Subject Description Form

Subject Code	COMP3421
Subject Title	Web Application Design and Development
Credit Value	3
Level	3
Pre-requisite / Co-requisite / Exclusion	**Pre-requisite**: COMP1011
Objectives	The objectives of this subject are to: • highlight the impact of Web in facilitating a truly distributed, wide area and highly accessible computing environment; • equip students with the ability to analyze, design and implement techniques required to develop for the Web and Internet based business applications; and • review state-of-the-art technologies such as distributed client/server computing paradigm, middleware concepts and architecture, web-based client/server computing technologies, XML, wireless and intelligent Internet computing.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: *Professional/academic knowledge and skills* (a) identify different components of distributed client/server on Web and Internet computing; (b) understand the basic concepts of Web services and related technologies; (c) be proficient in client-side as well as server programming with related Web development tools, such as Ajax and GoogleApps; (d) design, develop and implement interactive Web applications; (e) identify different components of XML and its related standards and technologies; and (f) understand latest and future Web technology, including wireless and intelligent Internet computing. *Attributes for all-roundedness* (g) communicate effectively in project / system presentation and technical documents / reports; (h) learn independently for problem solving and solution seeking; (i) collaborate with other team members for project design and development, while exhibiting leadership in a project team whenever designated or necessary; and

	(j) think and reason in a critical and creative mind, especially in applying different computing technologies to interactive Web applications.

Subject Synopsis/ Indicative Syllabus	**Topic**
	1. Introduction to Distributed Client/Server Web and Internet Computing Client/server evolution and its relation to Internet computing; overview of Internet services including file servers, database servers, transaction servers, web servers; concepts of two-tier versus three-tier architectures; network infrastructure and support for Web computing.
	2. Web-Based Client/Server Computing Revolution of Web as the intergalactic client/server Internet computing platform; web model. Web protocols and hypertext technology; HTTP data representation and response; interactive Web-based client/server; Web programming such as JavaScript, ASP, Java Servlets; Servlet, PHP, JSP and others.
	3. Extensible Markup Language (XML) XML introduction: XML data modeling such as DTD and XML Schema; XML related standards, DOM and SAX; XML data management: Querying XML data, XML data storage, and related XML tools and API, such as Ajax and GoogleAPI.
	4. Latest and Future Web Computing Recent advancement of Web technologies, Web 2.0 and Web 3.0; Introduction to wireless Internet; wireless Internet applications; intelligent Internet computing using agent technology.

Teaching/ Learning Methodology	This subject emphasizes the design and technical aspects of web application development. It is intended to equip the student with knowledge and practical experience on how to complete a web-based application. The lectures will be used to deliver course material that will be practiced/reinforced during the labs and tutorials.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)									
		a	b	c	d	e	f	g	h	i	j
Continuous Assessment	**55%**										
1. Assignments, Tests & Projects		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Examination	**45%**	✓	✓				✓		✓		
Total	100 %										

Student Study Effort Expected	Class contact:	
	▪ Lectures	26 Hrs.
	▪ Tutorials/Lab	13 Hrs.
	Other student study effort:	
	▪ Assignments, Tests, Projects, Exams	80 Hrs.
	Total student study effort	119 Hrs.
Reading List and References	**Reference Books:** 1. Duckett, Jon, *Web Design with HTML, CSS, JavaScript and jQuery Set*, Wiley, 2014. 2. Myers, Mark, *A Smarter Way to Learn JavaScript: The new approach that uses technology to cut your effort in half*, Kindle Edition, 2013. 3. Deitel, Paul J., *Internet & World Wide Web: How to Program*, 4th Edition, Deitel & Associates Inc., Prentice Hall, 2008. 4. Godbole, Achyut S. and Kahate, Atul, *Web Technologies: TCP/IP Architecture, and Java Programming*, McGraw-Hill, 2009. 5. Welling, Luke and Thomson, Laura, *PHP and MySQL Web Development*, Addison-Wesley, 2008. 6. Steelman, Andrea and Murach, Joel, *Murach's Java Servlets and JSP*, Mike Murach & Associates, 2010.