AMERICAN INTERNATIONAL UNIVERSITY-BANGLADESH (AIUB)

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

COURSE PLAN

Spring 2019-2020 SEMESTER

I. Course Core and Title

CSC 3222: Web Technologies

II. Credit

3 credit hours (2 hours of theory + 3 hours of lab per week)

III. Nature

Core Course for CS, CSE, CSSE, SE, CIS

IV. Prerequisite

CSC 3115: Object Oriented Programming 2

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:

- At the end of the course, the following objectives shall have been attained
- Appreciate the increasing importance of Web technology and how it is changing the role of the information technology
- Understand what strategic web development is and apply a framework to help identify strategic uses of 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 the 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

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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	S	
CO 1	*Describe* the increasing importance of web technologies on modern society and environment.	2			CT	7.1
CO 2	*Apply* the fundamental web technologies to obtain business sustainability.		3		CT	7.2
CO 3	*Design* real life and society targeted Client-Server based Web applications.			6	TS	11.1
CO 4	*Develop* real life and society targeted Client-Server based Web applications.			6	TS	11.2

C: Cognitive; P: Psychomotor; A: Affective; S: Soft-skills (CT: Critical Thinking, TS: Teamwork)
** Mapping between COs and Rubrics along with CO wise rubrics with description are provided in the Appendix section*
*** The numbers under the 'Level of Domain' columns represent the level of Bloom's Taxonomy each CO corresponds to.*
**** The numbers under the 'PO Assessed' column represent the PO each CO corresponds to.*

IX – Topics to be covered in Theory class*:

TOPICS	Specific Objective(s)	Time Frame	Suggested Activities	Teaching Strategy(s)	CO mapped
HTML, HTTP, XML and XHTML	Informing the students about web technology and how it can help in the Business World.	Week 1	Homework on HTML. Developing personal website.	Lecture notes, question	CO1
PHP	Discussing the advantage and importance of PHP. Generate dynamic HTML with PHP	Week 2	Lecture, Lab Work and Assignments	Lecture notes, question	CO1
PHP Validation	Working with HTML form elements i.e. input validations with PHP	Week 3	Homework, Mini-project, Quiz	Lecture notes, question	CO1, CO2
Data Access using PHP	Discussing the techniques to read and write text files, XML with PHP	Week 4	Homework, Mini-project	Lecture notes, question	CO2
PHP Session and Cookie	Working with temporary storage like Array, Session & Cookie in PHP	Week 5	Homework, Mini-project, Quiz	Lecture notes, question	CO2, CO3
PHP & MySQL	Discussing the use and importance of Database, SQL and PHP.	Week 6	Homework, Mini-project	Lecture notes, question	CO4
Mid Term Exam Week Week 7					

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PHP & MySQL Extended	Further extended practice with SQL Database & PHP.	Week 8	Homework, Mini-project	Lecture notes, question	CO3, CO4
CSS	Discussing the use of CSS and JQuery to apply style to a HTML document.	Week 9	Lecture, Lab Work and Assignments	Lecture notes, question	CO2, CO3
JavaScript	Discussing the use and importance of JavaScript. Applying JavaScript as a client-side execution tool	Week 10	Lecture, Lab Work, Quiz	Lecture notes, question	CO2, CO3, CO4
HTML Form & JavaScript Continued	Client-side form validation using JavaScript	Week 11	Lecture, Lab Work and Assignments		CO3, CO4
AJAX	Discussing advantages of using JavaScript through AJAX and accessing JSON via AJAX	Week 12	Homework, Mini-project, Quiz	Lecture notes, question	CO2, CO3, CO4
MVC using PHP	Discussing the advantages and importance of MVC architecture	Week 9	Homework, Mini-project, Assignments	Lecture notes, question	CO3
Final Term Exam Week Week 14					

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

X- Course Requirements

At least **75% class attendance** is necessary to sit for the exam. If there is any assignment given to the students, they have to submit it before the deadline decided by the course teacher.

XI – Evaluation & Grading System

The following grading system will be strictly followed in this class

Marking Distribution (Midterm and Final term)	
Quiz	20%
Attendance	10%
Assignment & performance	10%
Lab Exam	20%
Term Project	40%
Total	100%

Final Grade/ Grand Total	
Midterm:	40%
Final Term:	60%
Grand Total	100%

Grand Total = 40% of Midterm + 60% of Final Term

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

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 (Failed)
A+	4.00	90-100
I	Incomplete	
W	Withdrawal	
UW	Unofficial Withdrawal	

XII – Teaching Methods

Maximum topics will be covered from the textbook. For the rest of the topics, reference books will be followed. Some Class notes will be uploaded on the web. White board will be used for most of the time.
For some cases, multimedia projector will be used for the convenience of the students.
Students must study up to the last lecture before coming to the class and it is suggested that they should go through the relevant chapter before coming to the class. Just being present in the class is not enough- students must participate in classroom discussions.

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XIII – 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

XIV - List of Faculties Teaching the Course

1. Sazzad Hossain (course convener)
2. Md. Al Amin
3. Mushfiqur Rahman
4. Tanvir Ahmed
5. Supta Richard Philip

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XV – Verification:

<table>
<tr><td>Prepared by:

Sazzad Hossain
Course Convener

Date:</td><td colspan="2">Moderated by:

…….
Dr. Md. Mahbub Chowdhury Mishu
Point of Contact
OBE Implementation Committee for CS

Date:</td></tr>
<tr><td>Checked by:

.....
Dr. M. M. Mahbubul Syeed
Head (Undergraduate Program)
Department of Computer Science

Date:</td><td>Certified by:

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Dr. Dip Nandi
Director,
Faculty of Science and Technology

Date:</td><td>Approved by:

.....
Mr. Mashiour Rahman
Associate Dean,
Faculty of Science and Technology

Date:</td></tr>
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APPENDIX

Program Outcomes (POs)

PO7	
Name:	Environment and sustainability
Objective:	Understand the impact of professional engineering solutions in societal and environmental contexts and demonstrate the knowledge of and need for sustainable development.
Components:	
7.1	Understand the impact of professional engineering solutions in societal and environmental contexts
7.2	Demonstrate the knowledge of and need for sustainable development.

PO11	
Name:	Environment and sustainability
Objective:	Demonstrate knowledge and understanding of engineering and management principles and apply these to one's work as a team member or a leader to manage projects in multidisciplinary environments.
Components:	
11.1	Demonstrate knowledge and understanding of engineering and management principles
11.2	Apply these to one's work as a team member or a leader to manage projects in multidisciplinary environments.

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	Learning Domain	Assessment Method	Assessment Rubric
CO1	*Describe* the increasing importance of web technologies on modern society and environment.	*Cognitive*	**Project Report**	**Rubric for Project Report**
CO2	*Apply* the fundamental web technologies to obtain business sustainability.	*Psychomotor*	**Project & Viva**	**Rubric for Project & Viva**
CO3	*Design* real life and society targeted Client-Server based Web applications.	*Affective*	**Project Report**	**Rubric for Project Report**
CO4	*Develop* real life and society targeted Client-Server based Web applications.	*Affective*	**Project & Viva**	**Rubric for Project & Viva**

CO1	Describe the increasing importance of web technologies on modern society and environment.	Cognitive	Project Report	Rubric for Project Report

Marking Criteria	Marks Distribution (Maximum 5X3=15)				Acquired Marks
	Inadequate (1-2)	Satisfactory (3)	Good (4)	Excellent (5)	
Project Proposal	• Student vaguely define the proposal. Does not have a clear idea	• Description provided with partial relevance to the subject matter.	• Correctly define the ideas. May miss minor detail.	• Comprehensively defines the ideas.	
Background Study	• No logical arguments / explanation supporting the definition.	• Offers loosely related arguments.	• Strong argument / explanation offered.	• Comprehensive argument presented to clarify the concept.	
Requirement Analysis	• No specification.	• Correctly identify / indicate towards real-life example.	• Real-life example is strongly connected towards the description. • Well defined / structured description.	• Comprehensively described with real life example. • Well documented.	
				Acquired Marks:	
				CO Pass / Fail:	

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CO2	**Apply the fundamental web technologies to obtain business sustainability.**	**Psychomotor**	**Project and Viva**	**Rubric for Project and Viva**

Criteria	Marks distribution (Max 5X3 = 15)				Acquired Marks
	Inadequate (1-2)	Satisfactory (3)	Good (4)	Excellent (5)	
Completeness	• Completed less than 50% of the requirements. • Not delivered on time or not in correct format	• Completed between 50-70% of the requirements. • Delivered on time, and in correct format	• Completed between 70-90% of the requirements. • Delivered on time, and in correct format	• Completed between 90-100% of the requirements. • Delivered on time, and in correct format	
Validation	• No use of client and server-side validation • Disorganized and messy • Absence of asynchronous communication.	• Partial use of client and server-side validation • Partially organized • Absence of asynchronous communication	• Use of client and server-side validation • Organized • Absence of asynchronous communication	• Use of client and server-side validation • Well organized • Absence of asynchronous communication	
Feature Implementation against the Requirements	• Does not execute due to errors. • User prompts are misleading or non-existent. • No testing has been completed. • Wireframed UI and no logical action flow	• Executes without errors. • User prompts contain little information, poor design with tables and bad arrangements of elements • Some testing has been completed.	• Executes without errors. • User prompts are understandable, minimum use of symbols or spacing in output. • Thorough testing has been completed.	• Executes without errors excellent user prompts, good use of symbols, spacing in output. • Thorough and organized testing has been completed and output from test cases is included. • Good UI using custom CSS / frameworks	
				Acquired Marks:	
				CO Pass/Fail:	

CO3	**Design real life and society targeted Client-Server based Web applications.**	**Psychomotor**	**Project Report**	**Rubric for Project Report**

Criteria	Marks distribution (Max 2X5 = 10)				Acquired Marks
	Inadequate (1-2)	Satisfactory (3)	Good (4)	Excellent (5)	
Entity Relationship (ER) Diagram	• No or inadequate system design and documentation.	• Student provide a basic design with no documentation for the system.	• Provide system design with adequate detail with requirement specification documentation.	• Extensive system design with Comprehensive documentation.	
System Images against the Specification	• No or inadequate system images and documentation.	• Student provide a basic system images with no documentation for the system.	• Provide system images with adequate detail with requirement specification documentation.	• Extensive system design with Comprehensive documentation. • The design offers strong mapping with the systems logical design.	
				Acquired Marks:	
				CO Pass/Fail:	

CO4	**Develop real life and society targeted Client-Server based Web applications.**	**Affective**	**Project & Viva**	**Rubric for Project & Viva**

Marking Criteria	Marks Distribution (Maximum 2X5=10)				Acquired Marks
	Inadequate (1-2)	Satisfactory (3)	Good (4)	Excellent (5)	
Concept Understanding	• Shows no understanding of the topic and no argument per the categories above	• Shows a superficial understanding of the topic, argument not developed enough per the categories above.	• Shows a limited understanding of the topic, not quite a fully developed argument per the categories above.	• Shows a deep/robust understanding of the topic with a fully developed argument per the categories above.	
Promptness	• Did not have to prompt with probing questions at all	• Prompted minimally (one or two probing questions)	• Prompted moderately (a series of probing questions)	• Prompted highly with almost all probing questions	
				Acquired Marks:	
				CO Pass / Fail:	