**Subject Description Form**

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| **Subject Code** | ISE4001 | |
| **Subject Title** | Integrated Capstone Project | |
| **Credit Value** | 6 | |
| **Level** | 4 | |
| **Pre-requisite/**  **Co-requisite/ Exclusion** | Pre-requisite: ISE3018 Logistics Automation  Exclusion: ISE4008 Individual Project and ISE445 Capstone Project | |
| **Objectives** | While the specific objectives of integrated capstone projects may vary from one project to another, students are expected to develop the following generic skills through the learning experience of working on an individual project under the guidance of a supervisor:   1. Skills to obtain information needed to formulate a problem in logistics, and to devise and implement strategies that will produce a solution. 2. Skills to apply and integrate the knowledge of artificial intelligence and data analytics (AIDA) to logistics. 3. Skills to apply knowledge, procedures (principles, techniques and methods), and to understand their limitations in problem identification, data analysis and formulation of logical observations and or solutions. 4. Capabilities of analyzing and solving complex and possibly real-life problems using AIDA. 5. Skills to work effectively as an individual using one’s own initiative and within constraints. 6. Skills to prepare, present, and defend a project report effectively. | |
| **Intended Learning Outcomes** | Upon completion of the subject, students will be able to:     1. understand the background, as well as define the objectives (time, cost and technical requirements) and deliverables of a project that address a significant issue relevant to the field of logistics; 2. formulate strategies and methodologies to achieve the project objectives within the constraints of a given situation, and understand the materials obtained and connect the materials with the problem to be solved using AIDA knowledge and skills; 3. select, apply, integrate and, ideally, extend available knowledge, procedures and tools to collect data in performing the needed investigational or design work, and to draw conclusions that address the project objectives; 4. communicate effectively with stakeholders of the project outputs and work independently to produce, within applicable constraints, optimal solutions that address the project objectives; 5. evaluate the final outcome in an objective manner, and prepare, present, and defend a clear, coherent and succinct report. | |
| **Subject Synopsis/ Indicative Syllabus** | Each student is required carry out an individual project in an area relevant to the discipline of logistics engineering. Details of the work will depend on the subject of the project that the student works on. | |
| **Teaching/Learning Methodology** | Throughout the duration of the project, the supervisor provides guidance and monitors the progress of the project.  The progression of the project typically follows the following indicative stages:  **Project Definition** – in this stage, the student will work in consultation with the project supervisor to draw up a project plan addressing issues such as:   * Background of the project * Aims and objectives * Deliverables * Project scope and applicable constraints * Coverage of literature review * Methodologies to be considered * Project schedule   **Project Execution** – This is the major part of the project. After the project requirements are defined, the student will work independently under the guidance of the project supervisor towards the achievement of the project objectives and produce the project deliverables in a given situation. On his or her own initiative, the student will meet the project supervisor regularly to review progress and discuss issues of the project. In this stage, the student should demonstrate:   * Adherence to the schedule * Initiatives to acquire and synthesize knowledge, collect the needed data, and solve problems * Tenacity, resourcefulness, critical thinking and creativity in achieving project objectives * Systematic documentation of data, design and results throughout the process   The student is required to maintain a project workbook that records the meetings held and summarizes the work performed in this stage.  **Project Report** – On completion of the project, the student will disseminate the results to examiners to review. The major deliverables of this stage are:   * A written project report (softcopy and hardcopy) * An oral presentation * Taking questions and comments in a question-and-answer session   The proposed project defined by the student and/or the supervisor should be in an area relevant to the field of logistics. The project will be used as a vehicle for the student to integrate his/her knowledge gained in the programme. In order to achieve the subject learning outcomes, it is not appropriate to have projects mainly focused on literature review or pure computer programming. Depends on the nature of the project, the work covers by the students may include the background and scope of the project; literature review, field works; experiments; data collection; case studies; methodology; discussion; and conclusion. | |
| **Assessment Methods in Alignment with Intended Learning Outcomes** | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | Specific assessment methods/tasks | % weighting | Intended subject learning outcomes to be assessed | | | | | | a | b | c | d | e | | * Progress | 15% | ✓ | ✓ | ✓ | ✓ |  | | * Workbook | 10% | ✓ | ✓ | ✓ | ✓ |  | | * Final Report | 50% | ✓ | ✓ | ✓ | ✓ | ✓ | | * Oral Presentation | 25% | ✓ | ✓ | ✓ | ✓ | ✓ | | Total | 100% |  | | | | |   The workbook is designed to assist the project student to organise and document, in summary form, his or her project work in a systematic manner. This workbook, to be submitted at the end of Semester 1, will be commented by the Project Supervisor and then assessed by a co-examiner of the project. The final report should be a clear, coherent and succinct document that disseminate the background, problem statement, objectives and expected deliverables, literature review, methodologies, project execution, analysis and, where appropriate, design, as well as discussion and conclusions. Thus, the written report and the oral presentation are assessed by the project supervisor and a co-examiner to determine the achievement of all the learning outcomes of the project work.  The project supervisor, who communicates regularly with the student, will assess the student’s progress during project execution. | |
| **Student Study Effort Expected** | Class contact: |  |
| * Briefing on Final Year Project | 2 Hrs. |
| * Information Literacy Seminar | 2 Hrs. |
| Other student study effort: |  |
| * Meetings with Supervisor and/or project stakeholders 2 Hrs. × 13 | 26 Hrs. |
| * Literature review/field work/experiments | 120 Hrs. |
| * Analysis/report writing | 90 Hrs. |
| Total student study effort | 240 Hrs. |
| **Reading List and References** | 1. Blaxter, L., et al. 2001, *How to Research*, 2nd edn, Open University Press 2. Bryman, A. 1989, *Research Methods* *and Organization Studies*, Unwin Hyman 3. Campbell, W.G., et al. 1990, *Forms and Style: Thesis, Reports, Term Papers*, 8th edn, Boston, Houghton Mifflin 4. Murray, Rowena 2002, *How to Write a Thesis*, Open University Press | |