



**MONASH** University

**GCO3812**  
**Data communication and networks 1**

**Unit guide**

**Semester 2, 2008**

*Last updated : 31 Jul 2008*

# Table of Contents

|  |    |
|--|----|
| <u>GCO3812 Data communication and networks 1 - Semester 2 , 2008</u> ..... | 1  |
| <u>Unit leader</u> :.....  | 1  |
| <u>Lecturer(s)</u> :.....  | 1  |
| <u>Gippsland</u> .....   | 1  |
| <u>Tutors(s)</u> :.....  | 1  |
| <u>Gippsland</u> .....   | 1  |
| <u>Introduction</u> .....  | 2  |
| <u>Unit synopsis</u> .....   | 2  |
| <u>Learning outcomes</u> .....   | 2  |
| <u>Workload</u> .....  | 2  |
| <u>Unit relationships</u> .....  | 3  |
| <u>Prerequisites</u> .....   | 3  |
| <u>Relationships</u> .....   | 3  |
| <u>Continuous improvement</u> .....  | 4  |
| <u>Student Evaluations</u> .....   | 4  |
| <u>Unit staff - contact details</u> .....                                  | 5  |
| <u>Unit leader</u> .....   | 5  |
| <u>Lecturer(s)</u> :.....  | 5  |
| <u>Tutor(s)</u> :.....   | 5  |
| <u>Additional communication information</u> .....                          | 5  |
| <u>Teaching and learning method</u> .....                                  | 6  |
| <u>Timetable information</u> .....   | 6  |
| <u>Communication, participation and feedback</u> .....                     | 6  |
| <u>Unit Schedule</u> .....   | 6  |
| <u>Unit Resources</u> .....  | 8  |
| <u>Prescribed text(s) and readings</u> .....                               | 8  |
| <u>Recommended text(s) and readings</u> .....                              | 8  |
| <u>Required software and/or hardware</u> .....                             | 8  |
| <u>Equipment and consumables required or provided</u> .....                | 8  |
| <u>Study resources</u> .....   | 8  |
| <u>Library access</u> .....  | 8  |
| <u>Monash University Studies Online (MUSO)</u> .....                       | 8  |
| <u>Assessment</u> .....  | 10 |
| <u>Unit assessment policy</u> .....  | 10 |
| <u>Assignment tasks</u> .....  | 10 |
| <u>Examinations</u> .....  | 11 |
| <u>Assignment submission</u> .....   | 11 |
| <u>Assignment coversheets</u> .....  | 11 |
| <u>University and Faculty policy on assessment</u> .....                   | 12 |
| <u>Due dates and extensions</u> .....                                      | 12 |
| <u>Late assignment</u> .....   | 12 |
| <u>Return dates</u> .....  | 12 |
| <u>Plagiarism, cheating and collusion</u> .....                            | 12 |
| <u>Register of counselling about plagiarism</u> .....                      | 13 |
| <u>Non-discriminatory language</u> .....                                   | 13 |
| <u>Students with disabilities</u> .....                                    | 13 |
| <u>Deferred assessment and special consideration</u> .....                 | 13 |

# **GCO3812 Data communication and networks 1 - Semester 2 , 2008**

## **Unit leader :**

Joarder Kamruzzaman

## **Lecturer(s) :**

### **Gippsland**

- Joarder Kamruzzaman

## **Tutors(s) :**

### **Gippsland**

- Joarder Kamruzzaman

## Introduction

Welcome to GCO3812 Networks and Data Communications for semester 1, 2008. This 6 point unit is compulsory for the Bachelor of Information Technology degree, Network Technology major and elective for Systems Development and Business Systems majors. The unit has been designed to provide you with an understanding of data communications and networks, including such topics as standard layered architecture approach and the OSI model and each of its layers. This will introduce the fundamental building blocks of a communications system.

## Unit synopsis

GCO3812 Networks and Data Communications will introduce students to fundamentals of distributed networked environment. The unit provides knowledge of internetworking standards and understanding of the networking architecture, technology and operation.

## Learning outcomes

At the completion of this unit, students should be able to:

- Discuss network architecture standards for open systems.
- Describe ISO reference and Internet models.
- Explain fundamentals and technologies of physical, data-link and network layers
- Understand the functions and architectures of LAN and WAN.
- Analyse and design LAN architecture for organisational requirements.

have developed attitudes that enable them to:

- Adopt a problem solving approach
- Accept the code of professional conduct and practice
- Act in accordance with best practice, industry standards and professional ethics

and the skills to:

- analyse data communication networks

Students will demonstrate the communication skills necessary to:

- Cooperate effectively within small groups
- Present their work in various forms

## Workload

For on campus students, workload commitments are:

- two-hour lecture and
- two-hour tutorial (or laboratory) requiring advance preparation
- a minimum of 2-3 hours of personal study per one hour of contact time in order to satisfy the reading and assignment expectations.

Off-campus students generally do not attend lecture and tutorial sessions, however, you should plan to spend equivalent time working through the relevant resources and participating in discussion groups each week.

## **Unit relationships**

### **Prerequisites**

The prerequisite for this unit is GCO9802 (or GCO2812 as a corequisite).

### **Relationships**

This is a compulsory unit for the Bachelor of Information Technology degree, Network Technology major and elective for Systems Development and Business Systems majors. The prohibitions for this unit are BUS2062, CFR2204, COT2001, CSC3182, RDT3662.

## Continuous improvement

Monash is committed to 'Excellence in education' and strives for the highest possible quality in teaching and learning. To monitor how successful we are in providing quality teaching and learning Monash regularly seeks feedback from students, employers and staff. Two of the formal ways that you are invited to provide feedback are through Unit Evaluations and through Monquest Teaching Evaluations.

One of the key formal ways students have to provide feedback is through Unit Evaluation Surveys. It is Monash policy for every unit offered to be evaluated each year. Students are strongly encouraged to complete the surveys as they are an important avenue for students to "have their say". The feedback is anonymous and provides the Faculty with evidence of aspects that students are satisfied and areas for improvement.

## Student Evaluations

The Faculty of IT administers the Unit Evaluation surveys online through the my.monash portal, although for some smaller classes there may be alternative evaluations conducted in class.

If you wish to view how previous students rated this unit, please go to <http://www.monash.edu.au/unit-evaluation-reports/>

Over the past few years the Faculty of Information Technology has made a number of improvements to its courses as a result of unit evaluation feedback. Some of these include systematic analysis and planning of unit improvements, and consistent assignment return guidelines.

Monquest Teaching Evaluation surveys may be used by some of your academic staff this semester. They are administered by the Centre for Higher Education Quality (CHEQ) and may be completed in class with a facilitator or on-line through the my.monash portal. The data provided to lecturers is completely anonymous. Monquest surveys provide academic staff with evidence of the effectiveness of their teaching and identify areas for improvement. Individual Monquest reports are confidential, however, you can see the summary results of Monquest evaluations for 2006 at <http://www.adm.monash.edu.au/cheq/evaluations/monquest/profiles/index.html>

## **Unit staff - contact details**

### **Unit leader**

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### **Additional communication information**

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## Teaching and learning method

GCO3812 uses a lecture-tutorial teaching approach.

The lectures will discuss the weeks theoretical concepts and will also go through specific examples and demonstrations.

In tutorials students will discuss in-depth fundamental aspects about networks and data communications and apply their understanding to practical examples. The tutorials are critical in helping student consolidate concepts and practise their problem solving skills. Some tutorials will also contain a hands-on laboratory element.

## Timetable information

For information on timetabling for on-campus classes at all Australian campuses please refer to MUTTS, <http://mutts.monash.edu.au/MUTTS/>

Lecture and Tutorial for on-campus students:

Lecture: Friday 9:00~11:00am, Room: GI\_1S/142

Tutorial: Friday 3:00~5:00pm, Room: 1E-214

## Communication, participation and feedback

Monash aims to provide a learning environment in which students receive a range of ongoing feedback throughout their studies. You will receive feedback on your work and progress in this unit. This may take the form of group feedback, individual feedback, peer feedback, self-comparison, verbal and written feedback, discussions (on line and in class) as well as more formal feedback related to assignment marks and grades. You are encouraged to draw on a variety of feedback to enhance your learning.

It is essential that you take action immediately if you realise that you have a problem that is affecting your study. Semesters are short, so we can help you best if you let us know as soon as problems arise. Regardless of whether the problem is related directly to your progress in the unit, if it is likely to interfere with your progress you should discuss it with your lecturer or a Community Service counsellor as soon as possible.

## Unit Schedule

| Week | Topic                                 | Key dates          |
|------|---------------------------------------|--------------------|
| 1    | Introduction to Data Communications   |                    |
| 2    | Data Transmission                     |                    |
| 3    | Transmission Media                    |                    |
| 4    | Signal Encoding 1                     |                    |
| 5    | Signal Encoding 2                     |                    |
| 6    | Digital Data Communication Techniques | Assignment One due |
| 7    | Data Link Control Protocols           |                    |
| 8    | Multiplexing                          |                    |
| 9    | Local Area Networks                   |                    |
| 10   | High-Speed LANs                       |                    |



GCO3812 Data communication and networks 1 - Semester 2 , 2008

|                    |   |                    |
|--------------------|---|--------------------|
| 11                 | Internetworking                         |                    |
| Mid semester break |   |                    |
| 12                 | Internetworking and Transport Protocols | Assignment Two due |
| 13                 | Revision                                |                    |

## Unit Resources

### Prescribed text(s) and readings

William Stallings, *Data and Computer Communications*, Prentice Hall, 8th Edition, 2007

Textbooks are available to purchase from Campus bookshops.

### Recommended text(s) and readings

Behrouz A. Forouzan, *Data Communications and Networking*, 4th edition, 2007, McGraw-Hill.

David Stamper et al, *Business Data Communications*, 6th Edition, 2003, Prentice Hall.

Fred Halsall, *Data Communications, Computer Networks, and Open Systems*, 4th Edition, 1998, Addison-Wesley.

### Required software and/or hardware

Web Browser is needed to access study and tutorial material.

Email Client is required.

### Equipment and consumables required or provided

Students may use the facilities available in the computing labs. Information about computer use for students is available from the ITS Student Resource Guide in the Monash University Handbook. You will need to allocate up to 2 hours per week for use of a computer, including time for newsgroups/discussion groups.

### Study resources

Study resources we will provide for your study are:

- The GCO3812 web site on Moodle, where lecture slides, weekly tutorial requirements, assignment specifications, sample solutions and supplementary material will be posted.
- Newsgroups/discussion groups that can be linked to from the Unit Homepage

### Library access

The Monash University Library site contains details about borrowing rights and catalogue searching. To learn more about the library and the various resources available, please go to <http://www.lib.monash.edu.au>. Be sure to obtain a copy of the Library Guide, and if necessary, the instructions for remote access from the library website.

### Monash University Studies Online (MUSO)

All unit and lecture materials are available through MUSO (Monash University Studies Online). Blackboard is the primary application used to deliver your unit resources. Some units will be piloted in Moodle. If your unit is piloted in Moodle, you will see a link from your Blackboard unit to Moodle (<http://moodle.monash.edu.au>) and can bookmark this link to access directly. In Moodle, from the Faculty of Information Technology category, click on

the link for your unit.

You can access MUSO and Blackboard via the portal: <http://my.monash.edu.au>

Click on the Study and enrolment tab, then Blackboard under the MUSO learning systems.

In order for your Blackboard unit(s) to function correctly, your computer needs to be correctly configured.

For example:

- Blackboard supported browser
- Supported Java runtime environment

For more information, please visit: <http://www.monash.edu.au/muso/support/students/downloadables-student.html>

**You can contact the MUSO Support by: Phone: (+61 3) 9903 1268**

For further contact information including operational hours, please visit:

<http://www.monash.edu.au/muso/support/students/contact.html>

Further information can be obtained from the MUSO support site:

<http://www.monash.edu.au/muso/support/index.html>

## Assessment

### Unit assessment policy

The minimum requirements that need to be satisfied to pass the unit are:

- a minimum result of 40% in the Unit Exam
- a **pass** in the Non-Exam Component of the unit that ensures the final result for the unit is 50% or greater

Failure to meet the minimum requirements will result in a fail grade, with a maximum achievable final result of 44 N.

It is also a requirement that students attend at least 80% of tutorials. Failure to do so may preclude the student achieving a pass in this subject.

It is recommended that students attend at least 80% of lectures, as success in this subject requires good understanding of the material which cannot be gained by reading lecture notes alone.

### Assignment tasks

- **Assignment Task**

**Title :** Assignment 1

**Description :**

This assignment tests your theoretical understanding of the introductory data communications concepts through a series of short answer questions.

**Weighting :** 15%

**Criteria for assessment :**

Criteria for assessment will be given on the MUSO website along with the Assignment specification

**Due date :** 22 August

- **Assignment Task**

**Title :** Assignment 2

**Description :**

This assignment provides an opportunity for you to apply data communications concepts to a practical networking example. You will be required to analyse a case study and make networking recommendations based on the user requirements. This assignment will also allow you to present your solutions in a formal report format.

**Weighting :** 25%

**Criteria for assessment :**

Criteria for assessment will be given on the MUSO website along with the Assignment specification

**Due date :** 6 October

## Examinations

- **Examination**

**Weighting :** 60%

**Length :** 3 hours

**Type ( open/closed book ) :** closed book

## Assignment submission

CAULFIELD:

1. Submit each assignment on or before the deadline as a PDF or MS Word .doc (not .docx) file to Damocles, and
2. print, fill out, sign and drop the coversheet at the lecturer's mailbox in H7.

OTHER CAMPUSES:

1. The parts of the assignments that require written submission must be delivered to the labelled mailbox at the offices of your home school **on or before the nominated submission date and time**, with the appropriate cover sheet correctly filled out and attached.
2. **In addition**, the assignments must be **submitted as PDF documents** via a website that will be provided for that purpose.

## Assignment coversheets

Cover sheets must be provided with all assignments. The Faculty cover sheet is available from <http://infotech.monash.edu.au/resources/student/assignments/> , or through the Blackboard Assessment link.

## University and Faculty policy on assessment

### Due dates and extensions

The due dates for the submission of assignments are given in the previous section. Please make every effort to submit work by the due dates. It is your responsibility to structure your study program around assignment deadlines, family, work and other commitments. Factors such as normal work pressures, vacations, etc. are seldom regarded as appropriate reasons for granting extensions. Students are advised to NOT assume that granting of an extension is a matter of course.

Requests for extensions must be made to the unit lecturer at your campus at least two days before the due date. You will be asked to forward original medical certificates in cases of illness, and may be asked to provide other forms of documentation where necessary. A copy of the email or other written communication of an extension must be attached to the assignment submission.

### Late assignment

Assignments received after the due date will be subject to a penalty of 5% per day or part thereof including Saturday and Sunday.

Assignments received later than one week after the due date will not normally be accepted.

### Return dates

Students can expect assignments to be returned within two weeks of the submission date or after receipt, whichever is later.

Assessment for the unit as a whole is in accordance with the provisions of the Monash University Education Policy at <http://www.policy.monash.edu/policy-bank/academic/education/assessment/>

We will aim to have assignment results made available to you within two weeks after assignment receipt.

### Plagiarism, cheating and collusion

Plagiarism and cheating are regarded as very serious offences. In cases where cheating has been confirmed, students have been severely penalised, from losing all marks for an assignment, to facing disciplinary action at the Faculty level. While we would wish that all our students adhere to sound ethical conduct and honesty, I will ask you to acquaint yourself with Student Rights and Responsibilities (<http://www.infotech.monash.edu.au/about/committees-groups/facboard/policies/studrights.html>) and the Faculty regulations that apply to students detected cheating as these will be applied in all detected cases.

In this University, cheating means seeking to obtain an unfair advantage in any examination or any other written or practical work to be submitted or completed by a student for assessment. It includes the use, or attempted use, of any means to gain an unfair advantage for any assessable work in the unit, where the means is contrary to the instructions for such work.

When you submit an individual assessment item, such as a program, a report, an essay, assignment or other piece of work, under your name you are understood to be stating that this is your own work. If a submission is identical with, or similar to, someone else's work, an assumption of cheating may arise. If you are planning on working with another student, it is acceptable to undertake research together, and discuss problems, but it is not acceptable to jointly develop or share solutions unless this is specified by your lecturer.

Intentionally providing students with your solutions to assignments is classified as "assisting to cheat" and students who do this may be subject to disciplinary action. You should take reasonable care that your solution is not accidentally or deliberately obtained by other students. For example, do not leave copies of your work in progress on the hard drives of shared computers, and do not show your work to other students. If you believe this may have happened, please be sure to contact your lecturer as soon as possible.

Cheating also includes taking into an examination any material contrary to the regulations, including any bilingual dictionary, whether or not with the intention of using it to obtain an advantage.

Plagiarism involves the false representation of another person's ideas, or findings, as your own by either copying material or paraphrasing without citing sources. It is both professional and ethical to reference clearly the ideas and information that you have used from another writer. If the source is not identified, then you have plagiarised work of the other author. Plagiarism is a form of dishonesty that is insulting to the reader and grossly unfair to your student colleagues.

## **Register of counselling about plagiarism**

The university requires faculties to keep a simple and confidential register to record counselling to students about plagiarism (e.g. warnings). The register is accessible to Associate Deans Teaching (or nominees) and, where requested, students concerned have access to their own details in the register. The register is to serve as a record of counselling about the nature of plagiarism, not as a record of allegations; and no provision of appeals in relation to the register is necessary or applicable.

## **Non-discriminatory language**

The Faculty of Information Technology is committed to the use of non-discriminatory language in all forms of communication. Discriminatory language is that which refers in abusive terms to gender, race, age, sexual orientation, citizenship or nationality, ethnic or language background, physical or mental ability, or political or religious views, or which stereotypes groups in an adverse manner. This is not meant to preclude or inhibit legitimate academic debate on any issue; however, the language used in such debate should be non-discriminatory and sensitive to these matters. It is important to avoid the use of discriminatory language in your communications and written work. The most common form of discriminatory language in academic work tends to be in the area of gender inclusiveness. You are, therefore, requested to check for this and to ensure your work and communications are non-discriminatory in all respects.

## **Students with disabilities**

Students with disabilities that may disadvantage them in assessment should seek advice from one of the following before completing assessment tasks and examinations:

- Faculty of Information Technology Student Service staff, and / or
- your Unit Coordinator, or
- [Disabilities Liaison Unit](#)

## **Deferred assessment and special consideration**

Deferred assessment (not to be confused with an extension for submission of an assignment) may be granted in cases of extenuating personal circumstances such as serious personal illness or bereavement. Information and forms for Special Consideration and deferred assessment applications are available at <http://www.monash.edu.au/exams/special-consideration.html>. Contact the Faculty's Student Services staff at your campus for further information and advice.