Course Title	:	Web Programming for e-Business
Course Code	:	CDS4010
Recommended Study Year	:	3
No. of Credits/Term	:	3
Mode of Tuition	:	Sectional Approach
Class Contact Hours	:	3 hours per week
Category in Major Prog.	:	Elective
Prerequisite(s)	:	Nil
Co-requisite	:	Nil
Exclusion	:	Nil
Exemption Requirement	:	Nil

Brief Course Description:

E-Business is the conduct of business processes on the Internet. This course is designed to introduce students about the technologies, tools, and software for designing, developing, and administering fully functioning e-Business websites. The practical steps needed to design and develop professional websites will be discussed. The supporting databases as well as the program codes used to enforce business rules and control transactional processing will be described. Students will learn HTML5, CSS3, JavaScript, PHP, and database management systems and use them to create effective web pages and interactive websites.

Aims:

This course aims at providing the basic concepts of designing, developing, and administrating effective and interactive websites to support e-Commerce operations. Students will learn the technologies, tools, and software including HTML5, CSS3, JavaScript, PHP, database management systems, and Web programming development platforms. Students are expected to design and develop a number of professional web pages and an interactive website.

Learning Outcomes (LOs):

Upon completion, students should be able to:

1 Recognize the basic concepts of different technologies for creating e-Business Web-based applications.
2 Design and develop Web-based applications for e-Business.
3 Design and create a database suitable for supporting e-Business.

4   Develop program components to support interactive websites.

Indicative Contents:

Overview of e-Business Website Design, Development, and Administration
- Introduction to tools, software, and technologies
- Create a simple, static Web page
- Test a web page offline and online
- Deploy and maintain e-Business websites

E- Business Website Design
- HTML5 for content structure
  - HTML5 tags and elements
  - The basic structure of a Web page
  - Some basic markup tags and tag attributes
- CSS3 for content presentation
  - Functions of CSS3
  - Simple CSS3 style rules and their syntax
  - Some basic CSS3 markup and property values
  - CSS3 style sheet structure

Client-side Computation
- An introduction to JavaScript
  - JavaScript data types and variables
  - Operators and statement
  - JavaScript objects
  - Functions
  - Event handlers
- Document Object Model
- JavaScript for data validation
- JavaScript for content behavior

Server-side Computation
- An introduction to PHP
- PHP script structure and syntax
- PHP development and testing
- Implementation of the server-side functionality

Server-side Database Operations
- The basic concepts of databases
- An introduction to MySQL, Microsoft SQL Server, or Oracle
- PHP for server-side database operations

Teaching Method:

The concepts and features of different web programming languages, technologies, tools, and software are covered in lectures. Design, development, and administration software including Web Servers, MySQL, Microsoft SQL Server 2016, and/or Oracle will be described during the laboratories. A case study will be carried out throughout the course to demonstrate the process and techniques for creating a full functioning e-Business website. Students are required to perform a group project to apply the concepts, process, and techniques covered in this course to develop an interactive e-Business website.

Assessment:

Class Attendance and Participation	10%
Assignments	30%
Group Project	30%
Examination	30%
Total	100%

Measurement of Learning Outcomes:

	Class Attendance and Participation	Assignments	Group Project	Examination
Recognize the basic concepts of different technologies for creating e-Business Web-based application				x
Design and develop Web-based applications for e-Business	x	x	x	
Design and create a database suitable for supporting e-Business		x	x	
Develop program components to support interactive websites		x	x	x

1. There are a number of classroom activities to evaluate if the students can develop simple Web-based application programs in JavaScript (LO2).

2. There are a number of assignments. They can be used to evaluate students' performance in designing and developing e-Business Web-based applications, databases, and program components (LO2-4).

3. The group project is used to evaluate the ability of students in applying the knowledge learnt in this course to design and develop e-Business Web-based applications, database(s), and program components in different languages (LO2-4).

4. Concepts of different technologies (i.e., HTML5, CSS3, JavaScript, PHP, and databases) will be covered in the written examination. Students are also required to develop small program components in the examination (LO1, LO4).

Required/Essential Readings:

1. Scobey, P. and Lingras, P., *Web Programming and Internet Technologies: An E-Commerce Approach*, Jones & Bartlett Learning, 2012.

Recommended/Supplementary Readings:

1. Cameron, D., *A Software Engineer Learns HTML5, JavaScript and jQuery*, CreateSpace Independent Publishing Platform, 2013.

2. Flanagan, D., *JavaScript: The Definitive Guide: Activate Your Web Pages, 6th Edition*, O'Reilly, 2011.

3. Gauchat, J. D., *HTML5 for Masterminds: How to take advantage of HTML5 to create amazing web- sites and revolutionary applications, 2nd Edition*, CreateSpace Independent Publishing Platform, 2012.

4. Miller, J., Kirst, V., and Stepp, M., *Web Programming Step by Step, 2nd Edition*, Step by Step Pub- lishing, 2012.

5. Myers, M., *A Smarter Way to Learn JavaScript: The new approach that uses technology to cut your effort in half*, CreateSpace Independent Publishing Platform, 2014.

6. Purewal, S., *Learning Web App Development*, O'Reilly, 2014.

7. Ullman, L., *PHP Advanced and Object-Oriented Programming: Visual QuickPro Guide, 3rd Edition*, Peachpit Press, 2012.

Important Notes:

1. Students are expected to spend a total of 9 hours (i.e. 3 hours of class contact and 6 hours of personal study) per week to achieve the course learning outcomes.

2. Students shall be aware of the University regulations about dishonest practice in course work, tests and examinations, and the possible consequences as stipulated in the

Regulations Governing University Examinations. In particular, plagiarism, being a kind of dishonest practice, is "the presentation of another person's work without proper acknowledgement of the source, including exact phrases, or summarised ideas, or even footnotes/citations, whether protected by copyright or not, as the student's own work". Students are required to strictly follow university regulations governing academic integrity and honesty.

3. Students are required to submit writing assignment(s) using Turnitin.

4. To enhance students' understanding of plagiarism, a mini-course "Online Tutorial on Plagiarism Awareness" is available on https://pla.ln.edu.hk/.

Prepared by Prof. Man Leung WONG

Rubric for Individual Assignments of CDS4XXX – Web Programming for e-Business

(Passing mark = 11)

Criteria	Excellent (25-30 points)	Good (19-24 points)	Fair (11-18 points)	Unsatisfactory (0-10 points)
Able to apply HTML to write Web pages	Correctly write Web pages using ALL/most of the required HTML tags. HTML code is free of error.	Correctly write Web pages using more than half of the required HTML tags. The HTML code is free of error.	Correctly write Web pages using less than half of the required HTML tags. There may be a few mistakes in the HTML code.	Write Web pages using few of the required HTML tags. There are many mistakes in the HTML code.
Able to apply CSS to improve Web pages	Demonstrate effective use of CSS stylesheets throughout the website. The CSS style sheets are free of error.	Demonstrate adequate use of CSS stylesheets throughout the website. The CSS stylesheets are free of error.	Demonstrate adequate use of CSS stylesheets throughout the website. There are a few mistakes in the CSS stylesheets.	Does not demonstrate adequate use of CSS stylesheets throughout the website. There are many mistakes in the CSS stylesheets.
Able to design and create a database for supporting e-Business	The design is completely correct. The database is created correctly.	The design is completely correct, but the created database has some minor mistakes.	The design is nearly correct. The created database has some major mistakes.	There are many mistakes in the design. Moreover, the created database has many major mistakes or is basically non-functional.
Able to apply JavaScript to write and improve Web pages	Correctly write the required **JavaScript** programs to improve the Web pages.	Correctly write some of the required **JavaScript** programs to improve the Web pages.	Partially write the required **JavaScript** programs to improve the Web pages.	Partially write some of the required **JavaScript** programs to improve the Web pages.
Able to apply PHP to develop an interactive Web site	Correctly write the required PHP scripts to create an interactive Web site.	Correctly write some of the required PHP scripts to create an interactive Web site.	Partially write the required PHP scripts to create an interactive Web site.	Partially write some of the required PHP scripts to create an interactive Web site.

Rubric for Group Project of CDS4XXX – Web Programming for e-Business

(Passing mark = 11)

Criteria	Excellent (25-30 points)	Good (19-24 points)	Fair (11-18 points)	Unsatisfactory (0-10 points)
Actively participate in all group project activities.	Join all the group activities, actively work on all project issues, and never/seldom make any mistakes in the assigned works.	Join all the group activities and also actively work on all project issues, but make some minor mistakes in the assigned works.	Join at least a half of the group activities and also actively work on all project issues, but do not join all group discussions.	Join at least a half of the group activities but seldom actively work on any project issue.
Able to critically and innovatively plan an e-Business project in terms of product, service, shopping experience, promotion strategy, and method of implementation in today's business environment.	Able to completely plan an e-Business project and analyze comprehensively and in detail questions related to e-Business and Web programming.	Able to plan most of the e-Business project and analyze most questions that are related to e-Business and Web programming in detail.	Able to plan major parts of the e-Business project and analyze key questions that are related to e-Business and Web programming. Some details are missing.	Able to plan some of the e-Business project and analyze some questions that are related to e-Business and Web programming. Important details are missing.
Able to comprehensively apply the relevant skills and technologies in e-Business to implement the planned group project in a real-world setting.	Correctly use the learnt skills and technologies to develop an e-Business website with all the essential features implemented.	Able to use the learnt skills and technologies to properly develop an e-Business website but there are a few minor problems.	Able to use the learnt skills and technologies to develop an e-Business website but do not properly apply the various functions and features.	Understand the major skills and technologies for e-Business development but show little understanding on how to use them to setup an e-Business website.
Able to make insightful suggestions and comments on the improvement of the project for future development	Provide constructive comments that can help improve the website performance.	Provide good comments that can help improve the website performance.	Provide some minor comments that can somewhat help improve the website performance.	Provide comments that cannot help improve the website performance.

Rubric for Examination of CDS4XXX – Web Programming for e-Business

(Passing mark = 11)

Criteria	Excellent (31-40 points)	Good (21-30 points)	Fair (11-20 points)	Unsatisfactory (0-10 points)
Able to recognize the basic concepts of different technologies in Web programming for e-Business	Correctly answer all/ almost all of the conceptual questions.	Correctly answer most of the conceptual questions.	Correctly answer some of all conceptual questions.	Correctly answer few of the conceptual questions.
Able to apply the various Web programming technologies to develop program components	Correctly answer all/almost all of the Web programming questions.	Correctly answer most of the Web programming questions.	Correctly answer some of the Web programming questions.	Correctly answer few of the Web programming questions.
Able to use and apply the Web programming development platform	Correctly answer all/almost all of the questions using the Web programming development platform.	Correctly answer most of the practical questions using the Web programming development platform.	Correctly answer some of the practical questions using the Web programming development platform.	Correctly answer few of the practical questions using Web programming development platform.

Rubric for Class Attendance and Participation of CDS4XXX – Web Programming for e-Business

(Passing mark = 11)

Criteria	Excellent (21-30 points)	Good (16-20 points)	Fair (11-15 points)	Unsatisfactory (0-10 points)
Attendance	Student attends all/almost all of the classes.	Student attends most of the classes.	Student attends some of the classes.	Student usually does not come to class.
Punctuality	Student is always/almost always punctual.	Student is usually punctual.	Student is sometimes punctual.	Student is usually not punctual.
Write Simple JavaScript programs	Correctly write all/almost all of the simple **JavaScript** programs.	Correctly write most of the simple **JavaScript** programs.	Partially write some of the simple **JavaScript** programs.	Partially write few of the simple **JavaScript** programs.

9