

Subject Description Form

Subject Code	AAE4012
Subject Title	Capstone Project
Credit Value	6
Level	4
Pre-requisite / Co-requisite/ Exclusion	Pre-requisite – The student should have completed most of the subjects required in previous years of the programme before taking this subject. The enrollment of this subject is subjected to the approval of the Project Coordinator.
Objectives	To provide students an opportunity to utilize and integrate their knowledge of air transport engineering in a team effort to solve real life problems related to the aviation industry.
Intended Learning Outcomes	<p>Upon completion of the subject, students will be able to:</p> <ol style="list-style-type: none"> a. Identify, formulate, and solve problems in aviation engineering by applying knowledge of mathematics, science, and engineering (including the understanding of the work of airport/airline/aircraft engineering operations); b. Design and conduct experiments, as well as to analyze and interpret data (including designing and solving engineering problems in the aviation industry); c. Use the techniques, skills, and modern engineering tools, including the computational tools necessary for engineering practice (including applying knowledge and up-to-date technologies designing); d. Function professionally in multidisciplinary teams; e. Communicate effectively and professionally with appropriate languages and tools; and f. Recognize the need to engage in life-long learning.
Subject Synopsis/ Indicative Syllabus	<p>A project team consisting normally of three students will be expected to complete an industry-related project or an academic-related project in the field of air transport engineering, which may cover the areas of, but not limited to the following areas:</p> <ul style="list-style-type: none"> • Aircraft maintenance routing problem • Air traffic control and air traffic flow operations • Airside and landside operations • Airport facility layout and design • Airline fleet operations and management

	<ul style="list-style-type: none"> • Crew pairing and rostering problem • Aircraft cabin interior design and modification • Air logistics engineering • Flight route planning and scheduling • Human factors and ergonomics design in aviation system and modification. <p>The team of students is expected to go through the following stages of work:</p> <ul style="list-style-type: none"> • Problem identification • Literature review • Research methodology • Numerical study, results analysis, and discussion • Project execution • Report writing • Project presentation
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<p>Teaching/Learning Methodology</p>	<p>The main component of the project is guided studies. Each team of students is allocated a project title, objectives, description, and a project supervisor and an industrial supervisor (if applicable). The project supervisor would guide the team through the various stages of the project. For industrial-related projects, one academic and one industrial supervisor will be assigned to each student team.</p> <p>Student team working on industrial-related projects may be eligible for fulfilling WIE requirement. To be eligible, student shall demonstrate frequent contact and close involvement with the industrial supervisor and/or industrial organization, and submit the necessary WIE required documentations.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="width: 50%;">Teaching/Learning Methodology</th> <th colspan="6">Intended subject learning outcomes to be covered</th> </tr> <tr> <th style="width: 5%;">a</th> <th style="width: 5%;">b</th> <th style="width: 5%;">c</th> <th style="width: 5%;">d</th> <th style="width: 5%;">e</th> <th style="width: 5%;">f</th> </tr> </thead> <tbody> <tr> <td>1. Site visit</td> <td style="text-align: center;">✓</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2. Guided study</td> <td style="text-align: center;">✓</td> <td style="text-align: center;">✓</td> <td style="text-align: center;">✓</td> <td style="text-align: center;">✓</td> <td style="text-align: center;">✓</td> <td></td> </tr> <tr> <td>3. Oral presentation</td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">✓</td> <td></td> </tr> <tr> <td>4. Report writing</td> <td></td> <td></td> <td style="text-align: center;">✓</td> <td></td> <td style="text-align: center;">✓</td> <td style="text-align: center;">✓</td> </tr> </tbody> </table>	Teaching/Learning Methodology	Intended subject learning outcomes to be covered						a	b	c	d	e	f	1. Site visit	✓						2. Guided study	✓	✓	✓	✓	✓		3. Oral presentation					✓		4. Report writing			✓		✓	✓
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**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	f
1. Individual reflective essay	10	✓	✓	✓	✓	✓	✓
2. Interim report	20	✓	✓	✓	✓	✓	
3. Final report	50	✓	✓	✓	✓	✓	
4. Oral examination	20	✓	✓			✓	
Total	100 %						

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

Overall Assessment:

1.0 × Continuous Assessment

Performance of each student is individually assessed together with the team's overall performance by the supervisor(s), an independent assessor, and their team members, based on their working attitude, quality of works, and report writing. Their communication skill is assessed through the oral presentation by an oral examination panel of at least two academic staff.

As a part of the assessment process, each group member is required to specify his/her own contribution to the project, and estimate and compared to the contribution of his/her teammates via peer assessment.

The supervisor conducts continuous monitoring of the project team as a whole and of each group member. The supervisor monitors and assesses the overall and individual progresses through regular meetings and guided studies. In case of an industrial-based project, comments from the industrial supervisor are invited, but he/she is not required to perform the formal assessment.

Both the project supervisor and the independent assessor assess the interim report and the final report. Based on the peer assessment, individual contribution to the project will be considered in these two assessments. In case of an industrial-based project, comments from the industrial supervisor may be invited, but he/she is not required to perform the formal assessment.

In the oral examination, every team member is required to present the project especially on his/her significant contributions, and address the questions by oral examination panel. Marks for oral examination is awarded to individual student by considering the group's overall performance.

Student Study Effort Expected	Class contact:	
	▪ Guided study	52 Hrs.
	Other student study effort:	
	▪ Conducting project	99 Hrs.
	▪ Literature review and private study	66 Hrs.
	▪ Training (Report writing)	26 Hrs.
	Total student study effort	243 Hrs.
Reading List and References	To be advised by supervisor	

December 2021