word Document, Excel File, etc.

- Upload and Link to a PDF, Microsoft Word Document, Excel, PowerPoint or Other Doc Using WordPress

  Make "Child" Subpages and "Parent" Pages
- Make a "Child" Subpage and Then Link to That Subpage Using the Blogroll

  Activate a New WordPress Theme, Edit a WordPress Theme Sidebar
- Make Changes to a WordPress Theme Sidebar Using a Text Editor
- Download, Install and Activate a New WordPress Theme

  Using Widgets in a Sidebar

Unit 4

Hours 12

- Add a Flickr Photo Widget to WordPress Theme Sidebar
- Use a Text Widget to Customize a WordPress Sidebar (Parts 1 and 2)

Make a "Back to Top" of Page Link, or Link to a Specific Place on a Page

1. Make a "Back to Top" of Page Link
2. Advanced "Back to Top" of Page Link

3. Make a Link to a Specific Place in a WordPress Page or Post

Make an Email Link vs. Using a Contact Form

- How to Make an Email Link vs. Using a Contact Form

Web Marketing Tutorial – How to Leave a Comment on a Blog

- How to Comment on a Blog.

Expected Outcome : Students should be able to create Web Page by using Word Press.

References Books : Wordpress Professional

4.3 BCAWS **Software Engineering**

Credit Pattern

L:T:P = 2-1-1

Lecture hours/week = 2

Tutorial hours/week = 2

Practice hours/week= 2

All Units are of equal weights

Objectives: To introduce students to basics of Software Engineering.

Syllabus:

UNIT - 1 **Hours 14**

1. Introduction to Software engineering , Software Products and characteristics, software engineering applications, Software engineering ethics.
Software Process - Software engineering models: Waterfall Model, Prototyping, Spiral Model, RAD Model.
2. Requirement Engineering: Functional and Non-functional requirements, User requirements, System requirements, the software requirements document; Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management.

UNIT – 2 **Hours 16**

3. System Analysis Models: Context models, Data models, Flow oriented Modeling – DFDs, Behavioral
models – Use cases**.**

4. Software Design: Design process, Design characteristics, Design concepts,
Design Models - Architectural design - Software Approach, Data Design, Architectural Styles and Patterns, Architectural design.
Object Oriented Design - Object and Object Classes, design process, Design evaluation.
User Interface design - Interface Analysis, Interface Design Steps, and Design evaluation.

UNIT 3 **Hours 15**

5. Verification and Validation: Testing Strategies, Strategic issues, Test Strategies for conventional software - Black-box and White-box testing, Validation testing-System testing, Art of Debugging.

UNIT 4 **Hours 15**

Software Management: Project management – Activities, Planning, Project Scheduling- Concepts and Principles, Risk management – Software Risk, Risk identification, Risk projection, Risk refinement. Software cost estimation– Estimation techniques - Decomposition Technique - software sizing, Empirical estimation model -COCOMO Model, Project duration and staffing. Quality management – Software quality Assurance and standards, ISO 9000 quality standards, Software measurements, Metrics for Software quality**.**

Expected Outcome: Students should be able to understand the process, Analysis Models in Software Engineering.

Reference Books:

1. Software Engineering, Ian Sommerville, 6th Edition,9th Edition, Pearson Education Ltd.,

2. Software Engineering – A practitioners approach, Roger. S. Pressman, Tata-McGraw Hill 6th Edition.

4.4 BCAWS **Core Java**

Credit Pattern

L:T:P = 2-1-1

Lecture hours/week = 2

Tutorial hours/week = 2

Practice hours/week= 2

All Units are of equal weights

Objectives : To introduce to students, Java Packages, and Networking in Core Java.

Syllabus:

CORE JAVA

Hours 12

UNIT 1

Fundamentals of Object-Oriented Programming.

Introduction to Java : Origin and features of Java. Java Program Structure, Java Tokens, Java statements, Java Virtual machine, Command Line Parameters, Java Variables and Data Types, Operators, Decision Making, Branching and looping statements. Classes, Objects and Methods used in Java: Class fundamentals, Methods, Constructors, Overloading, Inheritance, Interfaces, One and two dimensional arrays, Vectors, Strings, Wrapper Classes.

UNIT 2 **Hours 18**

Java Packages: API packages, system packages, naming conventions, creating and accessing a package, adding a class to a package, hiding classes.Multi-threads Programming: Java thread Model, Main Thread, creating a Thread, Creating Multiple Threads, Extending the thread class, Stopping and blocking a thread, Life cycle of a thread, Managing Errors and Exceptions.Applet Programming: Introduction, how applet differ from application, Applet life cycle, Applet tag, passing parameters to applet. Abstract Windows Toolkit: Components, Container, Panel, Label, Button, Checkbox, CheckboxGroup, Choice, List, TextField, TextArea, Scrollbars.

UNIT 3 **Hours 18**

Graphics Programming: The Graphics class, Lines and Rectangles, Circles and Ellipses, Drawing Arcs,Drawing Polygons, Line Graphs, Using Control Loops in Applets.Managing Input/output

Files in Java: Stream Classes, Byte Stream Classes, Character Stream Classes, Creation of Files, Reading/Writing characters, Reading/Writing Bytes, Handling Primitive Data Types, Concatenating and Buffering Files, Random Access Files.

UNIT 4 **Hours 12**

Networking: Inet Address, TCP/IP Client Sockets, TCP/IP Server Sockets, URL, URLConnection.JDBC Objects: JDBC Driver Types, Loading the JDBC Driver, Connect to the DBMS, Create and Execute a Sql Statement, Process Data Returned by the DBMS, Database Connection, Statement Objects.

Expected Outcome : Students should be able to work on java software.

Reference Books : Core Java Books for beginners.

4.5 BCAWS **Social Media Marketing** Credit Pattern

L:T:P = 2-2-0

Lecture hours/week = 2

Tutorial hours/week = 2

All Units are of equal weights

Objectives: To make students aware of importance, Tools and techniques involved in Social Marketing.

Syllabus:

UNIT 1 **Hours12**

1. The Social Media Mix: Making Business Case for Social Media, Tallying the Bottom Line, Plotting Your Social Media Marketing Strategy, Managing Your Cyber social Campaign

2. Cyber social Tools: Discovering Helpful Tech Tools, Leveraging Search Engine Optimization (SEO) for Social Media, Using Social Bookmarks, News, and Share Buttons

UNIT 2 **Hours18**

3. Blogs, Podcast, and Video: Growing Your Brand, Building Your Blog, Using Podcasts or Video in Your Content, Sharing Images

4. Twitter: Using Twitter as a Marketing Tool, Using Twitter as a Networking Tool, Finding the Right Twitter Tools, Supplementing Online Marketing Tools with Twitter, Hosting Twitter Chats

UNIT 3 **Hours 18**

5. **Facebook:** Using Facebook as a Marketing Tool, Creating and Sharing Content on Facebook, Gaining Insight about Your Facebook CommUnity, Finding the Facebook Sweet Spot.

6. **Google +**: Leaping into Google+, Socializing in Circles, and Building through Pluses, Shares, and Comments, hanging with your Google+ CommUnity

UNIT 4 **Hours12**

Pinterest: Pinning Down Pinterest, Marketing with Pinterest, Driving Sales with Pinterest

Expected Outcome : Students should be able to Understand and implement different Strategies involved in social media marketing.

Reference Books: Social Media Marketing All-in-One for Dummies by Jan Zimmerman

Social Media Marketing for Dummies by Shiv Singh

4.6 BCAWS **Web Designing and Animation**

Credit Pattern

L:T:P = 2-1-1

Lecture hours/week = 2

Tutorial hours/week = 2

Practice hours/week = 2

All Units are of equal weights

Objectives: To Enhance students knowledge in Web designing and Animation.

Syllabus:

Unit 1: **Hours 14**

Adobe Photoshop

Tools, Image Compression, designing layouts for websites, Adding effects to the layouts, Creating buttons for layouts, Slicing the Images & Buttons, Saving the files.

Adobe Dreamweaver

Creating the size for websites, Importing Sliced images, layouts and shockwave files into Dreamweaver, Aligning the Images and movies, Adding scripts to control the pages, Adjusting the buttons and its rollover functions, Adjusting the buttons and its rollover functions, Adding text and sound for the websites, Taking HTML Output for the websites.

General ideas about hosting website and details about File Transfer Protocol (FTP) 2 Sessions

Registering the Domain Name, Check for availability, Details about the server, Introduction to File Transfer Protocol (FTP), Hosting the website through and FTP Softwares, Accessing the website through Internet.

UNIT 2 **Hours 16**

Introduction of Industry Standard of Flash, Animation & Basic Of Flash, Drawing and Painting Original Art in Flash, Importing Graphics in to Flash & Applying Advanced Drawing Techniques, Grouping Effects, Using the Library, Understanding the Animation, Using Classic Tween Animation, Using Shape Tween Animation , Morph, Symbols, Including Sound In Animation, Using Layers in Animation, Mask, Animating Using Graphic Symbols, Text Effects, Backgrounds, Basic Animation Principles, Advanced Technique of Flash Animation, Character Construction, Character Movements, Keyframe Animation,Final Composition, Rendering Movie, Project.

UNIT 3 **Hours 15**

Introducing Dreamweaver CS5

The Dynamic World of Dreamweaver, Connecting to the world's data, True page representation, Integrated visual and text editors, World-class code editing, Web site maintenance tools, Team-oriented site building, The Dreamweaver Interface, Easy text entry, Drag-and-drop data fields, One-stop object modification, Accessing and managing resources, Complete custom environment, Managing keyboard shortcuts, Simple selection process, Enhanced layout options, Plugin media preview, Extended find and replace.

UNIT 4 **Hours15**

Dreamweaver

Choosing a Workspace Layout, Viewing the Document Window, Switching views in the Document window, working with the status bar, Accessing the Toolbars, The Application bar,

The Related Files bar, The Document toolbar, The Standard toolbar, The Style Rendering toolbar, The Coding toolbar,\ The Browser Navigation toolbar, Selecting from the Insert Panel, Common objects, Layout objects, Forms objects, Manipulating the Property inspector, Property inspector elements, Customizing Your Workspace with Dockable Panels, Hiding and showing panels, Customizing panel groups, Accessing the Menus. Creating the Web Page.

Expected Outcome : Students should be able to Create Web sites with animation using Dreamweaver and Flash.

Reference Books : Learn Complete Webdesign.

5.1 BCAWS **Environmental Studies** Credit Pattern

L:T:P = 2-1-0

Lecture hours/week = 2

Tutorial hours/week = 2

All Units are of equal weights

Objectives: To familiarize the students with issues regarding environment.

Syllabus:

Unit 1

Hours 14

The Multidisciplinary nature of Environmental Resources.Definition, Scope and Importance, Need for Public awareness.Natural Resources and associated problems.

Forest Resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining dames and their effects on forests and tribal people. Water Resources: Use and over-utilization of surface and ground water, floods, drought, conflicts overwater, dams-benefits and problems. Mineral Resources: Use and exploitation, environmental effects of extracting and using mineral resources,case studies. Food Resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case study.Energy Resources: Growing energy needs, renewable and non-renewable energy resources use of alternate energy sources. Case studies.

Unit 2

Hours 16

Land Resources: land as a resource, land degradation, man induced landslides, soil erosion and desertification.Ecosystems: concept, structure and function, producers, consumers, decomposers, Energyflow,Ecological succession, Food chains, food webs and ecological pyramids.Introduction, types , characteristics, structure and function of following ecosystems:

a) Forest Ecosystem

b)Grassland Ecosystem

c)Desert Ecosystem

d) Aquatic Ecosystems(pond, streams, lakes,,rivers,oceans,estuaries)

Unit 3

Hours 15

Biodiversity and its conservation: Introduction, Definition:genetic, species and ecosystem diversity,Biogeographical classification of India, value of Biodiversity, Biodiversity at Global, National and local levels. India as a mega-diversity nation. Hot-spots of biodiversity. Threat to biodiversity, Endangered and endemic species of India. Conservation of bio-diversity. Environmental Pollution: Definition, causes, effects and control measures of Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Nuclear hazards.

Unit 4

Hours 15

Social Issues and the Environment: From Unsustainable to sustainable development, Urban problemsrelated to energy, Water conservation, rain water harvesting , watershed management, Resettlement and **rehabilitization** of people; its problems and concerns. Case studies.Environmental ethics:Issues and possible solutions.Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocause, case studies.Wasteland reclamation, Consumerism and waste products, Environment protection Act, Air(prevention and control of pollution) Act, Water (Prevention and control of pollution)Act, Wildlife protection Act, Forest Conservation Act. Issues involved in enforcement of environmental legislation. Public awareness. Human population and Environment: Population growth, variation among nations. Population explosion- Family Welfare Programme.Environment and human health. Human Rights. Value Education.HIV/AIDS, Women and Child Welfare, Role of Information Technology in Environment and human health. Case studies. Field work: visit to a local area to document environmental assets-river/forest/grassland/hill/mountain.Visit to locate polluted site, study of common plants, insects, birds, study of simple ecosystems.

Expected Outcome : Students should be aware of issues and steps taken to protect environment.
Reference Books References:

1. Agarwal, K.C.2001 Environmental Biology, Nidi publications Ltd.Bikaner.
2. Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt.Ltd.,Ahmedabad-380013
3. Brunner R.c>,1989,Hazardous Waste Incineration,k McGraw Hill Inc.480 p.
4. Trivedi R.K. and P.K.Goel, Introduction to Air pollution. Techno-science publications.
5. Wagner K.D.1998. Environmental Management, W.B.Saunders Co.Philadelphia, USA.

5.2 BCAWS **PHP & MYSQL** Credit Pattern

L:T:P = 2-1-1

Lecture hours/week = 2

Tutorial hours/week = 2

Practice hours/week = 2

All Units are of equal weights

Objectives: To enhance the students knowledge towards creating Databases and storing the data.

Syllabus:

Unit 1: **Hours 14**

Overview of PHP

Static vs. Dynamic web sites

Dynamic Content from Databases

Developing Dynamic Internet Applications

Client-Sid e scripting vs. server-side scripting

Overview of PHP Advantages & Capabilities

Configuring PHP.INI &PHP vs. ASP

Basic Scripting and Looping Constructs

PHP scripting fundamentals

Print statement, code blocks

Primitive data types

Defining constants and variables

Looping constructs.

While, Do while, for &exit &Break

PHP Operators

Logical, Relational &Bitwise Operators

Other Operators

Conditional constructs

True and false expressions

If, Else and Else if

Switch/case statement

The?(Ternary)operator

Timestamps.

Arrays in PHP. What are arrays?

Usage of arrays in PHP

Indexing arrays. Initializing arrays

Adding and Removing from arrays

One-dimensional arrays

Multi dimensional arrays

Array functions

Unit 2 : PHP FUNCTIONS **Hours 16**

Introduction in functions

Declaring functions, scope

Passing Arguments to functions

Returning values from a function

Using include files

The require statement Recursion

Dynamic function calls

Predefined PHP functions &Mailing functions

Classes and objects(PHP 5.3)

Introduction, The basics& Auto loading objects

Constructors and Destructors, visibility

Scope resolution operator(::)

Static keyword. Class constants

Class Abstraction. Object interfaces

Overloading, Object iteration & patterns

Magic Methods. Final keyword

Object cloning, Comparing objects

Reflection & Type Hinting

FILE HANDLING

Searching file contents with

Regular expressions

Changing and editing file contents

Splitting and joining information inside files

File uploading, String functions

Regular expression functions

Reading writing and Deleting files

Handling file permissions. File locking

Reading Directory contents

Creating and Deleting Directories

Working with databases and forms

Configuring PHP for database support

PHP's database APIs

PHP's SQL API

Database Drivers

Database Driver Class wrappers

ODBC

Simple SQL Queries via PHP

Tracking visitors with session ids

Populating Forms

Retrieving data from forms

USING COOKIES WITH PHP

Purpose of cookies, cookie myths

Setting cookies ,Retrieving cookies

Expiring cookies, Deleting cookies

Storing Arrays in cookies

MISCELLANEOUS PHP tasks

Error Logging

Session management &Maintaining state

Using environmental variables

Changing execution by redirecting to Other URLs

Embedding java script with PHP

Using HTTP &FTP protocols to pass data

Showing different content to different Browsers

Getting IP addresses from visitors

Unit 3 : MY SQL 5.0

Hours 15

Introduction to MYSQL

Overview of MY SQL,what is my SQL?

History of MY SQL, The main features of MYSQL

Create &manage database and tables

Connecting to and disconnecting from the server

Entering queries, creating and using a database

Creating and selecting a database

Creating a table.loading data into a table

Retrieving information from a table

Getting information About databases and tables

Data types, functions and operators &SQL statement syntax

Data definition statements

Create table Alter table syntax

Drop table rename table syntax

Create data base Alter database syntax

Drop database syntax

Unit 4 : DATA MANIPULATION STATEMENTS&CONTROL STATEMENTS

Hours 15

DELETE, DO &INSERT Syntax

LOAD DATA INFILE, REPLACE& SELECT Syntax

Subquery, TRUNCATE &UPDATE Syntax

Stored procedures and functions

Stored routines and the grant tables

Stored routine Syntax, stored procedures,

Functions, triggers, and LAST_INSERT_ID( )

TRIGGERS

CREATE TRIGGER Syntax

DROP TRIGGER Syntax

Using Triggers

VIEWS

CREATE VIEW Syntax

ALTER VIEW Syntax

DROP VIEW Syntax

Expected Outcome : Students should be able to create database using PHP and MYSQL --

Reference book:

Learning PHP,MYSQL,and Java Script By Robin Nixon.Oreilly, Publishers

5.3 BCAWS **Microsoft Visual Basic 6** Credit Pattern

L:T:P = 2-1-1

Lecture hours/week = 2

Tutorial hours/week = 2

Practice hours/week = 2

All Units are of equal weights

Objectives: To enhance the students knowledge towards Microsoft Visual Basic 6.

Syllabus:

Unit 1 : **Hours 15**

Introduction to Visual Programming: The intergrated Development Environment – menu bar, tool bar, from designer, project explorer , properties window , from layout window , The Visual Programing editor. The form object: Properties , events and methods pf forms ; Properties – Name , Captain , Backcolor, Borderstyle , controlbox , maxbutton , minbutton, moveable, startup position , height, width , left, top, scalemode, window, state ; Events –load ,unload , Clerk, Activate , Deactivate , Resize, methods – Show , hide , cls , Unload ,print , Controls –Properties and events of different controls such as command buttons , labels , textboxes image controls , timer, horizontal and vertical scroll bars , option buttons , check boxes , frames lists and combo boxes. Predefined Dialog Boxes – MsgBox and InputBO

Unit - II **Hours 15**

Programming: Data types, variables; declaration and scope arithmetic operations, Study of form and code modules, private and public procedures , Main o procedure , Suba and Functions. Mathematical and string Functions; Branching and Looping Statement ; If – Then , if –Then –Else and Nested If Statements; Select Case –different forms; For – Next , While – Wend and Do –

Loops statements ; Arrays- declaration . Static and dynamic arrays. Array and Function, menus and toolbars-Creating menus and toolbars, Working with the menu editor , Designing Multiple Document interface forms. Microsoft common controls.

Unit - III **Hours 15**

OOP methods and properties of an object, class Modules , Encapsultation and Inheritance characteristics Dynamic Link Libraries (DLLs) and Windows API ; Designing Help files ; File handling – Sequential ,Random access and Binary files, Database connectivity – DAO and ADO Tables and Queries, ActiveX Data objects.

Unit – IV **Hours 15**

Visual C++ Programming: Objects-Classes-VC++Components – Resources-Event Handling – Menus – Dialog Boxes – Importing VBX Controls – Files – MFC File Handling – Document View Architecture – Serialization.

Interfacing Other Applications – Multiple Document Interface (MDI) – Splitter Windows – Exception Handling – Debugging – Object Linking and Embedding (OLE) – Database Application – DLL- ODBC.

Expected Outcome : Students should able to create front end Interface. by using VB.

Reference Books : 1. Charles Petzold, “Windows Programming”, 5th Edition, Microsoft Press, 1999.

Steve Holzner, “Visual C++ Programming”, Second Edition, PHI, 1994. Go ttfried, “Programming with Visual Basic 6”, PHI, 2000.

5.4 BCAWS **Organizational Behaviour** Credit Pattern

L:T:P = 2-1-0

Lecture hours/week = 2

Tutorial hours/week = 2

All Units are of equal weights

Objectives: To enable the students to understand human behavior and organizational behavior.

Syllabus:

UNIT 1 **Hours 12**

Reasons for existing organizations, Definition and meaning of OB, OB as a interdisciplinary subject, approaches to OB-(Human resource, contingency, systems, productivity), OB model. Personality –(nature, determinants of personality, personality structure, relation with OB). Perception – (definition, influencing factors, process, relation with OB).

UNIT 2 **Hours 18**

Attitudes-(components, ABC model, formation of attitude, functions, changing attitudes, attitude measurements). Learning – (definition, components, theories of learning, principles, relation with OB). Motivation – (definition, nature3,, importance, theories of motivation-– Maslow's, Herzberg's, McGregor's, behavior modification, rewards,job enrichment).

UNIT 3 **Hours 18**

Group dynamics – (nature, types of groups, motives for joining groups, group life cycle, advantages of groups in organizations, pitfalls of groups, determinants of group behavior, group behavior and OB. Conflict – [levels-intergroup ,intragroup, interpersonal – (Transactional analysis, Johari window), intrapersonal]

UNIT 4 **Hours 12**

Organization change and development -- nature, levels, importance of change, stages in change process, types of change, factors influencing change, resistance to change, organizational development, techniques for OD, effectiveness of OD programming, managerial implications of organizational change and development. Emerging challenges

Expected Outcome: Students should have knowledge in terms of behavioral patterns in humans as well as organizations.

- Reference book : Organizational behavior – Moorhead, Griffin, Biztantr

5.5 BCAWS **Audio and Video Editing**

Credit Pattern

L:T:P = 2-1-1

Lecture hours/week = 2

Tutorial hours/week = 2

Practice hours/week = 2

Objectives : To enhance students knowledge in video and audio editing

Syllabus:

Unit 1

Hours 12

Interface of Sound Forge Software. Editing Audio, Overview of audio and the Audio Mixer,

Working with clips, channels, and tracks, Editing audio in a Timeline panel, Recording audio, Adjusting volume levels, Recording audio mixes, Panning and balancing, Editing audio in forge, Editing and mixing audio. Giving Different effects.

Unit 2 **Hours 18**

Interface Of Premier Pro, Workspaces : Workspaces, Working with Panels, Preferences, User interface, Importing of Video's and Images. Customizing workspaces. **Importing, transferring, capturing, and digitizing :** Transferring and importing files, Importing still images, Importing digital audio, Importing sequences, clip lists, libraries, and compositions, Capturing and digitizing, Capturing DVD or HDV video, Working with timeline. Introduction to Interface, Digitizing the Video Footage & Titles, Working with Timeline & Tools, Details about Transition Effects , Details about Sounding Editing , Details about Video & Sound Effects & Animation Rendering with Adobe Premiere.

Unit 3 **Hours 18**

Editing sequences and clips : Creating and changing sequences, Editing multi-camera sequences, Synchronizing audio and video with Merge Clips, Trimming clips, Working with clips in a sequence, Rearranging clips in a sequence, Importing sequences, clip lists, libraries, and compositions, Rendering and previewing sequences, Correcting mistakes, Working with tools.

Unit 4 : **Hours 12**

Titling and the Titler:Creating and editing titles, Creating and formatting text in titles, Drawing shapes in titles, Add images to titles, Working with text and objects in titles, Fills, strokes, and shadows in titles, Titler text styles, Rolling and crawling titles. **Effects and transitions,** Applying, removing, finding, and organizing effects, Viewing and adjusting effects and keyframes, Motion: position, scale, and rotate a clip, Modifying and customizing transitions.

Expected Outcome : Students should be able to do video/audio editing using Softwares.

Refference books : The Technical of Film Editing, Learn Complete Audio and Video Editing.

5.6 BCAWS **Preparation for Project Work (6.4 BCAWS)**

Credit Pattern

L:T:P = 0-1-1

Tutorial hours/week = 2

Practice for hours/week = 2

All Units are of equal weights

Objectives: To enhance students knowledge in the Project.

Unit : 1

Unit : 2

Unit : 3

Unit : 4

Objectives: To familiarize the students with issues on Project.

6.1 BCAWS **Unix** Credit Pattern

L:T:P = 2-1-1

Lecture hours/week = 2

Tutorial hours/week = 2

Practice hours/week = 2

All Units are of equal weights

Objectives : To enable students knowledge in basis of shell program in UNIX.

Syllabus :

Hours 14

Unit - I

Introduction: History, salient features, Unix system architecture, Unix command format, Unix internal and external commands, Directory commands, File related commands, Disk related commands, general utilities. Unix File System: Boot inode, super and data block, in-core structure, Directories, conversion of pathname to inode, inode to a new file, Disk block allocation. Process Management: Process state and data structures of a Process, User vs, kernel node, context of a Process, background processes, Process scheduling commands, Process terminating and examining commands.

Unit - II **Hours 16**

Secondary Storage Management: Formatting, making file system, checking disk space, mountable file system, disk partitioning, file compression. Special Tools and Utilities: Filters, Stream editor SED and AWK, Unix system calls and library functions, Processes, signals and Interrupts, storage and compression facilities

Unix - III **Hours 15**

Shell Programming: Vi editor, shell types, shell command line processing, shell script features, executing a shell script, system and user-defined variables, expr command, shell screen interface, read and echo statement, command substitution, escape sequence characters, shell script arguments, positional parameters, test command, file test, string test, numeric test.

Unit – IV **Hours 15**

Conditional Control Structures-if statement, case statement Looping Control Structure-while, until, for, statements. Jumping Control Structures – break, continue, exit. Shell Programs covering the above concepts.

Unix System Communication: Introduction, write, read, wall commands, sending and handling mails. System Administration: Roles of a System Administrator, File System Maintenance, System Startup and Shutdown, User Management, Backup and Restore, Doemons, Domain Name System DNS, Distributed File System.

Expected Outcome: Students should be able to format files using Unix.

Reference Books:

1. Forouzan,"Unix and Shell Programming", 1st Edition,2008 Cengage Learning India

2. UNIX and Shell Programming, Archana Verma, Firewall Media.

6.2 BCAWS **Internet Programming and Cyber Law**

Credit Pattern

L:T:P = 2-1-1

Lecture hours/week = 2

Tutorial hours/week = 2

Practice hours/week = 2

All Units are of equal weights

Objectives : Students to be made aware of cyber laws and internet programming

Syllabus:

Unit 1 **Hours 12**

Introduction to Cyber Law, **Cyber law encompasses laws relating to**, Cyber Crime, Electronic signature, copyright law, trademark law, semiconductor law, patent law, Need for Cyber Law,

Unit 2 **Hours 18**

Jurisprudence of Indian Cyber Law, information Technology (Certifying Authority).

Unit 3 **Hours 18**

Evolution of key terms and concepts, data processing device or system, Logical functions, Arithmetic functions, Memory functions, Fundamentals of Cyber Law , Relevant Case Law,

Unit 4 **Hours 12**

System software can be of various types, Application software include, Computer Network, Simply put, a computer network.

Expected Outcome: Students should be aware of various laws pertaining to internet.

Reference Books : Internet Programming and Cyber La

6.3 BCAWS Mobile Application Development

Credit Pattern

L:T:P = 2-1-1

Lecture hours/week = 2

Tutorial hours/week = 2

Practice hours/week = 2

All Units are of equal weights

Objectives: To enhance students in the field of mobile applications.

Syllabus :

Unit 1 **Hours 12**

Introduction about mobile development, Introduction to, Android Applications, Android Interface.

Unit 2 **Hours 18**

Android Features , Android Environment Setup, Android Animations , Android Application Components.

Unit 3 **Hours 18**

The Drag/Drop Process, Drag Event Class, Create Android Application.

Unit 4 **Hours 12**

Android UI Layouts, Publishing Android Application, Android Image Effects.

Expected Outcome: Students should be able to create mobile apps using Android

Reference Books : Professional Mobile Application Development

6.4 BCAWS Project

Credit Pattern

L:T:P = 0-1-3

Lecture hours/week = 0

Tutorial hours/week = 2

Practice hours/week = 6

Objectives : To enable the student to absorb industry practices in their specialization thru' internship.

Expected Outcome : The students should have experienced actual industry conditions and would be ready for full time assignments