Introduction

Provides students with foundation knowledge of computer networks and digital communications. Instructs students in the various ways data may be transmitted through various media, and in particular with the various methods for encoding data digitally for transmission. Informs students about procedures and protocols under which data communication is organised and managed, about the interfacing and control of data links and about the various standards which are widely accepted as a basis for data communications as well as the OSI architecture model and key industry architectures. Gives students practice in installing, operating, and managing networked computer systems and networking equipment. Introduction to local area network technologies and real protocols such as TCP/IP.

Learning Outcomes

On successful completion of this unit, you will be able to:

1. Describe the OSI reference model.
2. Identify issues and protocols in the TCP/IP communications architecture.
3. Identify issues and describe important protocols in Local Area Networks.
4. Identify and select the necessary hardware components needed to build computer networks.
5. Install, manage, and troubleshoot a Local Area Network (LAN), both at the hardware and software level.
6. Demonstrate basic router configuration skills.

Unit Content

The OSI model, Local area networks, Electronics and signals, Layer 1 media, connections and collisions, Layer 2 concepts and technologies, Network design and documentation, Structured cabling, Routing and addressing, Routing protocols, Routers, Router CLI, Router configuration, TCP/IP, IP Addressing, Network Troubleshooting.
The university has defined a set of generic graduate attributes expected in its graduates. See the section titled 'Content' on the unit website for more information.

**LEARNING AND TEACHING**

**Approach to Learning**

You are expected to spend about 130 hrs studying in this unit - this includes attendance at scheduled teaching sessions. (For a 13 week semester this is, on average, 10 hr/wk.) This is the amount of study time that the 'typical' student will need to reach the level of competence and understanding required to fulfil the unit objectives.

You are expected to:

- attend all scheduled lectures and tutorials, unless otherwise notified by the unit coordinator
- prepare for, and actively participate in lectures and tutorials
- complete the assigned learning tasks
- review what has been learnt
- complete assessment items and submit them on time
- access and be familiar with the information and resources available on the unit website
- seek help from teaching staff if you have any questions or difficulties in studying this unit

Each tutorial session consists of a 1-hour hands-on practical session in a Networks lab, and a 1-hour Cisco CCNA material reading session in a PC lab.

You are encouraged to read the university's Code of Conduct for Teaching and Learning. Part A describes the 'Responsibility of the University to Students' and part B describes the 'Responsibilities of Students to the University'.

**Schedule**

See the 'Schedule' section on the unit website.

**Teaching and Support Staff**

**Teaching Staff**

**Unit Coordinator:**

Dr. Daniel Rolf
E-Mail: Daniel.Rolf@utas.edu.au
Phone: (03) 6324 3450
Room: V169, Newnham Campus, Launceston

**Lecturing Staff**

Newnham Campus, Launceston: Dr. Daniel Rolf
Sandy Bay Campus, Hobart: Dr. Ian Lewis

**School Help Desk**

Contact the School Help Desk if you have any queries or problems with accessing, using, or printing from the computers in the School of Computing labs.

- **Hobart:** the Help Desk is located near the School's reception desk and is open from 10am - 4pm Monday-Friday. The phone number is 6226 2960.
- **Launceston:** the Help Desk is located near the entrance to the computing labs and is open in the morning from 10am - 12pm, and in the afternoon from 2pm - 4:30pm, Monday-Thursday. On Fridays it is open from 10am - 12pm in the morning and 2pm - 4pm in the afternoon. The phone number is 6324 3447.
- **Burnie:** the computer labs at the NWC are maintained by ITS. Please contact the University Help Desk for assistance. The 6 Macs are maintained by the School of Computing. If you have a query or problem that is specific to the School of Computing please phone the School of Computing Help Desk in Launceston.

**University Services and Support**

The University has staff available to assist you, such as the:

- Learning Development Advisor
- Student Counselor
- Careers Advisor
- Disability Officer

For more information and contact details see the Services and Support section on the University 'Current Students' web page.
Resources

Unit Website

The unit website contains unit information and resources. You will also need to access the CISCO program website to complete some components of this unit. This can be accessed from the home page of the unit website, or the Cisco Networking Academy Program website (http://cisco.netacad.net/public/index.html). In week 1 students will receive email message from Cisco system detailing registration procedure, therefore, all students are required to check their emails and respond to the received instructions.

Prescribed Text

The Cisco CCNA material is on the School of Computing student servers. The Cisco CCNA material can also be accessed from the Cisco Networking Academy Program website (http://cisco.netacad.net/public/index.html). Reading the Cisco CCNA material is compulsory.

Readings


Software

The software that you will need to access the unit website and to study this unit, including general purpose software such as word processors, is provided on the computers in the School's computing labs. If you intend to use software on other computers please check that the versions are compatible.

Computing Facilities

The School has PC labs (Windows XP), Mac labs (Mac OS-X 10.4), and Networking labs at the Newnham and Sandy Bay campuses. It also maintains 6 Macs (Mac OS-X 10.4) at the NW Centre. Unix accounts can be accessed from all Macs and PCs.

If you have not used these facilities before please contact the School Help Desk to organise your account details. If you would like to access the facilities at the Newnham and Sandy Bay campuses after hours please contact the School Help Desk.

Please contact the School Help Desk if you have difficulty accessing or using these facilities.

There is a network laboratory in Launceston and Hobart for practical work. These laboratories will be available for the weeks of the practical work between the hours of 8:00am and 5:00pm, weekdays only. NB. Check with the help desk that the room is not in use for any other scheduled class.

Use of Facilities

Use of computing facilities provided by the School is subject to the School's Ethics Guidelines - http://www.comp.utas.edu.au/app/ethics.jsp. Copies of the guidelines are also available in all School labs. The School's facilities may only be used for study-related purposes, and may not be used for personal gain. The playing of games is strictly prohibited in all labs at all times. Before being granted access to the School's facilities, you will be required to sign a declaration that you have read and understand these guidelines, and that you will abide by them. Disciplinary action may be taken against students who violate the guidelines.

Occupational Health and Safety

The university is committed to providing a safe and secure teaching and learning environment. For more information see http://www.admin.utas.edu.au/hr/ohs/pol_proc/

ASSESSMENT

Assessment Items

<table>
<thead>
<tr>
<th>Item 1</th>
<th>Title: Mid semester multiple choice exam Type: In-Semester - test Weighting: 15% Due: Conducted during your Week 7 tutorial session.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 2</td>
<td>Title: End of semester multiple choice exam Type: In-Semester - test Weighting: 15% Due: Conducted during your Week 13 tutorial session.</td>
</tr>
<tr>
<td>Item 4</td>
<td>Title: University/School theoretical exam Type: Formal Examination Weighting: 70% Due: University Examination Period</td>
</tr>
</tbody>
</table>
In-Semester Assessment

Unless specifically stated in the specification of the assessment item provided on the unit website, it is required that:

- work submitted by a student is the work of that student alone OR
- where the assessment item is to be completed by a group of students, the work submitted by the group of students is the work of that group of students alone.

Plagiarism

Plagiarism is a form of cheating. It is taking and using someone else's thoughts, writings or inventions and representing them as your own, for example:

- using an author's words without putting them in quotation marks and citing the source;
- using an author's ideas without proper acknowledgment and citation; or
- copying another student's work.

If you have any doubts about how to refer to the work of others in your assignments, please consult your lecturer or tutor for relevant referencing guidelines, and the academic integrity resources on the web at http://www.utas.edu.au/tl/supporting/academicintegrity/index.html.

The intentional copying of someone else's work as one's own is a serious offence punishable by penalties that may range from a fine or deduction/cancellation of marks and, in the most serious of cases, to exclusion from a unit, a course or the University. Details of penalties that can be imposed are available in the Ordinance of Student Discipline – Part 3 Academic Misconduct, see http://www.utas.edu.au/policy/subject.html#students.

The University reserves the right to submit assignments to plagiarism detection software, and might then retain a copy of the assignment on its database for the purpose of future plagiarism checking.

Referencing

The university document on plagiarism contains information about referencing the work or ideas of others. (See http://www.utas.edu.au/plagiarism/.) The preferred text referencing systems for the School is the Harvard system (also referred to as the author-date system).

Submissions

The details of the submission method (paper, electronic or other) for each assignment will be supplied in a separate assignment specification sheet. All in-semester assignment submissions (including electronic submissions) are to include an Assignment Cover Sheet which includes a statement confirming that the submission is your own work. If this undertaking is not signed, the assignment will not be marked. The Assignment Cover Sheet is available from the School Help Desk in Launceston and Hobart, and on the School's web site http://www.comp.utas.edu.au/app/studyresources.jsp.

Extensions

Assessment items will not be accepted after the due date except under the conditions stated in the school policy on late assessment. http://www.comp.utas.edu.au/app/late_assess.jsp

Formal Examination

The formal examination is conducted by the University Registrar. The 'Current Students' section on the university website contains information about the conduct of, and timetable for, formal examinations.

Final Grade

Overall assessment will be based on the student's performance throughout the semester as well as in a formal examination. In order to achieve a pass (or better) result, a student must obtain:

1. at least 45% of the total mark for in-semester assessment items
2. at least 45% of the mark for the formal examination
3. at least 50% of the overall mark

In order to comply with the benchmarks set by the Faculty of Science, Engineering & Technology for distribution of grades in units, both the in-semester and examination marks that students obtain may be adjusted either upwards or downwards. See http://fcms.its.utas.edu.au/scieng/scieng/policies.asp for details of the Faculty Assessment Guidelines.

Passing grades will be awarded based on the AVCC guidelines:

- PP at least 50% of the overall mark but less than 60%
- CR at least 60% of the overall mark but less than 70%
- DN at least 70% of the overall mark but less than 80%
HD at least 80% of the overall mark

The maximum mark awarded to a student who fails the unit will be 44.

For more information, including other grades such as Supplementary and Terminating grades, see the School of Computing's guidelines for assessment - available at: http://www.comp.utas.edu.au/app/assess.jsp