22CS102	SOFTWARE DEVELOPMENT PRACTICES (Theory Course with Laboratory Component)	L	T	P	C
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OBJECTIVES:

- To discuss the essence of agile development methods.
- To set up and create a GitHub repository.
- To create interactive websites using HTML
- To design interactive websites using CSS.
- To develop dynamic web page using Java script.

UNIT I	AGILE SOFTWARE DEVELOPMENT, Git AND GitHub	15

Software Engineering Practices – Waterfall Model - Agility – Agile Process – Extreme Programming - Agile Process Models – Adaptive Software Development – Scrum – Dynamic Systems Development Method – Crystal – Feature Driven Development – Lean Software Development – Agile Modeling – Agile Unified Process – Tool set for Agile Process.

Introduction to Git – Setting up a Git Repository - Recording Changes to the Repository - Viewing the Commit History - Undoing Things - Working with Remotes -Tagging - Git Aliases - Git Branching - Branches in a Nutshell - Basic Branching and Merging - Branch Management - Branching Workflows - Remote Branches - Rebasing.

Introduction to GitHub – Set up and Configuration - Contribution to Projects, Maintaining a Project – Scripting GitHub.

UNIT II	HTML	15

Introduction – Web Basics – Multitier Application Architecture – Cline-Side Scripting versus Server-side Scripting – HTML5 – Headings – Linking – Images – Special Characters and Horizontal Rules – Lists – Tables – Forms – Internal Linking – meta Elements – Form input Types – input and datalist Elements – Page-Structure Elements.

UNIT III	CSS	15

Inline Styles – Embedded Style Sheets – Conflicting Styles – Linking External Style Sheets – Positioning Elements – Backgrounds – Element Dimensions – Box Model and Text Flow – Media Types and Media Queries – Drop-Down Menus – Text Shadows – Rounded Corners – Color – Box Shadows – Linear Gradients – Radial Gradients – Multiple Background Images – Image Borders – Animations – Transitions and Transformations – Flexible Box Layout Module – Multicolumn Layout.

UNIT IV	JAVASCRIPT BASICS	15

Introduction to Scripting – Obtaining user input – Memory Concepts – Arithmetic – Decision Making: Equality and Relational Operators – JavaScript Control Statements – Functions – Program Modules – Programmer-defined functions – Scope rules – functions – Recursion – Arrays – Declaring and Allocating Arrays – References and Reference Parameters – Passing Arrays to Functions – Multidimensional arrays.

UNIT V	JAVASCRIPT OBJECTS	15

Objects – Math, String, Date, Boolean and Number, Document Object – Using JSON to Represent objects – DOM: Objects and Collections – Event Handling.

Indicative List of Experiments:

1. Form a Team, Decide on a project:
    a) Create a repository in github for the team.
    b) Choose and follow a git workflow
        - Each team member can create a StudentName.txt file with contents about themselves and the team project

- Each team member can create a branch, commit the file with a proper commit message and push the branch to remote github repository.
- Team members can now create a Pull request to merge the branch to master branch or main development branch.
- The Pull request can have two reviewers, one peer team member and one faculty. Reviewers can give atleast one comment for Pull Request updation.
- Once pull request is reviewed and merged, the master or main development branch will have files createdby all team members.

2. Create a web page with atleast three links to different web pages. Each of the web page is to be designed by a team member. Follow Git workflow, pull request and peer reviews.
3. Create web pages using the following:
    - Tables and Lists
    - Image map
    - Forms and Form elements
    - Frames
4. Apply Cascading style sheets for the web pages created.
5. Form Validation (Date, Email, User name, Password and Number validation) using JavaScript.
6. Implement Event Handling in the web pages.
7. Mini Projects-Develop any one of the following web applications (not limited to one) using above technologies.
    a. Online assessment system
    b. Ticket reservation system
    c. Online shopping
    d. Student management system
    e. Student result management system
    f. Library management
    g. Hospital management
    h. Attendance management system
    i. Examination automation system
    j. Web based chat application

TOTAL: 45+30 = 75 PERIODS

OUTCOMES:

At the end of this course, the students will be able to:

CO1: Apply agile development methods in software development practices.
CO2: Set up and create a GitHub repository.
CO3: Develop static and dynamic webpages using HTML.
CO4: Design interactive personal or professional webpages using CSS.
CO5: Develop web pages using Java script with event-handling mechanism.

TEXT BOOKS:

1. Roger S. Pressman, “Software Engineering: A Practitioner‘s Approach”, McGraw Hill International Edition, Nineth Edition, 2020.
2. Scott Chacon, Ben Straub, “Pro GIT”, Apress Publisher, 3rd Edition, 2014.
3. Deitel and Deitel and Nieto, “Internet and World Wide Web - How to Program”, Pearson, 5th Edition, 2018.

REFERENCES:

1. Roman Pichler, “Agile Product Management with Scrum Creating Products that

Customers Love", Pearson Education, 1 st Edition, 2010.
2. Jeffrey C and Jackson, "Web Technologies A Computer Science Perspective", Pearson Education, 2011.
3. Stephen Wynkoop and John Burke, "Running a Perfect Website", QUE, 2nd Edition, 1999.
4. Chris Bates, "Web Programming – Building Intranet Applications", 3rd Edition, Wiley Publications, 2009.
5. Gopalan N.P. and Akilandeswari J., "Web Technology", Second Edition, Prentice Hall of India, 2014.
6. https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_013382690411003904735_shared/overview
7. https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_013094421427470336209 9_shared/overview