MAKERERE UNIVERSITY MAKERERE UNIVERSITY BUSINESS SCHOOL FACULTY OF COMPUTING AND INFORMATICS DEPARTMENT OF INFORMATION SYSTEMS ACADEMIC YEAR: 2024/25 | SEMESTER: TWO COURSE OUTLINE

Course Name: Web Application Development Course Code: BUC2226 Programme: Bachelor of Business Computing (BBC) Course Level: 2 Credit Units: 5 Instructors: Mutebi Bashir, Gyagenda Moshin, Tiko Joy, Sadat Bukoma, Makubuya Rogers

COURSE DESCRIPTION

The course focuses on designing and developing Web-based applications using a variety of programming languages and tools. It ventures into web scripting with JavaScript, the primary client-side scripting language of the Internet. It then looks at jQuery, a very popular library for simplifying JavaScript programming. Server-side programming with PHP, one of the world's most popular programming languages for web development. It is a flexible, scalable and easy language to program with. PHP is currently used in more than fifteen million web sites and the students will learn as part of the curriculum what this language is all about. With increased familiarity on PHP, the course will introduce MySQL, an open source and reliable database management system that is rapidly acquiring a world-wide-user base.

Course Objectives

- To help students quickly acquire the core skills needed to develop web applications.
- Choose appropriate technologies and development tools to implement a given web development task
- Distinguish between server-side and client-side technologies to develop web applications

Learning Outcomes

By the end of this course learners should be able to:

- Understand how web-based applications function and the technologies involved.
- Understand the Model-View-Controller (MVC) software architecture
- Build their own web applications
- Feel confident enough to explore more advanced topics on their own through freely available internet resources

No.	Topics	Lesson Details	Hours
1.	Anatomy of a Web Application	• Introduction to Web Application	2
		Development	
		• Client vs Server Apps	
		Single Page Applications	
2.	Introduction to Client-side	• Arrays	12
	scripting with JavaScript	• Functions	
	Programming	• Objects	
		Error Handling	
3.	Introduction to jQuery	• Events	7
		• DOM	
4.	Introduction to Server-side	• Using PHP in HTML	12
	scripting with PHP	• Arrays	
		• Functions	
		Condition Statements	
		• Error Handling	
5.	Combining Server and Client-side	• Folder and File Structure	12
	Scripts	• Introduction to JSON	
		 Processing Forms 	
6.	Integrating Databases	Connecting to a Database	24
		 Inserting into a Database 	
		• Reading data from a Database	
		• Updating data in a Database	
		• Deleting data from a Database	
		SQL Injection	
7.	Deploying web applications	• Preparing for deployment	6
		• Understanding hosting (Shared,	
		Dedicated, Cloud etc)	
		• Identifying a host	
		Uploading files	
	Total Hours		75

Detailed Course Content

Mode of delivery

- Lectures (face to face and online)
- Practical
- Tutorial

Mode of assessment

Course work	30%
End of semester examination	70%

Reading list

Books

- 1. Duckett, J. (2014). *JavaScript and jQuery: Interactive front-end web development*. Wiley.
- 2. Shklar, L., & Rosen, R. (2009). *Web application architecture: Principles, protocols and practices* (2nd ed.). Wiley.
- 3. Nixon, R. (2018). *Learning PHP, MySQL & JavaScript: With jQuery, CSS & HTML5* (5th ed.). O'Reilly Media.
- 4. Ullman, L. (2017). PHP for the Web: Visual QuickStart Guide (5th ed.). Peachpit Press.
- 5. Beighley, L., & Morrison, M. (2009). *Head First PHP & MySQL: A brain-friendly guide*. O'Reilly Media.

Web Resources

- 6. Mozilla Developer Network (MDN). (n.d.). *Learn web development*. Retrieved April 11, 2024, from <u>https://developer.mozilla.org/en-US/docs/Learn</u>
- 7. Mozilla Developer Network (MDN). (n.d.). *JavaScript guide*. Retrieved April 11, 2024, from <u>https://developer.mozilla.org/en-US/docs/Web/JavaScript/Guide</u>
- 8. Mozilla Developer Network (MDN). (n.d.). *Working with JSON*. Retrieved April 11, 2024, from <u>https://developer.mozilla.org/en-US/docs/Learn/JavaScript/Objects/JSON</u>
- Mozilla Developer Network (MDN). (n.d.). *Publishing your website*. Retrieved April 11, 2024, from <u>https://developer.mozilla.org/en-</u>US/docs/Learn/Common questions/Publishing your website
- 10. W3Schools. (n.d.). *JavaScript reference*. Retrieved April 11, 2024, from https://www.w3schools.com/jsref/
- 11. W3Schools. (n.d.). *jQuery tutorial*. Retrieved April 11, 2024, from https://www.w3schools.com/jquery/
- 12. W3Schools. (n.d.). *PHP tutorial*. Retrieved April 11, 2024, from https://www.w3schools.com/php/
- 13. W3Schools. (n.d.). *HTML forms and PHP*. Retrieved April 11, 2024, from https://www.w3schools.com/php/php_forms.asp
- 14. W3Schools. (n.d.). *SQL tutorial*. Retrieved April 11, 2024, from https://www.w3schools.com/sql/