

**Syllabus for Computer Science
For B.Sc Programme under Choice Based Credit System
B.Sc (Computer Science) – III Year (VI SEMESTER)**

SOFTWARE ENGINEERING (Core Subject)

Theory: 4 credits (4 Hours/Week)

Practical: 1 Credit (2 Hours/week)

UNIT-I

SOFTWARE ENGINEERING: The Nature of Software, Changing Nature of Software, Defining the Discipline, Software Process, Software Engineering Practice.

THE SOFTWARE PROCESS: A Generic Process Model, Defining a Framework Activity, Process Assessment and Improvement, Prescriptive Process Models, Specialized Process Models, Unified Process, Defining Agility, Agile Process, Extreme Programming,

UNIT – II

MODELLING: Principles that guide Practice - Core Principles - Principles that guide each framework activity.-Communication principles, Planning principles, Modelling principles, Construction principles, Deployment principles.

REQUIREMENTS: Requirements Engineering, Establishing the Groundwork, Eliciting Requirements, Building the Requirements model, Negotiating requirements, validating requirements.

UNIT-III:

DESIGN CONCEPTS: Design within the Context of SE, Design Process, Design Concepts. ARCHITECTURAL DESIGN: Software Architecture, Architectural Styles, Architectural Design. COMPONENT DESIGN: Designing Class-Based Components, Conducting Component-Level Design.

UNIT-IV

UNIFIED MODELLING LANGUAGE: UML introduction, Use case diagrams, Activity diagrams, ,class diagrams, sequence diagrams, component diagrams, interaction diagrams, composite structure diagrams, state machine diagrams, timing diagrams, object diagrams, package diagrams, deployment diagrams.

TEXT BOOK

1. ROGER S PRESSMAN, B R MAXIM, SOFTWARE ENGINEERING–A PRACTITIONER’S APPROACH (8E)
2. GRADY BOOCH, JAMES RUMBAUGH, IVAR JACOBSON : THE UNIFIED MODELING LANGUAGE USER GUIDE, PEARSON EDUCATION

REFERENCE BOOKS

1. SOFTWARE ENGINEERING BY GHEZZI (PHI)
2. SOFTWARE ENGINEERING FUNDAMENTALS BY BEHFOROZ AND HUDSON OXFORD UNIVERSITY PRESS
3. GRADY BOOCH, OBJECT-ORIENTED ANALYSIS AND DESIGN WITH APPLICATIONS

SOFTWARE ENGINEERING LAB PROGRAMS

Case Studies:

Draw all UML diagrams using CASE tools (like star UML etc) for the following

1. Banking System
2. Railway Reservation System
3. Hotel management system
4. Inventory Control System
5. Library management system

Note: The teacher should define the boundaries for the above case study problems and make the practice of problems mentioned.

ELECTIVE – A - VISUAL BASIC .NET PROGRAMMING

Theory: 4 credits (4 Hours/Week)

Practical: 1 Credit (2 Hours/week)

UNIT – I:

INTRODUCTION: origin of VB.NET, Need of VB.NET, Upgrading from visual Basic 6.0 Frame work, The .NET framework and common language runtime environment, Visual Basic Integrated Development Environment

BASIC PROGRAMMING: Data types, keywords, constants and variables, using dim and import, operators in VB.NET, understanding scope and accessibility of variable, comments.

CONTROL STRUCTURES: conditional statements, if-then, if-then-else, Nested if-else, select case, looping with Do loop, for loop, for –each next loop, while loop.

UNIT – II:

OBJECT ORIENTED PROGRAMMING IN VB.NET: classes and objects, members, Events, constructors, destructors, Abstraction, Encapsulation, polymorphism, shadowing, Modules, Access modifiers, interfaces, Binding.

WORKING WITH ELEMENTS: Forms , Buttons, Labels ,Text Box , List Box, combo box , Radio button , check box , progress bar ,Date time picker , calendar , picture box , horizontal and vertical scroll bar , timer , group boxes, tool tip.

UNIT – III:

WORKING WITH WINDOWS FORMS: keyboard and mouse events, menus, built in dialog boxes and printing in depth, image list, toll bars, status and progress bar, and tab.

GRAPHICS AND FILE HANDLING: using Graphics class, File stream, file and Directory classes.

UNIT – IV:

DATA ACCESS WITH ADO.NET: Databases, Accessing Data with Server Explorer, Data Adapters and Data sets, Binding Data to controls, Navigating in Data Sets, Using SQL parameters, Handling Data bases in code, Building Applications.

TEXT BOOKS: VISUAL BASIC .NET PROGRAMMING BLACK BOOK, STEVEN HOLZNER, DREAMTECH

VISUAL BASIC .NET PROGRAMMING LAB PROGRAMS

1. Write a program to allow the user to input two integer values and then the program print the results of adding, subtracting, multiplying, and dividing among the two values.
2. Using windows form application collect the user details like first name, middle name, last name, address, gender, course name with submit and clear button. Display the user details in another form.
3. Write a program to construct calculator.
4. Write a program to work with various dialogue boxes.
5. Write a program to use MDI form and also use menu with options cut, copy and paste.
6. Write a program to simulate Traffic Signals.
7. Write a program to sort an integer array of 10 elements in ascending.
8. Write a program that determines a student's grade.
9. Write a program that simulates online examination using Database connections.
10. Write a program that demonstrates Exception Handling.
11. Write a program to generate student application form based on chosen course, subjects, student information.
12. Write a program that demonstrates files.
13. Write a program to display, add, delete and navigate the records of students in your class.(use student Data Base)
14. Write a program that constructs a class Employee, and displays Employee Data and calculates DA, HRA , Tax and Gross Salary (use constructor and destructor)
15. Write a program to add, remove and search elements in the list.
16. Write a program for each that demonstrate the following controls
17. Date time picker
18. Calendar
19. group Box
20. Write a program to demonstrate keyboard and mouse events.
21. Write a program to add or remove images with the help of image list control.
22. Write a program to demonstrate the status and progress bar.
23. Write a program to demonstrate the steps used in tool bar.

ELECTIVE – B – WEB TECHNOLOGIES

Theory: 4 credits (4 Hours/Week)

Practical: 1 Credit (2 Hours/week)

UNIT – I : HTML: Introduction to Markup Languages, common tags, headers, text styles, Linking, Text Formatting, types of Lists, Tables, Frames , Images and anchors.

Layouts: Backgrounds, colors and text, Layout with table, Advanced Layouts: Frames and Layers.

DYNAMIC HTML: Cascading Style Sheets: Inline styles,CSS with STYLE element, Conflicting Styles, Linking External Sylte sheets, Positioning elements, Text flow and box model.

UNIT – II: DYNAMIC HTML: Object Model and Collections: Object referencing, Collections *all* and *children*, Dynamic styles and positioning, Using the frame collection.

Event Model: onclick, onload, onerror, onmousemove, onmouseover, onmouseout

Filters and Transitions: flipv, fliph,chroma,image masks, image filters, adding shadows to text, creating gradients with alpa, making text glow, motion with blur, wave filter, drop shadow and light

Data binding with Tabular Data control: Introduction, simple data binding, moving a record set, binding to an image and table, sorting table data.

UNIT – III: JavaScript- Introduction, simple programming, Obtaining User Input with prompt Dialogs, Operators(arithmetic, Decision making, assignment, logical, increment and decrement) Control Structures - if... else selection statement, while, do... while repetitions statement, for statement, switch statement, break and continue statements. Functions – program modules in JavaScript, programmer defined functions, function definition, Random-number generator, scope rules, global functions, recursion, JavaScript: Arrays.

UNIT – IV: JavaScript: Objects – Math Object, String Object, Date Object, Boolean & Number Object, document and window Objects. Event Model – onclick, onload, onerror, onmouseover, onmouseout, onfocus, onblur, onsubmit, onreset, more DHTML events. Filter and Transitions – flipv, fliph, chroma, masks, invert, gray, xray, shadow to text, alpha, glow, wave, dropshadow, light, blendTrans, revealTrans.

TEXT BOOK: INTERNET AND WORLD WIDE WEB: H.M.Deitel & P.J.Deitel , 5th EDITION

WEB TECHNOLOGIES LAB PROGRAMS

Programs of all the Concepts from Text Book including exercises must be practice and execute. Faculty must take care about UG Standard Programs. In the external lab examination student has to execute two programs with compilation and deployment steps are necessary.

- 1.a. Write a HTML program using basic text formatting tags, <p>,
, <pre>.
- b. Write a HTML page for Example Cafe using above text formatting tags.
- 2.a. Write a HTML program using presentational element tags , <i>, <strike>, <sup>, <sub>, <big>, <small>, <hr>
- b. Write a HTML program using phrase element tags <blockquote>, <cite>, <abbr>, <acronym>, <kbd>, <address>
- 3.a. Write a HTML program using different list types.
- b. Write a HTML page that displays ingredients and instructions to prepare a recipe.
- 4.a. Write a HTML program using grouping elements <div> and .
- b. Write a HTML Menu page for Example cafe site.
- 5.a. Write a HTML program using images, audios, videos.
- b. Write a HTML program to create your time table.
6. Write a HTML program to create a form using text inputs, password inputs, multiple line text input, buttons, check boxes, radio buttons, select boxes, file select boxes.
7. Write a HTML program to create frames and links between frames.
8. Write a HTML program to create different types of style sheets.
9. Write a HTML program to create CSS on links, lists, tables and generated content.
10. Write a HTML program to create your college web site using multi column layouts.
11. Write a HTML program to create login form and verify username and password.
13. a. Write a JavaScript program to calculate area of rectangle using function.
- b. Write a JavaScript program to wish good morning, good afternoon, good evening depending on the current time.
14. a. Write a JavaScript program using switch case?
- b. Write a JavaScript program to print multiplication table of given number using loop.
15. a. Write a JavaScript programs using any 5 events.
- b. Write a JavaScript program using JavaScript built in objects.
16. Write a JavaScript program to create registration Form with Validations.