Subject Description Form

Subject Code	CSE49407
Subject Title	Integrated Capstone Project
Credit Value	6
Level	4
Pre-requisite	All CSE subjects in level 3 and all core subjects in level 1-3 of AIDA (Secondary Major)
Exclusion	Any other equivalent capstone project
Objectives	The objectives of this subject are to: • provide a student with the opportunity to apply and integrate the knowledge of artificial intelligence and data analytics (AIDA) to his/her discipline. • develop the capabilities of a student in analyzing and solving complex and possibly real-life problems using AIDA. • Train students with skills on systematic development and documentation of a significant piece of work.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: Professional/academic knowledge and skills (a) conduct literature surveys to locate materials and sources relevant to the selected problem area in a specific discipline; (b) understand the materials obtained and connect the materials with the problem to be solved using AIDA knowledge and skills; (c) define and specify the problem precisely; (d) assimilate and apply the learnt knowledge to generate 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; and (f) evaluate the final outcome in an objective manner; Attributes for all-roundedness (g) improve presentation and communication 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 supervision of supervisor(s); and

	(k) work collaboratively with related parties (e.g. vendors, sponsor company, technical support staff, team-partners, research students, etc.).
Subject Synopsis/ Indicative Syllabus	1. **In-depth Study of a Topic Typically Proposed by the Supervisor** 2. **Project Meeting and Planning** 3. **Proposal Writing** 4. **Regular Progress Checking and Reporting** 5. **Project Documentation** 6. **Presentation and Demonstration** Students are expected to identify a project topic with a supervisor in their chosen discipline, and a co-supervisor with artificial intelligence and data analytics expertise. Students need to demonstrate their knowledge in both their chosen discipline and AIDA in the project, receiving advice from both supervisors. The project should represent requisite effort in analysing and interpreting the data/information obtained, using the principles and techniques learnt from various related subjects. Students are also expected to demonstrate significant analytical and, preferably, research ability in the chosen application domain.
Teaching/Learning Methodology	The Integrated Capstone Project spans across the academic year for two consecutive semesters. The teaching/learning activities include regular project meetings with the supervisor and the co-supervisor, guided study of project materials, independent project development work and other project management tasks.
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	k
Continuous Assessment	100	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Total	100											

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

The Integrated Capstone Project will be accessed by the supervisor/co-supervisor and other assessors. Attributes to be assessed include, but not limited to, Problem Identification, Problem

Solving, Communication and Presentation, Project Management, and Self-Discipline.

Integrated Capstone Projects should be problem-oriented and there are no restrictions on the nature of the problem except that it should be relevant to the student's chosen discipline and AIDA. The project could be practical, academic or a hybrid in which the student is encouraged but not constrained to have some original contributions. Each student has to submit a proposal, a mid-term checkpoint progress report and a final report. The proposal must be approved by the supervisor/co-supervisor before the student can proceed with the Integrated Capstone Project. An oral presentation and demonstration is essential at the end of the project. A mid-term presentation and demonstration may also be required for proper continuous assessment.

Student must pass the continuous assessment and achieve a passing overall score / grade to pass the subject.

Student Study Effort Expected	Class contact:	
	☐ Lecture	0 Hrs.
	Other student study effort:	
	☐ Searching and reading materials, meeting with supervisor / co-supervisor / others, design and system development, testing, documentation, presentation, etc.	210 Hrs.
	Total student study effort	210 Hrs
Reading List and References	**Reference Books:**	

1. Kumar, Ranjit, *Research Methodology: A Step-by-step Guide for Beginners*, 3rd Edition, SAGE Publications, 2011.

2. Burns, Robert B., *Introduction to Research Methods*, 4th Edition, SAGE Publications, 2000.

3. Roberts, Carol M., *The Dissertation Journey: A Practical and Comprehensive Guide to Planning, Writing, and Defending Your Dissertation*, 3rd Edition, Corwin Press, 2007.

4. Mauch, James E. and Park, Namgi, *Guide to the Successful Thesis and Dissertation: A Handbook for Students and Faculty*, 5th Edition, Marcel Dekker, 2003.

	5. Rudestam, Kjell Erik and Newton, Rae R., *Surviving Your Dissertation: A Comprehensive Guide to Content and Process*, 2nd Edition, Sage Publications, 2001. 6. Garson, G. David, *Guide to Writing Empirical Papers, Theses and Dissertations*, Marcel Dekker, 2002. 7. Reinhart, Susan M., *Giving Academic Presentations*, 2nd Edition, University of Michigan Press, 2013. 8. Oshima, Alice and Hogue, Ann, *Writing Academic English*, 4th Edition, Pearson Longman, 2006. 9. American Psychological Association. *Publication Manual of the American Psychological Association*, 6th Edition, American Psychological Association, 2010. 10. Szuchman, Lenore T., *Writing with Style: APA Style Made Easy*, 5th Edition, Wadsworth/Cengage Learning, 2011. 11. Statistics, simulation, programming, and relevant books. 12. ACM and IEEE magazines, Transactions and Journals. 13. Other International Journals. 14. Relevant conference proceedings and magazines (including ACM and IEEE conferences). 15. Technical reports from universities and major companies.