

Subject Description Form

Subject Code	COMP 4911 / 4912
Subject Title	Capstone Project I / II
Credit Value	3 credits for each semester subject
Level	4
Pre-requisite/ Co-requisite/ Exclusion	Pre-requisite: COMP 4911 for taking COMP 4912 Exclusion: COMP 4921 / COMP 451
Objectives	<p>The objectives of this subject are to:</p> <ol style="list-style-type: none"> 1. provide a student the opportunities to apply and integrate his/her knowledge acquired throughout the undergraduate study. 2. develop the capabilities of a student in analyzing and solving complex and possibly real-case problems. 3. train students with skills on systematic development and documentation of a significant piece of work.
Intended Learning Outcomes	<p>Upon completion of the subject, students will be able to:</p> <p><u>Professional/academic knowledge and skills</u></p> <ol style="list-style-type: none"> (a) conduct literature survey to locate for materials and sources relevant to the selected problem area; (b) understand the materials obtained and connect the materials with the problem to be solved; (c) define and specify the problem precisely; (d) assimilate and apply the knowledge learnt in generating good solutions to the problem; (e) think critically the formulation of alternative models and solutions to the problem, in the analysis of approaches to the solution and their implementation; (f) evaluate the final outcome in an objective manner; <p><u>Attributes for all-roundedness</u></p> <ol style="list-style-type: none"> (g) improve presentation and communicate skills via oral presentation; (h) enhance technical report writing skills with proper organization of materials; (i) develop the ability to learn independently and to find/integrate information from different sources required in solving real-life problems; (j) manage the project efficiently and effectively through the assistance and supervision of the supervisor and/or other students working together.
Subject Synopsis/ Indicative Syllabus	<ol style="list-style-type: none"> 1. In-depth study of a topic proposed by the supervisor 2. Project meeting and planning 3. Proposal writing 4. Regular progress checking and reporting

	<p>5. Project documentation 6. Presentation and demonstration</p>
<p>Teaching/Learning Methodology</p>	<p>The capstone project is structured as a sequence of two subjects. Physically, it spans across the academic year for two consecutive semesters. COMP 4912 will be the continuation of COMP 4911, and the topic of the two subjects for a student should be the same and normally being supervised by the same academic staff. Both COMP 4911 and COMP 4912 will be assessed on individual basis.</p> <p>The total student effort required per student is approximately 240 hours (120 hours for each semester) of project meetings, laboratory work and independent study for a normal student, which includes the total time spent on literature search, background reading, fact finding, project development, report writing, and presentation preparation and demonstration. The actual amount of time spent may vary for individuals.</p> <p>Capstone Projects are normally sponsored by academic staff of the department or in conjunction with external organizations or other departments in the university. However, students may propose a topic along an area of their research interest contingent upon the condition that they could find an interested academic staff to supervise the project.</p> <p>Capstone Projects should be problem-oriented and there is no restriction to the nature of the problem except that it should be relevant to the computing discipline and there must be a computing element in the project. The project could be practical, academic or a hybrid in which the student is encouraged but not constrained to have some original contributions.</p> <p>Each student will be assigned a supervisor who is in charge of the entire project. The assignment of supervisor normally follows a set of prescribed procedures, announced a few months before the academic year. The supervisor is responsible for assessing the student based on the set of abilities, as laid down in the “objectives” and “intended learning outcome” sections above, that the student demonstrated.</p> <p>In the first part of the two-subject sequence, COMP 4911, a student will conduct background research on his/her project</p>

topic. He/she will learn proper project methodology and how to write a good proposal. A number of seminars will be conducted, covering important topics such as “research methods”, “proposal writing” and “presentation skills”. The student will work with his/her supervisor for a good proposal, with additional advice provided by staffs running the seminars. Checkpoint short presentations are required of each student on a monthly basis for him/her to report and demonstrate the progress, besides practicing the presentation skills. The deliverables of COMP 4911 include a well-written proposal and a milestone presentation. The proposal is normally submitted well before the end of the semester. The milestone presentation represents a summative achievement of the student in the semester, inclusive of preliminary system design, fast prototype implementation, pilot survey or data analysis, whichever appropriate, demonstrating the potential contribution of the project.

In the second part of the two-subject sequence, COMP 4912, the student will work under close supervision of the supervisor to complete the project described in the proposal. The student should meet the supervisor regularly, reporting his/her progress and seeking advice. Self-discipline is an important element in the assessment of the project, besides the more obvious deliverables, write up and presentation. The final deliverables include a final report concluding the whole project throughout the two semesters, an oral presentation, and/or a video demonstration about the final “product”.

The assessment of the two-staged Capstone Project is administered by an assessment panel, of which the supervisor is an ex officio member, both in the first and second part. The assessment panels for the two semesters do not necessarily need to be identical.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific Assessment Methods/ Tasks	% weighing	Sem	Intended subject learning outcomes to be assessed									
			a	b	c	d	e	f	g	h	i	j
Continuous Assessment (COMP4911)	100	1	✓	✓	✓	✓	✓		✓	✓	✓	
Continuous Assessment (COMP4912)	100	2				✓	✓	✓	✓	✓	✓	✓

	<p><u>Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</u></p> <p>The capstone project will be evaluated by an assessment panel, of which the supervisor is an ex officio member. The supervisor is expected to contribute to 30 % of the total grade in the first semester and 60% of the total grade in the second semester. Attributes to be assessed include, but not limited to, Problem Identification, Problem Solving, Communication and Presentation, Project Management, and Self-Discipline.</p> <p>Additional moderation might be required on the projects. This could take the form of a judging (and arbitration) panel to consider all projects with high and low grades for fairness and quality assurance for their final grades, and to recommend best project award candidates. The judging panel also helps to resolve any disagreement among members in the assessment panel. Some other projects may also be moderated so as to even out any undue differences.</p>	
<p>Student study effort expected</p>	<p>Class Contact:</p>	
	<p>Seminars/Presentations/Class Activities (COMP4911 only)</p>	<p>[26] hours</p>
	<p>Other student study effort:</p>	
	<p>Searching and reading materials, attending seminars, meeting with supervisor / other students, design, program development, testing, documentation, presentation etc. (for both COMP4911 & COMP4912)</p>	<p>214 hours for two semesters</p>
<p>Reading list and references</p>	<p>Reference Books:</p>	
	<ol style="list-style-type: none"> 1. Kumar, R. Research Methodology: A Step-by-step Guide for Beginners, Third Edition, SAGE Publications, 2011. 2. Burns, R.B. Introduction to Research Methods, Fourth Edition, SAGE Publications, 2000. 3. Roberts, C.M. The Dissertation Journey: A Practical and Comprehensive Guide to Planning, Writing, and Defending Your Dissertation, Second Edition, Corwin Press, 2010. 4. Mauch, J.E., Park, N. Guide to the Successful Thesis and Dissertation: A Handbook for Students and Faculty, Fifth Edition, Marcel Dekker, 2003. 5. Rudestam, K.E., Newton, R.R. Surviving Your Dissertation: A Comprehensive Guide to Content and Process, Third Edition, Sage Publications, 2007. 6. Garson, G.D. Guide to Writing Empirical Papers, Theses and Dissertations, Marcel Dekker, 2002. 	

	<ol style="list-style-type: none"> 7. Oshima, A. Writing Academic English, Fourth Edition, Pearson Longman, 2006. 8. APA. Publication Manual of The American Psychological Association, Sixth Edition, American Psychological Association, 2010. 9. Szuchman, L.T. Writing with Style: APA Style Made Easy, Fifth Edition, Wadsworth/Cengage Learning, 2011. 10. Statistics, simulation, programming, and relevant books. 11. ACM and IEEE magazines, Transactions and Journals. 12. Other International Journals. 13. Relevant conference proceedings and magazines (including ACM and IEEE conferences). 14. Technical reports from universities and major companies.
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