	Daffodil International University **Department of Computer Science and Engineering (CSE)** **Course Outline**		
Course Code:	CSE 414 & 415		
Course Title:	Web Engineering & Lab		
Program:	B.Sc. in CSE		
Faculty:	Faculty of Science and Information Technology (FSIT)		
Semester:	Spring	**Year:**	2022
Credit:	3.00 + 1.00	**Contact Hour:**	1:30hr/Week + 3.00 hr/week
Course Level:	L4T1	**Prerequisite:**	CSE 333
Course Category:	Core Engineering		
Instructor Name:	Sharmin Akter (SNA)		
Designation:	Lecturer		
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Course Rationale (from syllabus)/Rational: Internet and Web become an integral part of human life. It exists in every possible dimension which makes this art essential to learn. This course studies both theoretical and practical approaches to Web Engineering through various real life problems & solutions. And how state of the art technologies can be learned and used later.

Introduction to the Web and Internet; Requirement Engineering; Client-side development using HTML, CSS, JS; Server-side development with PHP with MySQL; Testing; MVC framework; A brief overview of other latest technology (independent topics).

Course Learning Outcome: (at the end of the course, students will be able to do:)

CLO1	Have an understanding of different programming techniques, protocols available for development
CLO2	Have the abilities to analyse and describe the system requirements
CLO3	Taking critical decision regarding client and server-side development
CLO4	Be able to evaluate existing systems and build new systems by applying state of the art technology

Mapping of Course Learning Outcomes to Program Learning Outcomes [attainment level used for COs from 1(weak)-3(strong) correlation]

PLO's / CO's	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO 10	PLO 11	PO12
CO1		2										
CO2			1	3								
CO3			3		3							
CO4												3

Teaching and Learning Activities (TLA)

TLA1	Lectures twice a week using multimedia of different topics.
TLA2	Active discussion in class regarding efficient solving of the logical and mathematical problems.
TLA3	Group discussion and presentation regarding diverse problems and corresponding lectures.
TLA4	Evaluation of class performances to reach each student in a class for every topic.

Course Plan/Lesson Plan

Week/Lessen (hour)	**Discussion Topic & Book Reference**	**Student Activities during Online/Onsite, TLAs**	**Mapping with CLO, Assessments**
Week 1 Lesson 1 (1.5)	Lesson-1: Overview, Internet and the Web, Distributed Systems (Ref- Kurose: Ch. 1)	Lession-1: Online/Onsite discussion; Review Feedback online; Using Interactive content e.g. Voice over PPT, PPT, Video, H5P; **TLA1**	CLO1, CLO2
	Lesson-1: Client-Server Paradigm, Requirement Engineering (Ref- Sommerville: Ch. 4, 8, 22)	Lession-1: Online/Onsite discussion; Review Feedback online; Using Interactive content e.g. Voice over PPT, PPT, Video, H5P; **TLA1, TLA4**	
Lab Session 1 (3.0)	Lab 01: Introduction to the Web Engineering and different tools.	Lab 01: Intro to different tools/IDEs/editors.	
Week 2 Lesson 1 (1.5)	Lession-1: Testing and Project Discussion (Ref- Sommerville: Ch. 8)	Lession-1: Online/Onsite discussion; Review Feedback online; Using Interactive content e.g. Voice over PPT, PPT, Video, H5P; **TLA1**	CLO3,CLO4 **Assignment#1** on HTML, CSS(due by Week 4) Project Team and topic finalization
	Lession-1: HTML (Part 1)- HTTP, Basic HTML (Ref-M Schafer: Ch. 1, 2, 3, 4, Kurose: Ch 2 , P. 98-114)	Lession-1: Online/Onsite discussion; Review Feedback online; Using Interactive content e.g. Voice over PPT, PPT, Video, H5P; **TLA1**	
Lab Session 2 (3.0)	Lab 02: Working with HTML	Lab 02: Writing Basic webpage using mark-up language	
Week 3 Lesson 1 (1.5)	Lession-1: HTML (Part 2): HTML Elements (Ref-M Schafer: Ch. 1, 2, 3, 4	Lession-1: Online/Onsite discussion; Review Feedback online; Using Interactive content e.g. Voice over PPT, PPT, Video, H5P; **TLA1**	CLO3,CLO4

	Kurose: Ch 2, P. 98-114)		
	Lession-1: CSS (Part 1): Different types of Stylesheet (Ref-M Schafer: Ch. 12, 13, 14 , 15, 16, 17, 18)	Lession-1: Online/Onsite discussion; Review Feedback online; Using Interactive content e.g. Voice over PPT, PPT, Video, H5P; **TLA1**	
Lab Session 3 (3.0)	Lab 03: Working with CSS	Lab 03: Applying design to html Elements	
Week 4 Lesson 1 (1.5)	Lession-1: CSS (Part 2): Layout (Ref-M Schafer: Ch. 12, 13, 14 , 15, 16, 17, 18)	Lession-1: Online/Onsite discussion; Review Feedback online; Using Interactive content e.g. Voice over PPT, PPT, Video, H5P; **TLA1**	CLO3, CLO4 **Class Test#1** (online/onsite based on Week1-Week3 discussion) based on CLO1, CLO2
	Lession-1: Cont'd	Lession-1: Online/Onsite discussion; Review Feedback online; Using Interactive content e.g. Voice over PPT, PPT, Video, H5P; **TLA1** **Assignment-1 submission through LMS/BLC**	
Lab Session 4 (3.0)	Lab 04: Creating Layout	Lab 04: Creating layout/responsive webpage	
Week 5 Lesson 1 (1.5)	Lession-1: JavaScript(Part-1): Basic JS and Libraries (Ref-M Schafer: Ch. 19, 20)	Lession-1: Online/Onsite discussion; Review Feedback online; Using Interactive content e.g. Voice over PPT, PPT, Video, H5P; **TLA1, TLA2**	CLO3, CLO4 **Assignment#2** on JS(due by Week 6)
	Lession-1: JavaScript(Part-2): Window Object, DOM, Events, Forms (Ref-M Schafer: Ch. 19, 20, 22)	Lession-1: Online/Onsite discussion; Review Feedback online; Using Interactive content e.g. Voice over PPT, PPT, Video, H5P; **TLA1 ,TLA4**	
Lab Session 5 (3.0)	Lab 05: Working with JS	Lab 05: Client-side programming and solving problems with JS	
Week 6 Lesson 1 (1.5)	Lession-1: Practice Problems on front-end programming (Ref-M Schafer: Ch. 9)	Lession-1: Online/Onsite discussion; Review Feedback online; Using Interactive content e.g. Voice over PPT, PPT, Video, H5P; **TLA1, TLA2**	CLO3, CLO4 **Class Test#2** (online/onsite based on Week 4-Week5
	Lession-1: Discussion on Midterm and	Lession-1: Online/Onsite discussion; Review Feedback	

	Review (Ref-M Schafer: Ch. 9)	online; Using Interactive content e.g. Voice over PPT, PPT, Video, H5P; **TLA2** **Assignment-2 submission through LMS/BLC**	discussion) based on CLO3
Lab Session 6 (3.0)	Lab 06: Working with Forms, DOM and Basic PHP	Lab 06: Using form for basic data manipulation with JS, PHP	
Week 7	MID TERM EXAM WEEK Topic: Week 1 - Week 6		
Week 8 Lesson 1 (1.5)	Lession-1: PHP (Part 1): Basic PHP (Ref-M Schafer: Ch. 29, 30)	Lession-1: Online/Onsite discussion; Review Feedback online; Using Interactive content e.g. Voice over PPT, PPT, Video, H5P; **TLA1**	CLO3,CLO4
	Lession-1: PHP (Part 2): PHP files, forms, session, Basic OOP (Ref-M Schafer: Ch. 29, 30)	Lession-1: Online/Onsite discussion; Review Feedback online; Using Interactive content e.g. Voice over PPT, PPT, Video, H5P; **TLA1**	
Lab Session 1 (3.0)	Lab 08: Working with PHP	Lab 08: Server-side programming and solving complex problems with PHP	
Week 9 Lesson 1 (1.5)	Lession-1: Discussion on DBMS, MySQL (Ref-M Schafer: Ch. 31)	Lession-1: Online/Onsite discussion; Review Feedback online; Using Interactive content e.g. Voice over PPT, PPT, Video, H5P; **TLA1**	CLO3, CLO4 **Assignment#3** on PHP, MySQL(due on Week 10)
	Lession-1: Back end programming and MySQL (Ref-M Schafer: Ch. 31)	Lession-1: Online/Onsite discussion; Review Feedback online; Using Interactive content e.g. Voice over PPT, PPT, Video, H5P; **TLA1, TLA4**	
Lab Session 1 (3.0)	Lab 09: Working with MySQL and PHP	Lab 09: Handling DBMS using MySQL	
Week 10 Lesson 1 (1.5)	Lession-1: Project Management and MVC (Ref-Sommerville: Ch. 6)	Lession-1: Online/Onsite discussion; Review Feedback online; Using Interactive content e.g. Voice over PPT, PPT, Video, H5P; **TLA1**	CLO1, CLO4 **Class Test#3** (online/onsite based on Week 8 - Week 9 discussion) based on CLO3, CLO4
	Lession-1: Cont'd discussion with problem solving (Ref-Sommerville: Ch. 6)	Lession-1: Online/Onsite discussion; Review Feedback online; Using Interactive content e.g. Voice over PPT, PPT, Video, H5P; **TLA1**	

		Assignment-3 submission through LMS/BLC	
Lab Session 1 (3.0)	Lab 10: Front end and Back end integration	Lab 10: Project Integration	
Week 11 Lesson 1 (1.5)	Lession-1: Other Technologies: JSON, XML, Ajax (Ref- Nixon: Ch 18)	Lession-1: Online/Onsite discussion; Review Feedback online; Using Interactive content e.g. Voice over PPT, PPT, Video, H5P; **TLA1,TLA2**	CLO3, CLO4 Project Presentation & Lab Evaluation
	Lession-1: Cont'd	Lession-1: Online/Onsite discussion; Review Feedback online; Using Interactive content e.g. Voice over PPT, PPT, Video, H5P; **TLA1**	
Lab Session 1 (3.0)	Lab 11: Project integration and presentation	Lab 11: Project integration and presentation	
Week 12 Lesson 1 (1.5)	Lession-1: Review on back end programming, Presentation	Lession-1: Online/Onsite discussion; Review Feedback online; Using Interactive content e.g. Voice over PPT, PPT, Video, H5P; **TLA4**	CLO3, CLO4 Project Presentation & Lab Evaluation
	Lession-1: Cont'd	Lession-1: Online/Onsite discussion; Review Feedback online; Using Interactive content e.g. Voice over PPT, PPT, Video, H5P; **TLA4**	
Lab Session 1 (3.0)	Lab 12: Project integration and presentation	Lab 12: Project integration and presentation	
Week 13	FINAL EXAM WEEK Topic: Week 1 - Week 11		

Text Books:

1. Web Standards: Programmer's Reference, Steven M. Schafer, Wiley Publishing, 2005

Reference Books:

1. Ian Sommerville, Software Engineering, 10th edition, Pearson, 2011
2. Computer Networking: A Top-Down Approach Book by Jim Kurose, 6th edition
3. N.C. Zakas, Professional Javascript for Web Developers, Wiley Publishing, 2005
4. C. Bates, Web Programming: Building Internet Applications 3rd edition, John Wiley & Sons, 2006
5. Alan Beautieu, Learning SQL, O'Reilly Media Inc., 2005M.E. Davis and J.A. Phillips, Learning PHP & MySQL, O'Reilly Media Inc., 200
6. R. Nixon: Learning PHP, MySQL & JavaScript: with jQuery, CSS & HTML5. O'Reilly, 2018.
7. S. Abeysinghe: RESTful PHP Web Services. Packt Publishing, 2008.

CIE – Breakup (Theory) [60 marks]

Bloom's Criteria	**Attendance (07)**	**Class Test (15)**	**Assignment (05)**	**Presentation (08)**	**Mid Exam (25)**
Remember		05			
Understand		05	02	02	05
Apply		05		03	05
Analyze			03		05
Evaluate					05
Create				03	05

CIE – Breakup (Lab) [100 marks]

Bloom's Criteria	**Attendance (10)**	**Lab Performance (25)**	**Lab Report (25)**	**Lab Final (40)**
Remember				
Understand		05	05	10
Apply		05	05	05
Analyze		05	05	10
Evaluate			10	05
Create		10		10

SEE – Semester End Examination [40 marks] {Theory}

Bloom Criteria	**Score for the Test**
Remember	05
Understand	05
Apply	15
Analyze	05
Evaluate	05
Create	05

Appendix-1: Program Learning Outcomes

PLOs	Category	Program Learning Outcomes
PLO1	**Engineering Knowledge**	Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.
PLO2	**Problem Analysis**	Identify, formulate, research the literature and analyze complex engineering problems and reach substantiated conclusions using first principles of mathematics, the natural sciences and the engineering sciences.
PLO3	**Design/Development of Solutions**	Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety as well as cultural, societal and environmental concerns.
PLO4	**Investigations**	Conduct investigations of complex problems, considering design of experiments, analysis and interpretation of data and synthesis of information to provide valid conclusions.
PLO5	**Modern tool usage**	Create, select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PLO6	**The engineer and society**	Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice.
PLO7	**Environment and sustainability**	Understand the impact of professional engineering solutions in societal and environmental contexts and demonstrate the knowledge of, and need for sustainable development.
PLO8	**Ethics**	Apply ethical principles and commit to professional ethics, responsibilities and the norms of the engineering practice.
PLO9	**Individual work and teamwork**	Function effectively as an individual and as a member or leader of diverse teams as well as in multidisciplinary settings.
PLO10	**Communication**	Communicate effectively about complex engineering activities with the engineering community and with society at large. Be able to comprehend and write

		effective reports, design documentation, make effective presentations and give and receive clear instructions.
PLO11	**Project management and finance**	Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work as a member or a leader of a team to manage projects in multidisciplinary environments.
PLO12	**Life Long Learning**	Recognize the need for and have the preparation and ability to engage in independent, life-long learning in the broadest context of technological change.

4. Assessment Methods (Grading System)

Numerical Grade	Letter Grade	Grade Point
80-100	A+	4.00
75-79	A	3.75
70-74	A-	3.50
65-69	B+	3.25
60-64	B	3.00
55-59	B-	2.75
50-54	C+	2.50
45-49	C	2.25
40-44	D	2.00
Less than 40	F	0.00

5. Additional Support for Students

1. Student Portal: http://studentportal.diu.edu.bd/
2. Academic Guidelines https://daffodilvarsity.edu.bd/article/academic-guidelines
3. Rules and Regulations of DIU https://daffodilvarsity.edu.bd/article/rules-and-regulation
4. Career Development Center: https://cdc.daffodilvarsity.edu.bd/
5. For general queries: http://daffodilvarsity.edu.bd/