AMERICAN INTERNATIONAL UNIVERSITY-BANGLADESH (AIUB)

Faculty of Science and Technology (FST)
Department of Computer Science (CS)
Undergraduate Program

COURSE PLAN	SEMESTER: Fall 2024-2025
I. Course Core and Title CSC 3215 Web Technologies **II. Credit** 3 credit hours (2 hours of theory and 3 hours of lab per week) **III. Nature** Core Course for CS, CSE, CSSE, CIS **IV. Prerequisite** CSC 3112: Software Engineering	**V. Vision:** Our vision is to be the preeminent Department of Computer Science through creating recognized professionals who will provide innovative solutions by leveraging contemporary research methods and development techniques of computing that is in line with the national and global context. **VI. Mission:** The mission of the Department of Computer Science of AIUB is to educate students in a student-centric dynamic learning environment; to provide advanced facilities for conducting innovative research and development to meet the challenges of the modern era of computing, and to motivate them towards a life-long learning process.

VII - Course Description

- Appreciate the increasing importance of web technologies and how it is changing the role of information technology.
- Understand what strategic web development is and apply a framework to help identify strategic uses of the internet.
- Compare the fundamental types of web technologies and how they can be used to provide real business benefit.
- Explore new technologies and issues affecting web development.
- Apply a web development approach in analyzing the role of web technology in organizations.
- Describe the process used in developing information systems and the concepts of web engineering and web process reengineering.
- Analyze the skills needed for web development professionals.
- Develop real life and society targeted web applications.

VIII - Course outcomes (CO) Matrix

By the end of this course, students should be able to:

COs*	CO Description	Level of Domain***			PO Assessed ****
		C	P	A	
CO1	**Analyze** professional engineering solutions in societal and environmental contexts	4			PO-c-1
CO2 **	**Classify** the flow of process for sustainable digital solution	4			PO-c-1
CO3 **	**Illustrate** multi-tier web application for targeted society	4			PO-c-2
CO4 **	**Develop** a multi-tier based web application as group member/leader in the project		4		PO-k-2

C: Cognitive; P: Psychomotor; A: Affective Domain
** CO assessment method and rubric of COs assessment is provided in later section*
*** COs will be mapped with the Program Outcomes (POs) for PO attainment*
**** The numbers under the 'Level of Domain' columns represent the level of Bloom's Taxonomy each CO corresponds to.*
***** The numbers under 'PO Assessed' column represent the POs each CO corresponds to.*

IX - Topics to be covered in the class and/or lab: *

Time Frame	CO Mapped	Topics	Teaching Activities	Assessment Strategy(s)
Week 1	CO1	OBE Discussion, HTML, HTTP, XML and XHTML	Lecture notes, question	Homework
Week 2	CO1, CO2	PHP Basics and PHP validation	Lecture, Lab Practice	Lab work, Homework
Week 3	CO1	Data Access using PHP Object	Lecture, Lab Practice	Lab work, Homework, Quiz
Week 4	CO2, CO3	PHP Session and Cookie	Lecture, Lab Practice	Homework,
Week 5	CO3	PHP & MySQL	Lecture, Lab Practice	Lab work, Homework
Week 6	CO3, CO4	PHP & MySQL Extended	Lecture, Lab Practice	Lab work, Homework, Quiz
Week 7		MVC using PHP	Lecture, Lab Practice	Homework
Midterm (Week 8)				
Week 9	CO3, CO4	Introduction to CSS	Lecture notes, question	Homework, Mini- project
Week 10	CO3	Introduction to JavaScript	Lecture notes, question	Lab work, Assignments
Week 11	CO2, CO3	JavaScript Continued	Lecture notes, question	Lab work, Quiz
Week 12	CO2, CO3	JavaScript, HTML Form Validation	Lecture notes, question	Homework, Mini- project
Week 13	CO3	AJAX	Lecture notes, question	Homework, Quiz, Mini-project
Week 14	CO3	jQuery	Lecture notes, question	Homework, Quiz, Mini- project
Week 15	CO4	Project Discussion	Lab Task	Lab work, Assignments
Final term (Week 16)				
Project Demonstration (Week 17)				

** The faculty reserves the right to change, amend, add, or delete any of the contents.*

X - Mapping of PO to Courses and K, P, A

PO Indicator ID	PO Indicators Definition (As per the requirement of WKs)	Domain	K	P	A
PO-c-1	Design solutions for component of a complex engineering problem considering public health and safety	Cognitive Level 4 (Analyzing)	K5		
PO-c-2	Develop process for complex engineering problems considering cultural and societal factors.	Cognitive Level 4 (Analyzing)	K5	P1 P3 P7	
PO-k-3	Manage multi-disciplinary components of a computer science and engineering project as a member/leader	Psychomotor Level 4 (Articulation)			

XI – K, P, A Definitions

Indicator	Title	Description
K5	Engineering Design	Knowledge that supports engineering design in a practice area
P1	Depth of knowledge required	Cannot be resolved without in-depth engineering knowledge at the level of one or more of K3, K4, K5, K6 or K8 which allows a fundamentals-based, first principles analytical approach
P3	Depth of analysis required	Have no obvious solution and require abstract thinking, originality in analysis to formulate suitable models
P7	Interdependence	Are high level problems including many component parts or sub-problems

XII – Mapping of CO Assessment Method and Rubric

The mapping between Course Outcome(s) (COs) and The Selected Assessment method(s) and the mapping between Assessment method(s) and Evaluation Rubric(s) is shown below:

COs	Description	Mapped POs	Assessment Method	Assessment Rubric
CO1	**Analyze** professional engineering solutions in societal and environmental contexts	PO-c-1	Project Report	Rubric for Project Report
CO2	**Classify** the flow of process for sustainable digital solution	PO-c-1	Project Report	Rubric for Project Report
CO3	**Illustrate** multi-tier web application for targeted society	PO-c-2	Lab Exam	Rubric for Lab Exam
CO4	**Develop** a multi-tier based web application as group member/leader in the project	PO-k-3	Project and Viva	Rubric for Project and Viva

XIII – Evaluation and Assessment Criteria

CO1 [PO-c1]: Analyze professional engineering solutions in societal and environmental contexts				
Assessment Attribute/Criteria	**Missing/Incorrect (0)**	**Inadequate (1)**	**Satisfactory (2)**	**Excellent (3)**
Project Proposal	No project proposal provided or contains major inaccuracies that deviate from the assignment requirements.	The project proposal is present but lacks clarity, coherence, or essential components. There may be significant omissions or errors that hinder understanding.	The project proposal is clear, well-structured, and contains all the necessary elements. It effectively communicates the scope, objectives, and idea proposed project.	The project proposal is exceptionally well-crafted. It demonstrates a thorough understanding of the project's goals, potential outcomes and followed the instruction given in the manual.
Background Study	No background study is provided, or the information presented is factually incorrect or irrelevant to the project.	The background study is present but lacks depth or fails to connect the relevant literature to the proposed project. It may contain inaccuracies or insufficient information.	The background study provides a solid foundation for the proposed project. It accurately summarizes existing knowledge related to the topic and demonstrates an understanding of relevant theories or concepts.	The background study is comprehensive, well-researched, and effectively integrates various sources. It goes beyond the basics, offering insightful analyses, connections, and a clear justification for the chosen project.
Requirement Analysis	No requirements analysis is presented, or the analysis provided is inaccurate or irrelevant to the project.	The requirement analysis is present but lacks depth or fails to identify essential project requirements. It may contain inaccuracies or insufficient information.	The requirement analysis is clear, identifies key project requirements, and demonstrates a good understanding of the technological needs of the project.	The requirement analysis is exceptionally thorough, covering all necessary aspects of the project. It not only identifies requirements but also considers potential challenges and proposes effective solutions. It showcases a deep understanding of the technological landscape relevant to the project.

CO2 [PO-c1]: Compare the flow of process for sustainable digital solution				
Assessment Attribute/Criteria	**Missing/Incorrect (0)**	**Inadequate (1)**	**Satisfactory (2)**	**Excellent (3)**
Data Validation	No Data Validation is provided or contained in the report.	Data Validation is done but there are lacks of objects or concepts that represent important data.	The Data Validation is completed, well-structured, and contains all the necessary attributes.	The Data Validation is drawn exceptionally well. It demonstrates a thorough understanding of the project's goals, followed the instruction given in the manual.

Logical Analysis	Lacks logical coherence or analysis. The proposal contains random or disconnected ideas without a clear flow of thought or reasoning.	Shows some attempt at logical analysis but lacks depth or consistency. Arguments may be weak or unsupported.	Demonstrates logical analysis by presenting coherent arguments and reasoning. Ideas are logically organized, and there is a clear progression of thought throughout the proposal.	Provides insightful and well-structured logical analysis. Arguments are robust, supported by evidence, and lead to logical conclusions

CO3 [PO-c2]: Illustrate multi-tier web application for targeted society				
Assessment Attribute/Criteria	**Missing/Incorrect (0)**	**Inadequate (1)**	**Satisfactory (2)**	**Excellent (3)**
Completeness	No web application is developed or completed to show.	The web application is developed or completed but doesn't meet the project requirements or has insufficient features.	The web application is completed and demonstrates a good understanding of the technological needs of the project for society.	The features are exceptionally done, covering all necessary aspects of the project for the specific society. It not only completes all ER-Diagram features but also solves other challenges. It solves the problem for the targeted society in a sustainable way.
Code Structure	No code structure is provided, or the code structure presented is entirely incorrect.	The code structure is present but lacks organization or adherence to best practices	Demonstrates a well-organized and reasonably structured codebase. Follows established coding conventions and best practices.	Exhibits exemplary code structure characterized by meticulous organization, clarity, and adherence to best practices.
Feature Implementation	No Feature is implemented.	A small number of features is completed.	Feature implementation is done according to the requirements and explains the implementation process well.	Feature implementation is done exceptionally well according to the requirements and Extra feature is implemented like- SMTP server.

CO4 [PO-k2]: Develop a multi-tier based web application as group member/leader in the project				
Assessment Attribute/Criteria	**Missing/Incorrect (0)**	**Inadequate (1)**	**Satisfactory (2)**	**Excellent (3)**
Collaborative Teamwork	Makes no technical contribution to the development of the multi-tier based web application and does not engage in GitHub collaboration.	Makes limited or superficial technical contributions to the project, with minimal involvement in coding, testing, or debugging tasks. Shows little to no engagement with	Engages moderately in GitHub collaboration, such as pushing code, reviewing pull requests, and resolving issues.	Demonstrates exceptional technical proficiency and actively engages in GitHub collaboration, demonstrating effective version control practices, providing constructive feedback on pull requests, and

		GitHub collaboration.		actively participating in project discussions.
Communication/Promptness	Missing during presentation or Demonstrates poor communication skills and consistently misses deadlines.	Displays limited communication skills during the presentation. responds adequately to questions but may struggle with complex inquiries.	Communicates effectively during the presentation, addresses questions confidently and provides relevant answers. Adheres to the allotted presentation time.	Demonstrates exceptional communication skills during the presentation, captivating the audience with clear, concise, and engaging delivery.
Technical Knowledge	Demonstrates a lack of understanding of essential web technology concepts and tools relevant to the project. Unable to contribute meaningfully to technical discussions or tasks.	Displays basic knowledge of web technology concepts but lacks depth or expertise in applying them to the project. Requires significant guidance and supervision to complete technical tasks.	Exhibits a solid understanding of web technology concepts and tools relevant to the project. Able to independently perform technical tasks and contribute effectively to technical discussions.	Demonstrates exceptional technical proficiency and expertise in web technology. Offers valuable insights and solutions to technical challenges, showcasing advanced knowledge and skills in the field.

XIV- Course Requirements

- Students are expected to attend at least 80% of the class.
- Students are expected to participate actively in the class.
- For both terms, there will be at least 2 quizzes based on the theoretical knowledge and conceptual understanding of the topic covered discussed in the classes.
- Submit report based on the given course related problems.
- Submission of assignments and projects should be in due time.

XV – Evaluation & Grading System*

The following grading system will be strictly followed in this class.

MID TERM		**FINAL TERM**	
Attendance	10%	Attendance	10%
Quiz	20%	Quiz	20%
Lab performance	20%	Lab performance	20%
Theory Exam	50%	Project	50%
Total	100%	Total	100%
Grand Total 100% = 40% of Midterm + 60% of Final Term			

Letter	Grade Point	Numerical %
A+	4.00	90-100
A	3.75	85 - < 90
B+	3.50	80 - < 85
B	3.25	75 - < 80
C+	3.00	70 - < 75
C	2.75	65 - < 70
D+	2.50	60 - < 65
D	2.25	50 - < 60
F	0.00	< 50
I		Incomplete
W		Withdrawal
UW		Unofficially Withdrawal

** The evaluation system will be strictly followed as par with the AIUB grading policy.*

** CO attainment will be achieved with 60% of the evaluation marks.*

XVI – Textbook/ References

1. W3Schools Online Web Tutorials; URL: http://www.w3schools.com
2. PHP Documentation; URL: http://www.php.net/docs.php
3. Sams Teach Yourself Ajax JavaScript and PHP All in One; Phil Ballard and Michael Moncur; Sams Publishing; 2010
4. JavaScript Phrasebook; Christian Wenz; Sams Publishing; 2007
5. PHP and MySQL Web Development, 4/E; Luke Welling and Laura Thomson; Addison- Wesley Professional; 2009
6. JavaScript for Programmers Paul J. Deitel and Harvey M. Deitel; Prentice Hall; 2009
7. Beginning PHP5, Apache, and MySQL Web Development; Elizabeth Naramore, Jason Gerner, Yann Le Scouarnec, Jeremy Stolz and Michael K. Glass; Wiley Publishing; 2005
8. XML in a Nutshell, 3/E; Elliotte Rusty Harold and W. Scott Means; O'Reilly Media; 2004

XVII - List of Faculties Teaching the Course

FACULTY NAME	SIGNATURE
Md. Al-Amin	
Nazmus Sakib Shan	
Sazzad Hossain	
MD. MUSTAK UN NOBI	

XVIII – Verification

Prepared by:	Moderated by:	Checked by:
 ------ ---------- **Sazzad Hossain** *Course Convener* Date: 15/02/2024	---------- **Dr. M. Mahmudul Hasan** *Point Of Contact* *OBE Implementation Committee* Date:.....	---------- **Dr. Akinul Islam Joney** *Head (Undergraduate Program)* *Department of Computer Science* Date:.....

Verified by:	**Certified by:**	**Approved by:**
.....	.....	.....
Dr. Md. Abdullah-Al-Jubair *Director* *Faculty of Science & Information Technology*	**Prof. Dr. Dip Nandi** *Associate Dean,* *Faculty of Science & Information Technology*	**Mr. Mashiour Rahman** *Dean,* *Faculty of Science & Information Technology*
Date:.....	Date:.....	Date:.....