

## Subject Description Form

<b>Subject Code</b>	COMP 3421
<b>Subject Title</b>	Web Application Design and Development
<b>Credit Value</b>	3
<b>Level</b>	3
<b>Pre-requisite/ Co-requisite/ Exclusion</b>	Pre-requisite: COMP 1011
<b>Objectives</b>	<p>The objectives of this subject are to:</p> <ol style="list-style-type: none"> <li>1. Highlight the impact of Web in facilitating a truly distributed, wide area and highly accessible computing environment.</li> <li>2. Equip students with the ability to analyse, design and implement techniques required to develop for the Web and Internet based business applications.</li> <li>3. 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.</li> </ol>
<b>Intended Learning Outcomes</b>	<p>Upon completion of the subject, students will be able to:</p> <p><i>Professional/academic knowledge and skills</i></p> <ol style="list-style-type: none"> <li>(a) identify different components of distributed client/server on Web and Internet computing;</li> <li>(b) understand the basic concepts of Web services and related technologies;</li> <li>(c) be proficient in client-side as well as server programming with related Web development tools, such as Ajax and GoogleApps;</li> <li>(d) design, develop and implement interactive Web applications;</li> <li>(e) identify different components of XML and its related standards and technologies;</li> <li>(f) understand latest and future Web technology, including wireless and intelligent Internet computing.</li> </ol> <p><i>Attributes for all-roundedness</i></p> <ol style="list-style-type: none"> <li>(g) communicate effectively in project / system presentation</li> </ol>

	<p>and technical documents / reports;</p> <ul style="list-style-type: none"> <li>(h) learn independently for problem solving and solution seeking;</li> <li>(i) collaborate with other team members for project design and development, while exhibiting leadership in a project team whenever designated or necessary;</li> <li>(j) think and reason in a critical and creative mind, especially in applying different computing technologies to interactive Web applications.</li> </ul>
<p><b>Subject Synopsis/ Indicative Syllabus</b></p>	<ol style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>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.</li> <li>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.</li> </ol>
<p><b>Teaching/Learning Methodology</b></p>	<p>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.</p> <p>The lectures will be used to deliver course material that will be practiced/reinforced during the labs and tutorials.</p>

<b>Assessment Methods in Alignment with Intended Learning Outcomes</b>	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
	Assignments, Tests & Projects	55%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Examination	45%	✓	✓				✓		✓		
Total	100 %											
<b>Student study effort expected</b>	Class Contact:											
	Lecture									26 hours		
	Tutorial/Lab									13 hours		
	Other student study effort:											
	Assignments, Tests, Projects, Exams									80 hours		
	Total student study effort									119 hours		
<b>Reading list and references</b>	<ol style="list-style-type: none"> <li>1. Internet &amp; World Wide Web: How to Program, 4/E, Paul J. Deitel, Deitel &amp; Associates, Inc., Prentice Hall, 2008.</li> <li>2. A. Godbole and A. Kahate, Web Tecnologies: TCP/IP Architecture, and Java Programming, McGraw-Hill, 2009.</li> <li>3. L. Welling and L. Thomson, “PHP and MySQL Web Development”, Addison-Wesley, 2008.</li> <li>4. A. Steelman and J. Murach, Murach’s Java Servlets and JSP, Mike Murach &amp; Associates, 2010.</li> </ol>											