Daffodil International University

Department of Computer Science and Engineering

Lab Manual

Version: 2022.05

Course Code: CSE 415
Course Title: Web Engineering

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Course Intended Learning Outcome:

(1) Be able to understand the concepts, principles and methods of Web engineering.
(2) Be able to apply the concepts, principles, and methods of Web engineering to Web applications development.
(3) Learn and use some of the client-side and server-side languages used to manipulate information on the World Wide Web – i.e. ASP.NET, and JavaScript.
(4) Be familiar with Web technologies and environments currently available on the market.
(5) Develop a web application using server side programming languages and components.

Tools: Dreamwaver**,** Notepad++, Xampp Server, online documents etc.

Session 1: Introduction with web Engineering and web technology and HTML (Week 1-Week2)

Intended Learning Outcome: By end the end of this session**,** students are expected to deeply understand the basic & advanced things of HTML.

Session Topics:

- ✓ Web Servers, web browsers
- ✓ HTML Introduction
- ✓ HTML Syntax
- ✓ HTML Head, Title
- ✓ HTML Attributes, Headings, Paragraphs
- ✓ HTML Links, Images
- ✓ HTML Comments, Styles, Color, Tables
- ✓ HTML Forms & its design etc.
- ✓ Create web pages purely with HTML code.

Possible Weekly Breakdown:

Week No	Topics	Expected Learning Outcome	Assessments (ASSN/CT/Mid/Final)
#WK-01	Introduction to web servers and web browsers and mark-up language (HTML).	a. Analysis some web browsers and study with web servers. b. Create a simple page with HTML	2/3 problems related to discussion in the class
#WK-02	Create web pages purely with HTML code.	a. Create web pages using different HTML tags b. Table formatting using HTML code.	2/3 problems related to discussion in the class

Lab Exercise: 2/3 problems related to discussion in the class

Session 2: Introduction with CSS and implementation with HTML (Week 3-Week 6)

Intended Learning Outcome: By end the end of this session**,** students are expected to gain working knowledge of how to use cascading style sheets (CSS) to specify various aspects of style, such as colors and text fonts and sizes, in HTML documents.

Session Topics:

- ✓ CSS Introduction
- ✓ CSS Syntax, Layout
- ✓ CSS Color, Background, Margin, Padding
- ✓ CSS Text, Font, Icon, Link
- ✓ CSS Position, Alignment
- ✓ Create a web page to show application of CSS file.
- ✓ Apply CSS into various web pages and verify it's applications

Possible Weekly Breakdown:

Week No	Topics	Expected Learning Outcome	Assessments (ASSN/CT/Mid/Final)
#WK-03	Create a web page to show application of CSS file.	a. Design a personal resume with HTML and CSS b. Apply CSS into various web pages and verify it's applications	Design personal resume and hosting it into servers.
#WK-04	Create a web page to show application of form controls.	a. Develop web pages with several functionality. b. Design a sign-up form with validation with HTML	Improve the design for personal resume.(Unique Attempt).
#WK-05	Create a responsive design.	A.Apply CSS properties for responsive design/page.	Add Responsive features.
#WK-06	Create CSS Animations.	a.Apply CSS animation properties for improve web pages.	Add animation and Project proposal.

Lab Exercise: 4/5 problems related to discussion in the class, Design personal resume, Project Proposal

Session 3: Basics on Server side language (Week 6-Week 7)

Intended Learning Outcome: By end the end of this session**,** students are expected to gain working knowledge of a very convenient, flexible server-side language: PHP including fundamental programming concepts such as data types, functions, control flow, and more.

Session Topics:

- ✓ PHP Introduction
- ✓ PHP Syntax
- ✓ PHP Variable, Echo, Data Types
- ✓ PHP String, Constant, Operators
- ✓ PHP If-Else, Switch, While, For Loops
- ✓ PHP Form Handling & Validation
- ✓ Connecting website with server using PHP
- ✓ Retrieving, Inserting, Deleting or Updating data using PHP

Possible Weekly Breakdown:

Week No	Topics	Expected Learning Outcome	Assessments (ASSN/CT/Mid/Final)
#WK-06	a. Form validation and file handling in PHP. b. PHP user management system	a. PHP form and file management b. PHP user management system	Create form and validate it and then have to submit
#WK-07	Experiment on database connection and session and cookies in PHP.	a. PHP sessions and MySQL database management. b. Database manipulation with PHP	2/3 problems related to discussion in the class Project Update

Lab Exercise: 2/3 problems related to discussion in the class, Form creation & validation.

Session 4: Server side language implementation with websites. (Week 8)

Intended Learning Outcome: By end the end of this session**,** students are expected to gain working knowledge of fundamental programming concepts of JavaScript including data types, functions, loops, control flow, and objects. In the end, you'll get a chance to put everything together to build your own game!

Session Topics:

- ✓ JavaScript Introduction
- ✓ JavaScript Syntax
- ✓ JavaScript Basics Variables, Operators, Arithmetic etc

Possible Weekly Breakdown:

Week No	Topics	Expected Learning Outcome	Assessments (ASSN/CT/Mid/Final)
#WK-08	Study of JavaScript and applying JavaScript into web pages.	a. Create some features that are integrated in web page with JavaScript b. Creating and reading cookies using JavaScript	2/3 problems related to discussion in the class

Lab Exercise: 2/3 problems related to discussion in the class

Session 5: Front end and server side integration (Week 9- Week 12)

Intended Learning Outcome: By end the end of this session**,** students are expected to create a web page with HTML, CSS & JavaScript combined. They should also get a general idea about JSON & JavaScript all in one HTML file.

Session Topics:

- ✓ HTML,CSS,JavaScript combined
- ✓ JSON

Possible Weekly Breakdown:

Week No	Topics	Expected Learning Outcome	Assessments (ASSN/CT/Mid/Final)
#WK: 09-12	Create a web page with HTML, CSS and JavaScript.	a. Web programming with JSON and JavaScript code all in one in HTML file.	Project Update

Session 6: Introduction with several frameworks (Week 13-14)

Intended Learning Outcome: By end the end of this session**,** students are expected to gain knowledge about various frameworks.

Session Topics:

- ✓ Different frameworks
- ✓ Project Integration

Possible Weekly Breakdown:

Week No	Topics	Expected Learning Outcome	Assessments (ASSN/CT/Mid/Final)
#WK-13 &14	Study with framework	a. An introduction to PHP and others framework b. Can familiar with several framework	Assignment of study of some frameworks and its functionality

Lab Exercise: Assignment of study of some frameworks and its functionality

Session 7: Project integration and presentation (Week 15-Week 16)

Intended Learning Outcome: Since this is the project demonstration session, teams will be able watch each other's work and gain valuable knowledge on web engineering.

Possible Weekly Breakdown:

Week No	Topics	Expected Learning Outcome	Assessments (ASSN/CT/Mid/Final)
#WK-15	Working for the team project and prepare demo	Demonstration of the team project.	Project Update
#WK-16	Working for the team project	Lab performance appraisal based on Project Work	Final Project Submission

Text Book(s)

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1. Web Engineering: A Practitioner's Approach by Roger S. Pressman, David Lowe.
2. PHP and MySQL Web Development (5th Edition) (Developer's Library) by Luke Welling and Laura Thomson.

Reference Book(s):

1. Web Engineering: The Discipline of Systematic Development of Web Applications by Gerti Kappel, Birgit Proll, Seigfried Reich and Werner Retschitzegger.
2. Learning PHP, MySQL and JavaScript with JQUERY, CSS and HTML5 by Robin Nixon.
3. Online Tutorials.

NB: Duration of class, class test and presentation may vary depending on the situation.