

Subject Description Form

Subject Code	AAE1002
Subject Title	Innovation and Entrepreneurship in Green Aviation and Space Economy
Credit Value	1
Level	1
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	<p>This subject will provide students with</p> <ol style="list-style-type: none"> 1. New technologies and business potentials in the field of green aviation, aviation technologies, aerospace and space technologies; and 2. Operational environments, innovation and entrepreneurship in aerospace and aviation industry.
Intended Learning Outcomes	<p>Upon completion of the subject, students will be able to:</p> <ol style="list-style-type: none"> (i) Demonstrate an elementary understanding of innovation and entrepreneurship; (ii) Appreciate the importance of innovation and entrepreneurship in local and global community; (iii) Appreciate the applications and implications of the latest technologies on entrepreneurship and innovation in aeronautical and aviation engineering; and (iv) Identify ethical issues in entrepreneurship and innovation.
Subject Synopsis/ Indicative Syllabus	<p>Identification of innovative ideas and emerging technologies in green aviation and space economy.</p> <p>Evaluation methods of the innovative solutions, market segment, business potential, market competitiveness, the difficulties of market entrance, methods of distributions channels, financial plan and business proposal planning and preparation; and competency in Innovation and Entrepreneurship.</p> <p>Management and organisation for innovation, strategy, structure and processes in the aviation and aerospace industry.</p> <p>Social impact, operational constraints, legal considerations, ethics of innovation and entrepreneurship in the aviation and aerospace industry.</p> <p>Green aviation – sustainable aviation fuel, solid-state battery for aviation, advanced air mobility and automation concepts, blue skies</p>

	<p>and clean aviation energy, flight technology in achieving zero-net carbon emission, sustainable aircraft manufacturing.</p> <p>Space economy – satellites navigation and launchers, orbital debris and CubeSat solutions, earth observation, UAS/UAV, space travel, space exploration, telecommunication and mobile services.</p>																			
<p>Teaching/Learning Methodology</p>	<p>1. e-Learning Module</p> <p>The e-learning module is developed and delivered consisting of readings, exercises and assessments that are designed to introduce students to the basic concept and practice of IE.</p> <p>The e-learning module will provide basic foundation concepts about IE, as well as their potential global and societal context impacts. A brief understanding about the innovation and entrepreneurship will also be provided.</p> <p>Students are required to successfully complete the e-learning module of IE within the first seven weeks of the semester in which they are taking the subject.</p> <p>2. Lectures</p> <p>Lectures are used to deliver the successful start-up, new businesses and innovative technologies in green aviation and space economy in local, GBA, China, Asia Pacific regions and global. The social impact, operational, operational constraints, legal considerations and ethical issues will be discussed with real cases.</p> <p>Given the basic knowledge of managing innovation and entrepreneurship in green aviation and space economy, the students are required to generate their new business solutions in green aviation and space economy via group discussion and project presentation.</p> <table border="1" data-bbox="533 1514 1211 1832"> <thead> <tr> <th rowspan="2">Teaching/Learning Methodology</th> <th colspan="4">Intended subject learning outcomes to be covered</th> </tr> <tr> <th>(i)</th> <th>(ii)</th> <th>(iii)</th> <th>(iv)</th> </tr> </thead> <tbody> <tr> <td>1. E-Learning module</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> </tr> <tr> <td>2. Group discussion</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> </tbody> </table>	Teaching/Learning Methodology	Intended subject learning outcomes to be covered				(i)	(ii)	(iii)	(iv)	1. E-Learning module	✓	✓	✓		2. Group discussion	✓	✓	✓	✓
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<p>Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</p> <p>The continuous assessment (100%) is aimed at enhancing the students' comprehension and assimilation of various topics of the syllabus via lectures and discussion. Group project presentation and business project proposal are going to facilitate the students' innovative idea generation and entrepreneurship skills in green aviation and space economy. Group project and business report and reflection will be conducted to evaluate the students' performance in innovation and entrepreneurship in green aviation and space economy. E-Learning module aims to equip students with the basic concept and practice of IE.</p>																																									
Student Study Effort Expected	e-Learning module	3 Hrs.																																							
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	<ul style="list-style-type: none"> ▪ Lectures, group discussion 	13 Hrs.																																							
	Other student study effort																																								
	<ul style="list-style-type: none"> ▪ Project preparation, reflection 	14 Hrs.																																							
	<ul style="list-style-type: none"> ▪ Self-study 	14 Hrs.																																							
	Total student study effort	44 Hrs.																																							
Reading List and References	Aerospace technology (latest). Technology. https://www.aerospace-technology.com/sector/technology/ Agarwal, R. K. (2012). Review of technologies to achieve sustainable (green) aviation. <i>Recent advances in aircraft technology</i> , 19, 427-464.																																								

	<p>Airport technology (latest). News. https://www.airport-technology.com/news/</p> <p>Blockley, R. (2016). Green aviation. John Wiley & Sons.</p> <p>Petroni, G., and Bigliardi, B. (2019). The Space Economy: From Science to Market. Cambridge Scholars Publishing.</p> <p>Pullen G. S., and Williams, S. (2021). The Space Economy: Book Zero In The Space Economy Series. AbeBooks.</p> <p>International Airport Review (latest). News. https://www.internationalairportreview.com/news/</p> <p>The American Institute of Aeronautics and Astronautics (latest). AIAA industry news, and press releases. https://www.aiaa.org/news</p>
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