

Subject Description Form

Subject Code	MM3462
Subject Title	Artificial Intelligence and Big Data for Business
Credit Value	3
Level	3
Pre-requisite/ Co-requisite/ Exclusion	Pre-requisite: Business Analytics (MM3425) or equivalent
Objectives	<p>Modern Artificial Intelligence (AI) and Big Data have fundamentally reshaped today's business and society, especially in the areas of business decision making, business processes, and enhancement of business models. This trend has created great demand for business graduates to have necessary knowledge and skills in AI and big data for continuous business innovation.</p> <p>This subject aims to develop student's understanding of the concepts and applications of AI and big data for business. Students will also have hands-on experience in using AI-based data science platform to solve real world business problems.</p>
Intended Learning Outcomes	<p>Upon completion of the subject, students will be able to:</p> <ol style="list-style-type: none"> a. Understand the concepts, principles, methods, and technologies of AI and big data in business. b. Think reflectively and creatively on applying AI and big data technologies in business contexts. c. Grasp hands-on knowledge and skills of big data visualization and analytics for business purposes. d. Develop a data science life cycle project by using AI-based data science platform, and evaluate the effectiveness of the proposed solutions.
Subject Synopsis/ Indicative Syllabus	<p>This subject provides students with a solid understanding of the cutting-edge technologies like AI and Big Data, specifically, it covers the below topics:</p> <p>Artificial Intelligence for business</p> <ul style="list-style-type: none"> • Machine Learning • Artificial Neural Network and Deep Learning • Natural Language Processing • Computer Vision • Robotics Technologies • Generative AI <p>Big data concepts and applications</p> <ul style="list-style-type: none"> • Introduction of big data -4Vs, data source, type, infrastructure, life cycle, etc. • Big data storage -Relational and non-relational databases, like RDBMS, NoSQL, and NewSQL databases

	<ul style="list-style-type: none"> • Big data processing, technologies and applications <ul style="list-style-type: none"> -Apache software, including Hadoop, Cassandra -Big data application cases • Big data analytics and visualization <ul style="list-style-type: none"> -Machine learning with Altair AI studio -Visualization with Tableau <p>Applications of AI and big data in innovative business solutions</p>																																														
<p>Teaching/Learning Methodology</p>	<p>The course will use a variety of methods as its pedagogy to help students achieve the above learning outcomes.</p> <p>Basic principles and concepts of AI and Big Data will be introduced through lectures. In the tutorial sessions, students will have practical exposure to Altair AI studio and Tableau – the AI-based data science platform and big data visualization tool. For other sessions of tutorial classes, students will make group presentations on how to use the above tools to solve real business problems. Through the above teaching and learning methods, students should be able to generalize the concepts to business situations via critical thinking skills, and able to integrate and synthesize course concepts with ideas in other domains.</p>																																														
<p>Assessment Methods in Alignment with Intended Learning Outcomes</p>	<table border="1" data-bbox="539 891 1401 1480"> <thead> <tr> <th rowspan="2">Specific assessment methods/tasks</th> <th rowspan="2">% weighting</th> <th colspan="4">Intended subject learning outcomes to be assessed (Please tick as appropriate)</th> </tr> <tr> <th>a.</th> <th>b.</th> <th>c.</th> <th>d.</th> </tr> </thead> <tbody> <tr> <td>Continuous Assessment</td> <td>50%</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>1. Participation</td> <td>10%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>2. Individual assignment</td> <td>15%</td> <td>✓</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>3. Group Assignments</td> <td>25%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>Final Exam/Assignment</td> <td>50%</td> <td>✓</td> <td>✓</td> <td></td> <td>✓</td> </tr> <tr> <td>Total</td> <td>100 %</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p><i>Weighting of assessment methods/tasks in continuous assessment may be different, subject to each subject lecturer.</i></p> <p>Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</p> <p>The group project in the continuous assessment is designed specifically to assess students’ ability to think reflectively and creatively in group work on applying AI and big data related knowledge in business contexts. The key concepts and analytical skills acquired by students can be reflected in their home/tutorial works (hands-on sessions, and individual paper), and their performance in the final assessment. The final exam/assignment may include essay questions and/or case analysis.</p> <p>To pass this subject, students are required to obtain Grade D in the overall grade.</p>	Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)				a.	b.	c.	d.	Continuous Assessment	50%					1. Participation	10%	✓	✓	✓	✓	2. Individual assignment	15%	✓	✓			3. Group Assignments	25%	✓	✓	✓	✓	Final Exam/Assignment	50%	✓	✓		✓	Total	100 %				
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Student Study Effort Expected	Class contact:	
	▪ Lecture	26 Hrs.
	▪ Tutorial	13 Hrs.
	Other student study effort:	
	▪ Preparation for discussion and hands-on exercise	32 Hrs.
	▪ Individual assignment and group assignments	46 Hrs.
	Total student study effort	117 Hrs.
Reading List and References	<p><i>Recommended Textbook and References</i></p> <p><u>Reference books:</u></p> <ol style="list-style-type: none"> 1. Rajendra Akerkar, Artificial Intelligence for Business, Springer, 2019. 2. Doug Rose, Artificial Intelligence for Business, Pearson, 2nd edition, 2020. 3. Echeberria, A. L., Artificial Intelligence for Business: Innovation, Tools and Practices, 2022. 4. Balamurugan B., Nandhini A. R., Seifedine K., Amir H. G., Big Data: Concepts, Technology and Architecture, John Wiley & Sons, Inc, 2021 5. Sedkaoui S., Khelfaoui, M., and Kadi, N., Big Data Analytics: Harnessing Data for New Business Models, 2021. 	

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