

1.	Name of Course/Module	Artificial Intelligence II
2.	Course Code	TAI2371
3.	Status of Subject	Major for B.IT Artificial Intelligence
4.	MQF Level/Stage	Bachelor Degree – MQF Level 6
5.	Version (state the date of the last Senate approval)	June 2012
6.	Requirement for Registration	TAI1361 Artificial Intelligence I
7.	Name(s) of academic/teaching staff	Cheah Wooi Ping Low Cheng Yaw Tan Shing Chiang
8.	Semester and Year offered	Trimester 2 (Gamma Level)
9.	Objective of the course/module in the programme :	
	<p>The course aims to impart the following knowledge and skills:</p> <ul style="list-style-type: none"> <li>• The principles and methods used in artificial intelligence programs.</li> <li>• Problem solving techniques in AI.</li> <li>• Knowledge representation techniques</li> <li>• Planning techniques</li> <li>• An introduction to machine learning, natural language processing and computer vision</li> <li>• Philosophical Foundations of AI</li> </ul>	
10.	Learning Outcomes :	
	<p>At the completion of the subject, students should be able to:</p> <p>LO1: Define and identify the principles and methods used in artificial intelligence (AI) (Cognitive, Level 1)</p> <p>LO2: Demonstrate the fundamental problem solving skills in AI through state space search (Cognitive, Level 3)</p> <p>LO3: Demonstrate the fundamental knowledge representation, planning, and machine learning techniques in AI correctly and effectively (Cognitive, Level 3)</p> <p>LO4: Combine various AI techniques in the application domain of natural language processing and computer vision. (Cognitive, Level 5)</p>	
11.	Synopsis:	
	<p>Problem Solving and Searching; Knowledge Representation and Reasoning; Planning; Learning; Natural Language Processing and Computer Vision.</p>	
	<p>Penyelesaian Masalah dan Algorithma Carian; Perwakilan Pengetahuan dan Deduktif; Perancangan; Pembelajaran; Pemprosesan Bahasa Tabii dan Visi Komputer.</p>	
12.	Mapping of Subject to Programme Outcomes :	
	Programme Outcomes	<b>% of Contribution</b>
	PO1: Apply soft skills in work and career related activities	25.00

	PO7: Demonstrate knowledge and understanding of essential facts, concepts, principles, and theories relating to artificial intelligence	50.00
	PO8: Apply principles and knowledge of artificial intelligence in relevant areas	25.00
13.	Assessment Methods and Types :	
	Method and Type	Description/Details
	Percentage	
	Test	Written Exam
	Quiz	Written Exam
	Assignment	Report & Presentation
	Final Exam	Written Exam
14.	Details of Subject	
	Topics	Mode of Delivery
		Lecture    Tutorial    Lab
	<b>1. Introduction and Intelligent Agents</b> History and definition of Artificial Intelligence; IQ-Test Program; Philosophical Foundations; Consciousness; Intelligence Agents.	4            2            0
	<b>2. Problem Solving and Searching</b> Solving Problems by Searching; State-Space Search; Heuristic Search; Game Playing; Alpha-Beta Pruning.	10           5            5
	<b>3. Knowledge Representation and Reasoning</b> Knowledge Representation; Conceptual Graphs; Reasoning in Uncertainty Situation; Probabilistic Reasoning Systems; Decision Making.	2            1            1
	<b>4. Learning</b> Learning from Observations; Learning in Neural Network; Reinforcement learning; Knowledge in Learning.	4            2            2
	<b>5. Communication</b> Lexicon; Grammar; Parsing, Ambiguity; Discourse Understanding.	2            1            1
	<b>6. Planning</b> Planning; Partial-Order Planning; Hierarchical Decomposition; Resource Constraints; Conditional Planning; Fully-Implemented Planning and Execution.	2            1            0
	<b>7. Perception</b> Image Formation; Early Vision; Extracting 3-D Information; Line-Drawing Interpretation; Object Representation And Recognition.	2            1            0
	<b>Total</b>	<b>26           13           9</b>
15.	Total Student Learning Time (SLT)	Face to Face (Hour)
	Lecture	26
	Tutorials	13
	Laboratory/Practical	9
	Presentation	
	Assignment	-
	Mid Term Test	1
	Final Exam	2
	Quizzes	2 times
	Sub Total	52
	Total SLT	132.5/40 = 3.3125 =>3
		Total Guided and Independent Learning
		26
		13
		4.5
		10
		5
		20
		2
		80.5

16.	Credit Value	3
17.	Reading Materials :	
	Textbook	Reference Materials
	<ol style="list-style-type: none"> <li>1. Stuart Russell, Peter Norvig, "Artificial intelligence – a modern approach", 3<sup>rd</sup> Ed. Pearson Higher Education, 2010.</li> </ol>	<ol style="list-style-type: none"> <li>1. George Luger, Artificial Intelligence: Structures and Strategies for Complex Problem Solving 6<sup>th</sup> Ed, Addison-Wesley, 2008.</li> <li>2. Elaine Rich et al, "Artificial Intelligence", McGraw Hill, 1991.</li> <li>3. Dan W. Patterson, Introduction to "Artificial Intelligence and Expert Systems", Prentice Hall, 1990.</li> <li>4. E.Turban, "Expert Systems and Applied Artificial Intelligence", MacMillan, 1992.</li> <li>5. T. Dean, J. F. Allen &amp; Y. Aloimonos, Thomas Dean, and James Allen, and Yiannis Aloimonos, "Artificial Intelligence: Theory and Practice", Benjamin Cummings, 1995.</li> <li>6. P.H. Winston, "Artificial Intelligence", Addison-Wesley, Reading, Massachusetts, 3<sup>rd</sup> Ed., 1992.</li> </ol>
18.	Appendix (to be compiled when submitting the complete syllabus for the programme) :	
	<ol style="list-style-type: none"> <li>1. Mission and Vision of the University and Faculty</li> <li>2. Mapping of Programme Objectives to Vision and Mission of Faculty and University</li> <li>3. Mapping of Programme Outcome to Programme Objectives</li> <li>4. Programme Objective and Outcomes (Measurement and Descriptions)</li> </ol>	