

## Subject Description Form

<b>Subject Code</b>	COMP5241
<b>Subject Title</b>	Software Engineering and Development
<b>Credit Value</b>	3
<b>Level</b>	5
<b>Pre-requisite/ Co-requisite/ Exclusion</b>	Nil
<b>Objectives</b>	<p>The objectives of this subject are to:</p> <ol style="list-style-type: none"> <li>1. provide sufficient insight into the software development environment;</li> <li>2. provide detailed knowledge of the application of typical software engineering techniques;</li> <li>3. provide appreciation of CASE tools.</li> </ol>
<b>Intended Learning Outcomes</b>	<p>Upon completion of the subject, students will be able to:</p> <ol style="list-style-type: none"> <li>a. understand and apply fundamental as well as advanced and specialized software engineering knowledge for formulating models and solutions;</li> <li>b. analyze and solve software engineering problems through critical thinking, analytical thinking and creative thinking;</li> <li>c. design and evaluate systems/applications to satisfy various stakeholder's needs, and incorporate start-of-the-art academic advancements in the related design and/or evaluation;</li> <li>d. work and collaborate effectively in teams possibly with multi-disciplinary backgrounds as a leader or a member;</li> <li>e. communicate demands, solutions, and state-of-the-art academic advancements effectively through effective written reports/documents, effective presentations and other means of verbal/written communications;</li> <li>f. understand professional ethics, responsibilities and practice as well as legal and social issues;</li> <li>g. engage in life-long independent learning for professional development, particularly in the learning of state-of-the-art academic advancements in the related problems.</li> </ol>
<b>Subject Synopsis/ Indicative Syllabus</b>	<ul style="list-style-type: none"> <li>• <b>Programming myths and software crisis:</b> Principle of software engineering, the impact of CASE (Computer Aided Software Engineering) technology.</li> <li>• <b>Software Requirement:</b> Software requirement engineering, informal method and formal method in software specification.</li> <li>• <b>Software design:</b> Object-oriented analysis and design, structured/procedural programming analysis and design, comparisons between the OO approach and structured/procedural approach.</li> <li>• <b>Software implementation:</b> Overview/review of typical object-oriented/structured programming language.</li> </ul>

	<ul style="list-style-type: none"> <li>• <b>Software testing and maintenance:</b> Software verification and validation techniques, re-engineering and reverse engineering concepts, maintenance issues.</li> <li>• <b>Usability and usability engineering:</b> Software usability, usability engineering.</li> <li>• <b>Professionalism and legal/social issues</b> (e.g., Software engineering standards)</li> </ul>																																												
<b>Teaching/Learning Methodology</b>	Class activities including – lecture, assignment, quiz, group project, and tutorial/seminar (if applicable).																																												
<b>Assessment Methods in Alignment with Intended Learning Outcomes</b>	<table border="1"> <thead> <tr> <th rowspan="2">Specific assessment methods/tasks</th> <th rowspan="2">% weighting</th> <th colspan="7">Intended subject learning outcomes to be assessed (Please tick as appropriate)</th> </tr> <tr> <th>a</th> <th>b</th> <th>c</th> <th>d</th> <th>e</th> <th>f</th> <th>g</th> </tr> </thead> <tbody> <tr> <td>1. Assignments, quizzes &amp; projects</td> <td>55</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>2. Final examination</td> <td>45</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> <td>✓</td> <td>✓</td> <td></td> </tr> <tr> <td>Total</td> <td>100</td> <td colspan="7"></td> </tr> </tbody> </table> <p>Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</p> <ol style="list-style-type: none"> <li>Assignments, quizzes, projects, and/or final exam questions will involve fundamental as well as advanced and specialized software engineering knowledge for formulating models and solutions, hence will fulfill the need to assess intended learning outcome a);</li> <li>Assignments, quizzes, projects, and/or final exam questions will involve analyzing and solving software engineering problems creatively, hence will fulfill the need to assess intended learning outcome b);</li> <li>Software requirement engineering related assignments, quizzes, projects, and/or final exam questions will involve designing and evaluating systems/applications to satisfy user needs and various requirements, hence will fulfill the need to assess intended learning outcome c);</li> <li>Group project will fulfill the need to assess intended learning outcome d);</li> <li>In-class presentation/quiz-answering, assignment report writing, and final exam writing will fulfill the need to assess intended learning outcome e).</li> <li>Quizzes and/or final exams will cover ethics issues, hence will fulfill the need to assess intended learning outcome f);</li> <li>Assignments and projects will teach the students to learn by themselves and by teamwork, so as to fulfill the need to assess intended learning outcome g).</li> </ol>		Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)							a	b	c	d	e	f	g	1. Assignments, quizzes & projects	55	✓	✓	✓	✓	✓	✓	✓	2. Final examination	45	✓	✓	✓		✓	✓		Total	100							
Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)																																											
		a	b	c	d	e	f	g																																					
1. Assignments, quizzes & projects	55	✓	✓	✓	✓	✓	✓	✓																																					
2. Final examination	45	✓	✓	✓		✓	✓																																						
Total	100																																												
<b>Student Study Effort Expected</b>	<b>Class contact:</b>																																												
	Class activities (lecture, quizzes, project presentation, tutorial/seminar (if applicable))	39Hrs.																																											
	<b>Other student study effort:</b>																																												

	Assignment, group project, exams.	66Hrs.
	<b>Total student study effort:</b>	<b>105Hrs.</b>
<b>Reading List and References</b>	<p>(1) Sommerville, I., 2011, Software Engineering, 9<sup>th</sup> ed., Pearson.</p> <p>(2) Pressman, R., Maxim, B., 2014, Software Engineering, A Practitioner's Approach, 8<sup>th</sup> ed., McGraw Hill.</p> <p>(3) Bennett, S., Ray, F., 2010, Object-Oriented Systems Analysis and Design Using UML, 4<sup>th</sup> Ed., McGraw-Hill.</p>	