

COMP90054 Software Agents

Credit Points:	12.50									
Level:	9 (Graduate/Postgraduate)									
Dates & Locations:	This subject is not offered in 2012.									
Time Commitment:	Contact Hours: 36 hours, 24 one hour lectures, two per week and 12 one hour workshops, one per week Total Time Commitment: 120 hours									
Prerequisites:	<p>One of the following:</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>COMP90048 Declarative Programming</td> <td>Semester 2</td> <td>12.50</td> </tr> <tr> <td>COMP30020 Declarative Programming</td> <td>Semester 1</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	COMP90048 Declarative Programming	Semester 2	12.50	COMP30020 Declarative Programming	Semester 1	12.50
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COMP90048 Declarative Programming	Semester 2	12.50								
COMP30020 Declarative Programming	Semester 1	12.50								
Corequisites:	None									
Recommended Background Knowledge:	None									
Non Allowed Subjects:	433-481 Agent Programming Languages 433-482 Software Agents 433-681 Agent Programming Languages 433-682 Software Agents									
Core Participation Requirements:	<p>For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements of this entry. The University is dedicated to provide support to those with special requirements. Further details on the Disability support scheme can be found at the Disability Liaison Unit Website: http://www.services.unimelb.edu.au/disability/</p>									
Contact:	Dr Adrian Pearce email: adrianrp@unimelb.edu.au (mailto:karus@unimelb.edu.au)									
Subject Overview:	<p>Software agents are software systems that use automated reasoning algorithms operating on symbolic knowledge representations to determine how they should interact with their environment (the real world, human beings, or other agents) in order to achieve the goals set for them. Agent modelling and programming techniques are becoming increasingly popular for solving problems for robotic, artificially intelligent or internetworking processes.</p> <p>The subject covers the principles of agent-oriented modelling and the underlying automated reasoning and agent programming techniques involved. Topics covered include: agent modelling of goals, roles and organisations, planning, sensing and acting, introduction to modal logic and model theory, epistemic logic, theorem proving, dynamic logic, the situation calculus, logical regression, non-deterministic programming, concurrency and multi-agent programming. The subject focuses on the foundations that enable agents to reason autonomously about goals, perception, actions and the knowledge of other agents during collaborative task execution.</p>									
Objectives:	<p>On completion of this subject students should be able to:</p> <ul style="list-style-type: none"> # Apply agent modelling techniques to analyse, design and implement a small agent-based system # Perform logical analysis of distributed problems based on (at least one of) modal logic, dynamic logic, epistemic logic and model theory techniques 									

	<ul style="list-style-type: none"> # Program effective agent reasoning strategies using an action language (such as the situation calculus) and high-level, non-deterministic programming principles # Choose and apply effective concurrent programming and continuous planning techniques to non-trivial distributed problems
Assessment:	Two written assignments, due in approximately weeks 6 and 11, of around 1750 words each (30% each) A 15 minute in-class oral presentation concerning assignment work (10%) And a 2-hour end-of-semester open-book written examination (30%)
Prescribed Texts:	Leon Sterling and Kuldar Taveter, The Art of Agent-Oriented Modelling, MIT Press, 2009.
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	<p>On completion of the subject the students should have the:</p> <ul style="list-style-type: none"> # Ability to undertake problem identification, formulation, and solution # Ability to utilise a systems approach to complex problems and to design and operational performance # Ability to manage information and documentation # Capacity for creativity and innovation Ability to communicate effectively, with the engineering team and with the community at large
Related Course(s):	<p>Bachelor of Computer Science (Honours) Master of Engineering in Distributed Computing Master of Science (Computer Science) Master of Software Systems Engineering</p>
Related Majors/Minors/Specialisations:	<p>B-ENG Software Engineering stream Master of Engineering (Software)</p>