

## Subject Description Form

<b>Subject Code</b>	COMP 3211
<b>Subject Title</b>	Software Engineering
<b>Credit Value</b>	3
<b>Level</b>	3
<b>Pre-requisite / Co-requisite/ Exclusion</b>	Pre-requisite COMP 1011, COMP 2011
<b>Objectives</b>	<ol style="list-style-type: none"> <li>1. To provide students with a general knowledge of the application of software engineering techniques in different stages and aspects of software development;</li> <li>2. To provide students with practice in applying the theories, concepts and techniques acquired during lectures through the actual accomplishment of a case study project.</li> </ol>
<b>Intended Learning Outcomes</b>	<p>Upon completion of the subject, students will be able to:</p> <p><u>Professional/academic knowledge and skills</u></p> <p>(a) apply software engineering techniques in the systems specifications and design stages of software projects;</p> <p>(b) acquire concepts in software quality assurance and be able to test software applications;</p> <p>(c) apply software engineering techniques to real-life case study projects;</p> <p><u>Attributes for all-roundedness</u></p> <p>(d) solve complex problems in groups and be able to communicate effectively through project presentations;</p> <p>(e) communicate in writing with technical documentation throughout the various stages of project development.</p>
<b>Subject Synopsis/ Indicative Syllabus</b>	<ol style="list-style-type: none"> <li>1. Software process Software process and process models; component-based development; software reuse, CASE, agile development.</li> <li>2. Specification and requirement analysis model-based specification; requirements analysis; prototyping.</li> <li>3. Software analysis and design System analysis and models; overview of software design process and strategies; function-oriented design; object-oriented design.</li> <li>4. Software verification and validation Testing techniques and tools; static analysis; design and code reviews, inspection</li> <li>5. Project metrics Function point, line of code; COCOMO models; effort estimation.</li> </ol>

<b>Teaching/Learning Methodology</b>	Lectures focus on introduction and explanation of key concepts and techniques. Tutorial and lab sessions provide students opportunity to practice the techniques and tools presented in class. Assignments and project allow students to deepen their understanding of the concepts taught in class and apply the theory and techniques to software design and testing. Students will be encouraged to work in groups to share and present ideas, review other's work, and develop teamwork skill.																																																								
<b>Assessment Methods in Alignment with Intended Learning Outcomes</b>	<table border="1" data-bbox="483 415 1357 1003"> <thead> <tr> <th data-bbox="483 415 760 604" rowspan="2">Specific assessment methods/tasks</th> <th data-bbox="760 415 935 604" rowspan="2">% weighting</th> <th colspan="5" data-bbox="935 415 1357 541">Intended subject learning outcomes to be assessed (Please tick as appropriate)</th> </tr> <tr> <th data-bbox="935 541 1016 604">a</th> <th data-bbox="1016 541 1097 604">b</th> <th data-bbox="1097 541 1179 604">c</th> <th data-bbox="1179 541 1260 604">d</th> <th data-bbox="1260 541 1357 604">e</th> </tr> </thead> <tbody> <tr> <td data-bbox="483 604 760 674">1. Assignments</td> <td data-bbox="760 604 935 873" rowspan="4">60%</td> <td data-bbox="935 604 1016 674">✓</td> <td data-bbox="1016 604 1097 674">✓</td> <td data-bbox="1097 604 1179 674"></td> <td data-bbox="1179 604 1260 674"></td> <td data-bbox="1260 604 1357 674"></td> </tr> <tr> <td data-bbox="483 674 760 743">2. Lab exercises</td> <td data-bbox="935 674 1016 743">✓</td> <td data-bbox="1016 674 1097 743">✓</td> <td data-bbox="1097 674 1179 743">✓</td> <td data-bbox="1179 674 1260 743"></td> <td data-bbox="1260 674 1357 743"></td> </tr> <tr> <td data-bbox="483 743 760 812">3. Project</td> <td data-bbox="935 743 1016 812"></td> <td data-bbox="1016 743 1097 812"></td> <td data-bbox="1097 743 1179 812">✓</td> <td data-bbox="1179 743 1260 812">✓</td> <td data-bbox="1260 743 1357 812">✓</td> </tr> <tr> <td data-bbox="483 812 760 873">4. Mid-term</td> <td data-bbox="935 812 1016 873">✓</td> <td data-bbox="1016 812 1097 873">✓</td> <td data-bbox="1097 812 1179 873"></td> <td data-bbox="1179 812 1260 873"></td> <td data-bbox="1260 812 1357 873"></td> </tr> <tr> <td data-bbox="483 873 760 934">5. Examination</td> <td data-bbox="760 873 935 934">40%</td> <td data-bbox="935 873 1016 934">✓</td> <td data-bbox="1016 873 1097 934">✓</td> <td data-bbox="1097 873 1179 934"></td> <td data-bbox="1179 873 1260 934"></td> <td data-bbox="1260 873 1357 934"></td> </tr> <tr> <td data-bbox="483 934 760 1003">Total</td> <td data-bbox="760 934 935 1003">100 %</td> <td data-bbox="935 934 1016 1003"></td> <td data-bbox="1016 934 1097 1003"></td> <td data-bbox="1097 934 1179 1003"></td> <td data-bbox="1179 934 1260 1003"></td> <td data-bbox="1260 934 1357 1003"></td> </tr> </tbody> </table> <p data-bbox="483 1052 1435 1115">Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</p> <p data-bbox="483 1146 1435 1209">Assignments, project and mid-term test act as a measure on the understandings of the students on the basic concepts of the software specification, design and testing.</p> <p data-bbox="483 1241 1435 1367">Project will be used to measure the understandings of the students about the current practice in software design and testing. The students can improve their presentation and communication skills through the project presentation, and practice team work. Students can also develop their analytic and problem solving skills.</p> <p data-bbox="483 1388 1435 1478">Examination will be used as an overall measure of the understandings of the students on software development process, software specification, design and testing concepts and technologies.</p>						Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					a	b	c	d	e	1. Assignments	60%	✓	✓				2. Lab exercises	✓	✓	✓			3. Project			✓	✓	✓	4. Mid-term	✓	✓				5. Examination	40%	✓	✓				Total	100 %					
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<b>Student Study Effort Expected</b>	<p data-bbox="483 1499 1166 1541">Class contact:</p> <ul style="list-style-type: none"> <li data-bbox="483 1562 1166 1604">▪ Lecture</li> <li data-bbox="483 1625 1166 1667">▪ Tutorial/Lab</li> </ul> <p data-bbox="483 1698 1166 1740">Other student study effort:</p> <ul style="list-style-type: none"> <li data-bbox="483 1761 1166 1803">▪ Work on assignments and project; self study</li> </ul> <p data-bbox="483 1824 1166 1866">Total student study effort</p>					<p data-bbox="1328 1562 1435 1604">39 Hrs.</p> <p data-bbox="1328 1625 1435 1667">0 Hrs.</p> <p data-bbox="1328 1761 1435 1803">66 Hrs.</p> <p data-bbox="1328 1824 1435 1866">105 Hrs.</p>																																																			
<b>Reading List and References</b>	Textbooks:																																																								

1. Sommerville, I., Software Engineering, 9th Edition, Addison-Wesley, 2010.

Reference books:

1. Pressman, R., Software Engineering: A Practitioner's Approach, 6th Edition, McGraw-Hill, 2006.
2. Booch, G., Object Oriented Analysis & Design with Applications, Second Edition, Addison-Wesley, 1994.
3. Jacobson, I., Booch, G. and Rumbaugh, J., The Unified Software Development Process, Addison-Wesley, 1999.
4. Pierre Bourque and Robert Dupuis, Guide to the Software Engineering Body of Knowledge, IEEE Computer Society, 2004.
5. Kathy Schwalbe, Information Technology Project Management, 6th Edition, Cengage Learning, 2009.