(7) Fundamentals of Web Programming – CCPS3013

<table>
<tr><td>1.</td><td>Name of Course</td><td colspan="5">Fundamentals of Web Programming</td></tr>
<tr><td>2.</td><td>Course Code</td><td colspan="5">CCPS3013</td></tr>
<tr><td>3.</td><td>Name(s) of academic staff</td><td colspan="5"></td></tr>
<tr><td>4.</td><td>Rationale for the inclusion of the course/module in the programme</td><td colspan="5">Core:
In this era of advanced technology, electronic commerce have highly dominated the marketing practice, and due to easy availability and affordability of the Internet, people are running after it and making huge profit at the comfort of their home. A website is an online identity of a company or of an individual involved in Internet Marketing. The task associated with the website is to represent a company, sell company’s name, attract more visitors, generate more business leads, promote more sale of company’s products and services and ultimately, help to gain more return on investment.
A good and appealing website can be considered as a potent online portfolio of a company or an Individual engaged in online marketing. A good, well designed, easy to navigate and search engine friendly website will obviously rank high in search engine result page resulting more traffic to the website. This module summarizes why a good website is necessary and how can a website be made more appealing to online traffic.</td></tr>
<tr><td>5.</td><td colspan="2">Semester and Year offered</td><td colspan="4">1/2</td></tr>
<tr><td rowspan="3">6.</td><td>Total Student Learning Time (SLT)</td><td colspan="4">Face to Face</td><td>Total Guided and Independent Learning</td></tr>
<tr><td rowspan="2">L = Lecture
T = Tutorial
P = Practical
O= Others</td><td>L</td><td>T</td><td>P</td><td>O</td><td rowspan="2">Guided = 42
Independent = 84
Total = 126</td></tr>
<tr><td>28</td><td>14</td><td></td><td></td></tr>
<tr><td>7.</td><td colspan="2">Credit Value</td><td colspan="4">3</td></tr>
<tr><td>8.</td><td colspan="2">Prerequisite (if any)</td><td colspan="4">None</td></tr>
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9.	Objectives: • Give students experience designing a variety of Internet applications, including client-server, peer-to-peer, and web applications. • Introduce students to concurrent programming models that are used for building scalable servers, including an emphasis on synchronization of threads and processes using both sempahores and message passing. • Provide students with experience writing a workload-generation tool and conducting an in-depth performance evaluation of their code to better understand design tradeoffs and operating system overhead. • Help students understand web programming concepts, including database connectivity, security, and identity. Expose students to both traditional page-driven and asynchronous web application frameworks.
10.	Learning outcomes: At the completion of the subject, students should be able to perform the following tasks: • Create simple web pages • Add hyperlinks to web page • Insert images to web page • Formatting the web site • Create tables, Frames. • Add Form and Forms Processing • Understand JavaScript • Publish web page
11.	Transferable Skills: Students will be able to use HTML to make and publish a simple web page with various formatting features (a title, a picture, colour settings, some text displayed in varying fonts and other attributes, etc.) and various links to other pages, and include some simple JavaScript in the document body and an event handler that calls a function defined in the header

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12.	Teaching-learning and assessment strategy A variety of teaching and learning strategies are used throughout the course, including: • Lecture sessions • Tutorial sessions • Case Studies • Student-Lecturer discussion • Collaborative and co-operative learning • Workshops and Training Seminars • Independent study Assessment strategies include the following: • Ongoing quizzes • Midterm tests • Performance Assessment (Participation, project, Assigned exercises) • Case Presentations
13.	Synopsis: This course covers Internet programming in depth, including client-server, peer-to-peer, and web applications. The primary goal of the course is to help students understand the principles of how distributed applications are built, while also giving them practical experience in creating common Internet applications. An important theme of the course is demonstrating that the Internet can provide many of the same services we have traditionally received from a desktop operating system, including access to applications, file systems, computing resources, and databases.
14.	Mode of Delivery: Face to Face • Lecture sessions • Tutorial sessions
15.	Assessment Methods and Types: The assessment for this course will be based on the following: Coursework **50%** Quizzes 10% Assignments 10% Project 10% Mid-Semester Exam 20% Final Examination **50%.** **Total** **100%**

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16. Mapping of the course/module to the Programme Aims

The individual course is mapped to the programme aims using a scale of **one** to **five** where (one being the least relevant/related and five being the most relevant/ related).

A1	A2	A3	A4	A5	A6
4	3	5	2	2	2

17. Mapping of the course/module to the Programme Learning Outcomes

The learning outcomes of this course are mapped to the eight MQF domains using a scale of **one** to **five** where (one being the least relevant/related and five being the most relevant/ related).

LO1	LO 2	LO3	LO4	LO5	LO 6	LO7	LO8	LO9	LO10	LO11	LO12
2	2	2	2	4	4	2	2	2	4	5	2

18. Content outline of the course/module and the SLT per topic

WEEK	Details	SLT			
		L	T	Indep.	Total
WEEK 1	**THE INTERNET AND WORLD WIDE WEB** • **What is the Internet** ○ History ○ People and Organizations ○ Technologies • **The World Wide Web (WWW)** ○ Clients and Servers ○ URLs and DNS ○ Hypertext Transmit Protocol (HTTP) ○ Languages of the Web	2	1	6	9

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	WEEK 2	**HTML BASICS** • **Basic HTML** o History o Page Structure o Block Elements o Inline Elements • **More HTML Elements** o Lists o Tables o Quotations o Pre-Formatted Text o A Few Miscellaneous Elements • **Web Standards** o Why Follow Web Standards? o The W3C XHTML Validator o Web Page Metadata	2	1	6	9
	WEEK 3	**CSS FOR STYLING** • **Basic CSS** o CSS Syntax o Applying CSS to a Web Page o Color Properties o CSS Comments o Font Properties o Text Properties • **More CSS** o Style Inheritance and Conflicts o IDs and ID Selectors o Classes and Class Selectors o CSS for Lists o CSS for Tables o W3C CSS Validator	2	1	6	9

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	WEEK 4	**PAGE LAYOUT** • **Styling page sections** o Page Sections (div) o Spans of Text (span) o CSS Context Selectors • **Introduction to Layout** o The CSS Box Model o Finding Box Model Problems with Firebug • **Floating Elements** o The float Property o The clear Property o Making Floating Elements Fit o Multi-Column Floating Layouts • **Sizing and Positioning** o Width and Height o Positioning o Z-indexing o Element Visibility • **Internet Explorer Layout Quirks (Optional)** o Workarounds for IE Flaws	2	1	6	9
	WEEK 5	**PHP FOR SERVER-SIDE PROGRAMMING** • **Server-Side Basics** o Lifecycle of a Web Request o Introduction to PHP • **PHP Basic Syntax** o Syntax Errors o The print Statement o Types o Arithmetic o Variables o Strings o Comments o Boolean Logic o Control Statements • **Embedded PHP** o Embedding PHP in HTML o Expression Blocks • **Advanced PHP Syntax** o Functions o Including Files o Arrays o The foreach Loop o File I/O	2	1	6	9

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	WEEK 6	**HTML FORMS AND SERVER-SIDE DATA**
		• **Form Basics**
		  ○ Parameterized Pages and Query Strings
		  ○ A Simple Form
		• **Form Controls**
		  ○ Text Boxes (Single-Line)
		  ○ Text Areas (Multi-Line)
		  ○ Checkboxes
		  ○ Radio Buttons
		  ○ Labels
		  ○ Drop-down Menus and Lists
		  ○ Reset Buttons
		  ○ Grouping Controls (Field Sets)
		  ○ Styling Forms
		• **Submitting Data**
		  ○ URL-encoding
		  ○ Hidden Input Parameters
		  ○ HTTP Requests: GET vs. POST
		  ○ Uploading Files
		• **Processing Form Data in PHP**
		  ○ Superglobal Associative Arrays
		  ○ Working with $_REQUEST
		  ○ Processing Uploaded Files
			2	1	6	9

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	WEEK 7	**JAVASCRIPT FOR INTERACTIVE WEB PAGES** • **Key Javascript Concepts** o Client-Side Scripting o Event-Driven Programming o A JavaScript Program o The Document Object Model (DOM) • **Javascript Syntax** o Types o Numbers and Arithmetic o Variables o Comments o Using DOM Objects o Debugging Common Errors (a.k.a., "Why Doesn't My Program Do Anything?") o Strings o for Loops o The Math Object o Null and Undefined Values • **Program Logic** o Comparison Operators o Conditional Statements: if/else o Boolean Values o Logical Operators o While Loops • **Advanced Javascript Syntax** o Scope and Global Variables o Arrays o Function Parameters and Returns o Input Dialog Boxes	2	1	6	9

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	WEEK 8	**THE DOCUMENT OBJECT MODEL (DOM)** • **Global DOM Objects** o window.onload and Unobtrusive JavaScript o Anonymous Functions o The Keyword this • **DOM Element Objects** o Interacting with Text o Adjusting Styles o Unobtrusive Styling • **The DOM Tree** o DOM Nodes o Traversal Properties and Methods o Traversing Elements o Selecting Groups of Elements o Creating and Removing Nodes	2	1	6	9
	WEEK 9	**EVENTS AND THE PROTOTYPE LIBRARY** • **The Prototype Javascript Library** o Introduction to Prototype o Language Improvements o Prototype and the DOM o Accessing Styles o Traversing the DOM o Prototype and Forms • **Event - Handling** o The Event Object o Mouse Events o Keyboard and Text Events o Form Events o Page Events o Timer Events	2	1	6	9

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	WEEK 10	**AJAX AND XML FOR ACCESSING DATA**
		• **Ajax Concepts**
		  ○ History and Compatibility
		• **Using XMLHTTPREQUEST to Fetch Data**
		  ○ Synchronous Requests
		  ○ Checking for Ajax Errors
		  ○ Asynchronous Requests
		  ○ Prototype's Ajax Features
		  ○ Ajax Security and Debugging
		• **XML**
		  ○ What is XML?
		  ○ XML Document Structure, Schemas, and DTDs
		  ○ Processing XML Data
			2	1	6	9

	WEEK 11	**RELATIONAL DATABASES AND SQL**
		• **Database Basics**
		  ○ Motivation
		  ○ Example Database: imdb
		• **SQL**
		  ○ Connecting to MySQL
		  ○ Database/Table Information
		  ○ The SELECT Statement
		  ○ Filtering Results with the WHERE Clause
		  ○ Ordering Results: ORDER BY
		  ○ Modifying Data: INSERT, EDIT, and DELETE
		• **Interacting with a Database using PHP**
		  ○ Connecting to a Database
		  ○ Performing Queries
		  ○ Error Checking
		• **Multi-Table Queries**
		  ○ Cartesian Product
		  ○ Joins
		  ○ Keys
		  ○ Designing a Query
			2	1	6	9

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	WEEK 12	**WEB 2.0 AND SCRIPTACULOUS**
		• **Designing for Web**
		  ○ Page Layout
		  ○ Navigation and Links
		  ○ Forms and UI Controls
		  ○ Accessibility
		• **Scriptaculous**
		  ○ Visual Effects
		  ○ Drag-and-Drop
		  ○ Controls and Sounds
			2	1	6	9

	WEEK 13, 14	**GOING LIVE: CREATING/LAUNCHING A WEBSITE**
		• Refininig the Idea
		  ○ Talk to Your Users
		  ○ Look at Your Competition
		  ○ Decide on Technology
		  ○ Encouragement
		• Getting the Site on the Internet
		  ○ Running a Web Server
		  ○ Web Hosting
		  ○ Debugging and Testing a Live Web Site
		• Driving Traffic to the website
		  ○ Google AdWords
		  ○ Viral Marketing
		  ○ Search Engine Optimization (SEO)
		  ○ PageRank
		  ○ Google Analytics
		• Making Money
		  ○ Google AdSense
		  ○ Referral Programs
		  ○ Banner Advertisements
		  ○ Other Options
		  ○ Funding Your Web Site
		• Legal Issues
		  ○ Intellectual Property
		  ○ Legal Liabilities
		  ○ Security Issues
			4	2	12	18

		Total	28	14	84	126

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19.	**Main references supporting the course**: John Hebeler, Matthew Fisher, Ryan Blace, Andrew Perez-Lopez, Mike Dean. (2009). *Semantic Web Programming*. Wiley
	Additional references supporting the course: 1. Paul Vick. (2004). *The Visual Basic .NET Programming Language*. Pearson 2. Wendy Willard. (2010). *Web Design, A Beginner's Guide. McGrawHill*, (2nd Edition).
20.	**Other additional information** All related subject materials will be available to the students during the period of the course