

Subject Description Form

Subject Code	AAE4001
Subject Title	Aviation Project Management
Credit Value	3
Level	4
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	<p>This subject will provide students with knowledge in</p> <ol style="list-style-type: none"> 1. Airline schedule planning and fleet management; and 2. Airline resources allocation and resources management; and 3. Fleet assignment, aircraft routing, and crew planning; and 4. Managing airline fleet and operations in a project management context.
Intended Learning Outcomes	<p>Upon completion of the subject, students will be able to:</p> <ol style="list-style-type: none"> a. Construct airline network and schedules; and b. Design aircraft routing plans; and c. Conduct crew planning (including crew pairing and rostering); and d. Understand airline operation processes and strategies to manage disruptions; and e. Acquire analytical skills for solving operational issues; and f. Project management skills in airline business context.
Subject Synopsis/ Indicative Syllabus	<p>Airline Schedule Planning - Overview of principles of airline schedule planning and the role of optimization models in the airline business context.</p> <p>Airline Fleet Assignment and Aircraft Routing - Allocate airline fleets according to uncertain passenger demands in a network. Route aircraft in a network by maximizing aircraft utilization.</p> <p>Crew Scheduling - Crew pairing and cost minimization. Crew establishment planning. Crew rostering and constraints.</p> <p>Airline Scheduling and Operations Project - Evaluation of aircraft deployment in uncertain market conditions. Managing large fleets and resources. Teamwork in solving planning and operation problems. Schedule disruptions and recovery management.</p>

Teaching/Learning Methodology	A mixture of lectures, tutorial exercises, and a team project is used to deliver the various topics in this subject. Some material is covered using a problem-based format where this advances the learning objectives. Other material is covered through directed study to enhance the students' "learning to learn" ability. A team project is specifically designed to promote teamwork and problem solving in a team environment. These skills and taught knowledge are used to integrate the topics and demonstrate to students how the various techniques are interrelated and applied in real-life situations.																																																					
Assessment Methods in Alignment with Intended Learning Outcomes	<table border="1" data-bbox="459 595 1447 1037"> <thead> <tr> <th rowspan="2">Specific assessment methods/tasks</th> <th rowspan="2">% weighting</th> <th colspan="6">Intended subject learning outcomes to be assessed</th> </tr> <tr> <th>a</th> <th>b</th> <th>c</th> <th>d</th> <th>e</th> <th>f</th> </tr> </thead> <tbody> <tr> <td>1. Mid-term project</td> <td>30%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> <td></td> <td>✓</td> </tr> <tr> <td>2. Final project report</td> <td>30%</td> <td></td> <td></td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>3. Written examination</td> <td>40%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> </tr> <tr> <td>Total</td> <td>100 %</td> <td colspan="6"></td> </tr> </tbody> </table> <p data-bbox="459 1088 1447 1189">Continuous assessment (1) & (2): Group projects and tutorial exercises are used to assess students' understanding and application of the knowledge that they have learnt relative to all learning outcomes.</p> <p data-bbox="459 1223 1447 1290">Written examination: questions are designed to assess all learning outcomes except (f), which is assessed in assessment (1) and (2).</p>								Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed						a	b	c	d	e	f	1. Mid-term project	30%	✓	✓	✓			✓	2. Final project report	30%			✓	✓	✓	✓	3. Written examination	40%	✓	✓	✓	✓	✓		Total	100 %						
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Student Study Effort Expected	Class contact:																																																					
	▪ Lectures/project 3 hours/week for 9 weeks							27 Hrs.																																														
	▪ Tutorials/project coaching 3 hours/week for 4 weeks							12 Hrs.																																														
	Other student study effort:																																																					
	▪ Preparation for assignments, test, group project, and the written examination							78 Hrs.																																														
	Total student study effort							117 Hrs.																																														

<p>Reading List and References</p>	<ol style="list-style-type: none"> 1. Wu, C. L., and Maher, S., 2017. Airline scheduling and disruption management, in Air Transport Management: An International Perspective, Ed. L. Budd and S. Ison, pp151-167 Routledge Publishing. 2. Wu, C. L., and Maher S, 2018. Airline Capacity Planning and Management, in Halpern N; Graham A (ed.), The Routledge Companion to Air Transport Management, Taylor & Francis, pp238- 258. 3. Barnhart, C., Cohn, A.M., Johnson, E.L., Klabjan, D., Nemhauser, G.L. and Vance, P.H., 2003. Airline crew scheduling. In Handbook of transportation science (pp. 517-560). Springer, Boston, MA. 4. Ball, M., Barnhart, C., Nemhauser, G. and Odoni, A., 2007. Air transportation: Irregular operations and control. Handbooks in Operations Research and Management Science, 14, pp.1-67. 5. Wu, C. L., 2016. Airline Operations and Delay Management- Insights from Airline Economics, Networks and Strategic Schedule Planning, Ashgate. 6. Bazargan, M., Airline Operations and Scheduling, Ashgate. 7. Journal of Air Transport Management: An International Journal of Research, Policy and Practice. Elsevier. ISSN: 0969-6997. (selected articles).
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