

## Module Specification

<b>Module Title:</b> Artificial Intelligence	<b>Module Code:</b> CN6005 <b>Level:</b> 6 <b>Credit:</b> 20 <b>ECTS credit:</b> 10	<b>Module Leader:</b> Dr Sin Wee Lee
<b>Pre-requisite:</b> None	<b>Pre-cursor:</b> None CN5120	
<b>Co-requisite:</b> None	<b>Excluded combinations :</b> None	<b>Suitable for incoming study abroad?</b> Y
<b>Location of delivery:</b> UEL		
<b>Summary of module for applicants:</b>		
<p>This module investigates methods of state of the art and research trends in Artificial Intelligence and related topics. In particular, the module introduces AI from machine learning to biologically inspired AI systems. This provides students with knowledge of the principles and applications of AI systems, and to promote appreciation of the current state of development in this area.</p>		
<b>Main topics of study:</b>		
<ul style="list-style-type: none"> <li>• History of Artificial Intelligence</li> <li>• Rule Based Systems: Probability Theory, Bayesian Reasoning</li> <li>• Biologically Inspired: Neural networks, Deep learning</li> <li>• Data mining and knowledge discovery: decisions trees, classification rules, association rules</li> </ul>		
<b>This module will be able to demonstrate at least one of the following examples/ exposures</b>		
<p><i>Live, applied project</i> <input checked="" type="checkbox"/>  <i>Company/engagement visits</i> <input type="checkbox"/>  <i>Company/industry sector endorsement/badging/sponsorship/award</i> <input type="checkbox"/></p>		
<b>Learning Outcomes for the module</b>		
<ul style="list-style-type: none"> <li>• <i>Digital Proficiency - Code = (DP)</i></li> <li>• <i>Industry Connections - Code = (IC)</i></li> <li>• <i>Emotional Intelligence Development - Code = (EID)</i></li> <li>• <i>Social Intelligence Development - Code = (SID)</i></li> <li>• <i>Physical Intelligence Development - Code = (PID)</i></li> <li>• <i>Cultural Intelligence Development - Code = (CID)</i></li> <li>• <i>Cognitive Intelligence Development – Code = (COI)</i></li> <li>• <i>Community Connections - Code = (CC)</i></li> <li>• <i>UEL Give-Back - Code = (UGB)</i></li> </ul>		
<p>At the end of this module, students will be able to:</p> <p><i>Knowledge</i></p> <ol style="list-style-type: none"> <li>1) Describe the principles of the AI systems covered, i.e. rule based systems, biologically inspired systems and data mining models</li> <li>2) Demonstrate knowledge of the steps in developing AI systems</li> <li>3) Critically evaluate the current state of research and ethical issues in the identified area. (SID)</li> </ol> <p><i>Thinking skills</i></p>		

- |   |
|---|
| <p>4) Demonstrate a thorough understanding of the role and importance of AI systems (COI)</p> <p>5) Develop a critical understanding of the issues associated with the application of AI systems (COI)(SID)</p> <p>6) Effectively use AI software tools and techniques to simulate the principles and working of an AI systems through the critical analysis of specific case studies / data sets. (DP)</p> |
|---|

*Subject-based practical skills*

- |   |
|---|
| <p>7) Demonstrate competence in applying AI concepts and techniques through implementation based on various existing technologies. (DP)</p> |
|---|

*Skills for life and work (general skills)*

- |   |
|---|
| <p>8) Gain experience of report writing and presentation of analysis results (SID)</p> <p>9) Use software packages to implement the AI systems covered, during tutorials and for completing the Portfolio based assessment (DP)</p> |
|---|

**Teaching/ learning methods/strategies used to enable the achievement of learning outcomes:  
For on campus students:**

Lecture, Tutorial/Practical. Feedback will be provided throughout the module in the form of both formative and summative work.

<b>Assessment methods which enable students to demonstrate the learning outcomes for the module; please define as necessary:</b>	<b>Weighting:</b>	<b>Learning Outcomes demonstrated:</b>
<b>Portfolio</b> Consisting of a case study based practical using AI tools (35 hours of student effort) and an in-class test (60 minutes)	100%	1-9

**Reading and resources for the module:**

- Negevitsky, M. (2011). Artificial Intelligence: A Guide to Intelligent Systems, 3<sup>rd</sup> Edition, Pearson.
- Han, J. and Kamber, M. (2011) Data Mining Concepts and Techniques. San Francisco: Morgan Kaufmann.
- Fausett, L. (1993). Fundamentals of Neural Networks: Architecture, Algorithms, and Application, Pearson.

**Live, applied project** coursework to be based upon real-word data sets

<b>Indicative learning and teaching time (10 hrs per credit):</b>	<b>Activity</b>
1. Student/tutor interaction:  24 hrs 24 hrs	Lectures Practicals
2. Student learning time:  152 hours	Essential and background reading, private study, practical work and assessment preparation.

Total hours (1 and 2):	200 hours