

SUMMARY OF INFORMATION ON EACH COURSE

1.	Name of Course	Agent Technology							
2.	Course Code	TAT3131							
3.	Status of Course [Applies to (cohort)]	Specialisation Core for B.IT (Hons) Artificial Intelligence							
4.	MQF Level/Stage Note : Certificate – MQF Level 3 Diploma – MQF Level 4 Bachelor – MQF Level 6 Masters – MQF Level 7 Doctoral – MQF Level 8	Bachelor Degree – MQF Level 6							
5.	Version (State the date of the Senate approval – history of previous and current approval date)	Date of previous version :		June 2012		Date of current version :		June 2014	
6.	Pre-Requisite	TAI2151 Artificial Intelligence Fundamentals							
7.	Name(s) of academic/teaching staff	Kalaiarasi Sonai Muthu Subarmaniam Kannan Tan Shing Chiang							
8.	Semester and Year offered	Trimester 1, Year 3							
9.	Objective of the course in the programme :	The course aims to impart the concepts of Personal Agent and Multi-Agent Systems. Practical applications are illustrated. Applications to E-Commerce, Multimedia Information Management; Medical Informatics are also discussed.							
10.	Justification for including the course in the programme :	The subject provide students with the understanding how independent processes can be coordinated and also provide the basic concepts and skills needed to design a simple agent-based system.							
11.	Course Learning Outcomes :	Domain	Level						
	LO1 Describe the notion of an agent and how agents are distinct from other software paradigms.	Cognitive	1						
	LO2 Identify the key issues in designing societies of agents that can effectively cooperate in order to solve problems.	Cognitive	4						
	LO3 Compare different type of Agent Architectures, communication and interactions between agents.	Cognitive	6						
	LO4 Design a simple agent-based system.	Cognitive	5						
12.	Mapping of Learning Outcomes to Programme Outcomes :	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
	Learning Outcomes								
	LO1	x						x	
	LO2	x						x	x
	LO3	x						x	

SUMMARY OF INFORMATION ON EACH COURSE

	LO4								x
13.	Assessment Methods and Types :								
	Method and Type	Description/Details					Percentage		
	Final Exam	Written test					60%		
	Test	Written test					10%		
	Quiz	Written test					10%		
	Project/Assignment	Report and presentation					20%		
14.	Mapping of assessment components to learning outcomes (LOs)								
	Assessment Components	LO1	LO2	LO3	LO4				
	Final Exam	x	x	x	x				
	Test	x		x					
	Quiz	x	x	x					
	Project/Assignment		x	x	x				
15.	Details of Course								
	Topics			Mode of Delivery (eg : Lecture, Tutorial, Workshop, Seminar, etc.) Indicate allocation of SLT (lecture, tutorial, lab) for each subtopic					
				Lecture	Lab				
	1. An Overview of Agent Technology Introduction to Software Agent Technology; Personal Agent; Multi-Agent Systems; Enabling Theories and Human Centered Virtual Machine.			2	2				
	2. Personal Agent Enabling Technologies: Speech Processing, Natural Language Processing, Dialogue Manager, Computer Vision, Machine Learning, Internetworking, Intelligent Search Engines; User Profile Based Personalized Web Agent; A Personalized Web Agent with Implicit Feedback and Hybrid Filtering Strategy.			4	4				
	3. Intelligent Agent Systems Practical Design of Intelligent Agent Systems; Rational Software Agents; Software Technologies for Building Agent-Based Systems.			4	4				
	4. Multi-Agent Systems Principles of Multi-Agent Systems; Networks of Agents; Principal aspects of kinetics			2	2				
	5. Interactions and Cooperation of Agents Types of interaction; Forms of cooperation; Methods of cooperation; Organizations and cooperation.			2	2				

SUMMARY OF INFORMATION ON EACH COURSE

6. Multi-agent Organizations What is an organization? Functional analysis; Structural analysis; Concretisation parameters; Analysis of a concrete organization; Individual organizations.	2	2
7. Action and Behaviour Modelling; Actions as transformation of a global state; Action as response to influences; Action as processes; Action as physical displacement; Action as local modification; Action as command; Hysteretic agents; Modelling of MASs in BRIC.	2	2
8. States of Artificial Minds Mental states and intentionality; The interactional system; What to believe? Contents of representations; The conative system; Motivations: sources of actions; Reactive undertaking of an action; Intentional transitions to an action.	2	2
9. Communications Aspects of communication; Speech acts; Conversations; KQML.	2	2
10. Collaboration and Distribution of Tasks Modes of task allocation; Centralized allocation of tasks by trader; Integrating tasks and mental states; Emergent allocation.	2	2
11. Coordination of Actions What is coordination of actions? Synchronization of actions;. Coordination of actions by planning; Reactive coordination; Solving by coordination: eco-problem solving.	2	2
12. Agent Technology Applications Agent Technology Applications in Internet and E-Commerce; Brokerage System for E-Commerce; Intelligent Multimedia Information Management; Intelligent Multimedia Multi-Agent Clinical Diagnosis and Treatment Support System; Agent Technology Applications in Health Informatics	2	2
Total	28	28
Total Student Learning Time (SLT)	Face to Face / Guided Learning	Independent Learning
Lecture	28	28
Tutorials		
Laboratory/Practical	28	14
Quiz	-	2
Assignment	-	10
Mid Term Test	1	3
Final Exam	2	20
Sub Total	59	77
Total SLT	136	
16. Credit Value	3	
17. Reading Materials :		

SUMMARY OF INFORMATION ON EACH COURSE

Textbooks				
1. Michael Wooldridge (2009). An introduction to multiAgent systems (2nd ed.). John Wiley & Son.				
Reference Material (including 'Statutes' for Law)				
1. Gerhard Weiss (2013). Multiagent Systems. The MIT Press.				
2. Mark D'Inverno, Michael Luck (2003). Understanding Agent Systems. Springer.				
3. Alex L. G. Hayzelden, Rachel Bourne (ed) (2001), Agent Technology for Communication Infrastructures. John Wiley & Sons.				
Appendix (to be compiled when submitting the complete syllabus for the programme) :				
1. Mission and Vision of the University and Faculty				
2. Programme Objectives or Programme Educational Objectives				
3. Programme Outcomes (POs)				
4. Mapping of POs to the 8 MQF domain				
5. Summary of the Bloom's Taxonomy's Domain Coverage in all the Los in the format below :				
Subject	Learning Outcomes (please state the learning Outcomes)	Bloom's Taxonomy Domain		
		Affective	Cognitive	Psychomotor
ABC1234	Learning Outcome 1			
	Learning Outcome 2			
	Learning Outcome 3			
	Learning Outcome 4			
DEF5678	Learning Outcome 1			
	Learning Outcome 2			
	Learning Outcome 3			
	Learning Outcome 4			
6. Summary of LO to PO measurement				
7. Measurement and Tabulation of result for LO achievement				
8. Measurement Tabulation of result for PO achievement				