Unit Outline

Computer Networks (CITS3230)

6 points / Semester 1
Location: UWA (Crawley)

Handbook Description

This unit introduces the fundamentals of data communications and inter-networking by focusing on their protocols and software systems. It first addresses the representation of digital signals on physical media and discusses how transmission errors may be both detected and corrected. Protocols transmitting data between two computer systems are then introduced, concentrating on issues of correctness, reliability and efficiency. Network connectivity is extended to include multiple computer systems, such as the Internet, thereby introducing the need for both addressing and routing schemes. Again, correctness, reliability and efficiency are stressed. The unit next examines wide-area, local-area and wireless networks. Finally, application programming interfaces (APIs), including the Berkeley socket abstraction and remote procedure calls (RPCs) and remote method invocation (RMI) are introduced. The Network File System (NFS) and the File Transfer Protocol (FTP) and web-based services are used as case studies, bringing together many of the ideas introduced throughout the unit.

Prerequisites: CITS2200 Data Structures and Algorithms
Corequisites:

Unit Aims

Students develop an understanding of, and experience in, the following: basic physical operation of networks including the concepts of data encoding and error detection and recovery; design and operation of contemporary wide-area, local-area and wireless networking technologies; motivation, design and future of inter-networking; the TCP/IP protocol stack; client/server and peer-to-peer networking models; industry standard application programming interfaces providing network access from within procedural and object-oriented programming languages; and distributed applications for heterogeneous computer systems. Students develop a systems approach to design and operational performance, gain in-depth technical competence in computer networks, and are able to
apply their knowledge to identify, analyse and solve problems.

**Teaching Staff**

**Unit Co-ordinator:**

**Textbook**

**Contact Hours**

65 (lectures: 25 hrs; tutorials: 7 hrs; labs: 33 hrs)

**Assessment**

This comprises two programming projects, a mid-semester test and a final examination. The programming projects develop the ability to undertake problem identification, formulation and solution, the ability to apply fundamental knowledge and in-depth technical competence. The programming projects are undertaken in small teams and require the programming work to be clearly documented. This develops and enhances teamwork and communication skills. The written test and examination also require students to undertake problem identification, formulation and solution by requiring short answers to problems drawing on both related and contrasting issues presented in the unit. Supplementary assessment is not available in this unit except in the case of a bachelor's pass degree student who has obtained a mark of 45 to 49 and is currently enrolled in this unit, and it is the only remaining unit that the student must pass in order to complete the course.

**Unsatisfactory Progress**

Any student who does not demonstrate satisfactory progress in this unit, as defined in the FECM Policy on Assessment Practices and Procedures, may be refused admission to the final examinations. The final deadline for notification of unsatisfactory progress is the last day of Week 10.

**Penalties**

The School of Computer Science and Software Engineering has adopted a policy on minimum penalties for late items of assessment. This is the default policy of all units unless indicated otherwise, in writing, by the specific unit coordinator.

This policy shall apply to all items of continuous assessment, whether submitted either physically or electronically. Immediately after the submission deadline for an item of continuous assessment, a penalty of 20 percent will be applied PER DAY or PART THEREOF. The minimum mark
possible for late submission is zero. The percentage is based on the item´s total contribution to the unit´s assessment. For example, a project contributing 40% to the unit´s assessment will incur a penalty of 8 marks for each day late until it is submitted or a mark of zero results.

A more detailed description is given in this School´s Policy on Late Submission. The Faculty does have an appeals procedure, the details of which can be found at the Policy for Appeals.

Plagiarism

Plagiarism is broadly defined to be when any portion of the work presented for assessment, can be attributed to another party. The student making the submission should acknowledge what aspects of the presented work is not directly derived by them. For the purposes of plagiarism it is irrelevant that you have been given permission by someone to copy their work and present it as your own.

You are directed to the School of Computer Science and Software Engineering Policy on Plagiarism and the Faculty of Engineering, Computing and Mathematics Policy on Plagiarism.

Academic Conduct Essentials (ACE)

All students who have not previously been enrolled at UWA are required to complete a short compulsory online module called Academic Conduct Essentials (ACE) within the first 10 weeks of semester. ACE introduces students to essential knowledge regarding ethical scholarship, helps prepare them for the expectations of their university career and informs them of correct academic conduct.

The unit can be accessed via WebCT. The final unit quiz must be completed with a mark of 80% or greater. Students may attempt the quiz as many times as they wish to gain the required pass mark. Completion of the unit will be recorded as an Ungraded Pass (UP) on students´ academic records. Non-completion (NC) within the required timeframe will also be documented on formal academic records. More information on ACE is available at ace.uwa.edu.au

Special Consideration

Applications for consideration, deferral of tests or exams or extensions of time for assignments on medical, personal or other grounds must be lodged with the faculty office no later than three working days after the due date for the assessment in question. This rule will apply to all students, except in exceptional circumstances.

Faculty Marks Adjustment Policy
Final assessment is subject to the Faculty Scaling Policy.

**Supplementary Examinations**

Supplementary examinations will be awarded in accordance with Faculty Policy on supplementary assessment.

**Student Rights**

The University's charter of student rights is available at http://www.secretariat.uwa.edu.au/home/policies/charter

**Academic misconduct**

The University of Western Australia strongly supports teaching and learning that promotes academic literacy and ethical scholarship for all students. As part of this commitment, UWA has recently developed new guidelines relating to Academic Misconduct (including plagiarism). It is also developing a range of resources for students and staff to further strengthen academic literacy and ethical scholarship at UWA. Further details are available on the Teaching and Learning website.