COMP90020 Distributed Algorithms

Credit Points:	12.5
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2015, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 3 hours contact per week Total Time Commitment: 200 hours

Prerequisites:	Subject	Study Period Commencement:	Credit Points:
	COMP90015 Distributed Systems	Semester 1, Semester 2	12.50

Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry. It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: http://services.unimelb.edu.au/disability
Coordinator:	Assoc Prof Egemen Tanin
Contact:	email: **etanin@unimelb.edu.au (mailto:etanin@unimelb.edu.au)**
Subject Overview:	**AIMS** The Internet, World Wide Web, bank networks, mobile phone networks and many others are examples for Distributed Systems. Distributed Systems rely on a key set of algorithms and data structures to run efficiently and effectively. In this subject, we learn these key algorithms that professionals work with while dealing with various systems. Clock synchronization, leader election, mutual exclusion, and replication are just a few areas were multiple well known algorithms were developed during the evolution of the Distributed Computing paradigm. **INDICATIVE CONTENT** Topics covered include: # Synchronous and asynchronous network algorithms that address resource allocation, communication # Consensus among distributed processes # Distributed data structures # Data consistency # Deadlock detection # Lader election, and # Global snapshots issues.

Learning Outcomes:	**INTENDED LEARNING OUTCOMES (ILO)** On completion of this subject the student is expected to: 1 Have developed an understanding of distributed algorithm design 2 Be able to implement and analyse distributed algorithms.
Assessment:	Term project including a report (2000 words) and a 10 minute presentation (together worth 40% of the final mark), requiring approximately 50 - 55 hours of work, due week 10-12 of the semester One 3-hour written examination (60% of the final mark). Intended Learning Outcome (ILO) 1 is assessed by all the components. ILO 2 is assessed by the project component. All components should be completed satisfactorily to obtain a passing mark in this subject.
Prescribed Texts:	None
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:	On completion of this subject students should have the following skills: # Ability to undertake problem identification, formulation and solution # Capacity for independent critical thought, rational inquiry and self-directed learning # Profound respect for truth and intellectual integrity, and for the ethics of scholarship.
Notes:	**LEARNING AND TEACHING METHODS** The subject will be delivered through a combination of lectures, tutorials, student presentations. Students will write a report and give a presentation. **INDICATIVE KEY LEARNING RESOURCES** The subject accesses a number of scholarly papers in the area which are presented through lecture slides. Papers are made available through LMS to the students. The subject also uses: *Distributed Systems: Concepts and Design* by Coulouris, Dollimore, Kindberg, and Blair, Fifth Edition, Addison-Wesley. **CAREERS / INDUSTRY LINKS** Distributed Algorithms are fundamental to understanding any Distributed System and multiple key information and communication technologies, these include but are not limited to the Internet, Banking Networks, and Mobile Systems.
Related Course(s):	Master of Information Technology Master of Information Technology Master of Philosophy - Engineering Master of Science (Computer Science) Master of Software Systems Engineering Ph.D.- Engineering
Related Majors/Minors/ Specialisations:	Computer Science Computer Science MIT Distributed Computing Specialisation Master of Engineering (Software)