Course Code:	1007ICT
Course Name:	Introduction to Computer Systems Networks
Semester:	Trimester 3, 2018
Program:	Diploma of Information Technology
Credit Points:	10
Course Coordinator:	Dr Rob Baltrusch
Document modified:	18th June 2018

Teaching Team

Your lecturer/tutor can be contacted via the email system on the portal.

Name	Email
Dr Rob Baltrusch	rob.baltrusch@staff.griffithcollege.edu.au

Staff Consultation

Your lecturer/tutor is available each week for consultation outside of normal class times. Times that your lecturer/tutor will be available for consultation will be given in the first week of lectures. A list of times and rooms will be published on the Griffith College Portal under the “myTimetable” link.

Prerequisites

This course is not a prerequisite for any other Diploma courses.

Brief Course Description

Introduction to Computer Systems Networks is a 10 credit point course within the Diploma of Information Technology. The course is situated within the second semester of the program. The Diploma of Information Technology is designed to provide students with a pathway to:

- further university study in Information Technology and related degrees, or
- employment opportunities within the IT industry.

This course introduces the underlying structures and mechanisms of modern computer systems and networks.

Rationale

IT professionals, whether involved in software or hardware development, information systems development or management, need to have a fundamental understanding of the basic architecture and operation of a computer system. This course provides an overview of the hardware, software and network technologies that define modern computer systems. Knowledge developed in this course assists in the application of computing technologies to solve real world problems.

Aims

Introduction to Computer Systems Networks aims to provide students with a working knowledge of how the hardware, software and networking components that define a computer work together.

Learning Outcomes

Upon successful completion of this course you will be able to:
1. Understand common computer hardware and software elements and explain how they interact with each other
2. Operate digital data and construct and evaluate digital logic components and processes
3. Understand the workings of the processor, storage, common hardware components, and basic operating system services
4. Understand the basic concepts of common networking models and the underlying networking hardware

5. Understand the basic concepts relating to security mechanisms and security policy

The primary cognitive learning outcome is for you to be able to confidently answer, in some detail from a technical perspective, the question, "How does a computer system work?" A secondary outcome is for you to understand the range of modern computing architectures that are available and their application to computing problems.

A specific application based outcome is that of learning how to control computer hardware through software.

Texts and Supporting Materials

Recommended Reading:
1. Barry G. Blundel, "Computer Systems and Networks", 1st ed., Thomson Learning, 2007
2. Behrouz A. Forouzan and Firouz Mosharaff, "Foundations of Computer Science: From Data Manipulation to Theory of Computation", 2nd ed., Cengage Learning, 2007.
3. J. Glenn Brookshear, "Computer Science: An Overview" 10th ed, Addison-Wesley, 2007
4. Irv Englander, "The Architecture of Computer Hardware and Systems Software - An Information
Technology Approach." 3rd ed, John Wiley and Sons, 2003.
5. Andrew S. Tanenbaum, "Structured Computer Organization." 4th ed., Prentice Hall, 1999.
6. Randal E. Bryant and David O'Hallaron, "Computer Systems: A Programmer's Perspective", Prentice Hall,
2003.
7. Carl Hamacher, Zvonko Varanesic, and Safwat Zaky, "Computer Organization", 5th ed, McGraw Hill, 2002.

Organisation and Teaching Strategies

This course consists of weekly lectures, tutorials, and workshops. Lectures will be used to coordinate the course content. Tutorials will focus more on reinforcing theoretical concepts, and workshops will focus on practical skills. Web based material will be used as a teaching aid and in laboratories as set exercises.

Assessable/examination material will only be drawn from Lectures, Assignments, and Laboratory Work.

Weekly lectures will be of 2 hours duration for 12 weeks. Assessed labs will be conducted during Tutorials and workshops. Assessed lab work involves a number of exercises that are directly assessed during the lab time. These exercises reinforce the lecture material.

Tutorials/laboratories will be open to you to freely seek help on any aspect of the lecture or laboratory material.

Attendance and participation in all labs is compulsory. Attendance at lectures is highly advisable since important course announcements may be made during the lectures and extra course content not contained in either this outline or lecture notes may also be presented.

Sample exam questions relating to the material covered will be presented at the end of each lecture. As part of the assessment for the course, you will be required to copy and complete at least one of the sample exam questions in a notebook which is to be presented to the tutor in the lab of the following week.

This same notebook is to be used to complete the written component to tutorial activities. The notebook will be collected at the end of the semester for marking.

You are encouraged to research and read the references given below and other material relevant to the course. The lecture notes are regarded as only guidelines and summaries to provide the basis for further reading. You are encouraged to use your own resources such as the library and the Internet to further develop your knowledge.

Class Contact Summary

Attendance

Your attendance in class will be marked twice during a four hour class. To receive full attendance, you must be present in the classroom on both occasions. Therefore, you are encouraged to attend and participate in all classes throughout the semester.

Participation in Class

You are expected to actively participate in classes each week.

Consultant Times

Attendance during consultation times is optional but you are encouraged to use this extra help to improve your learning outcomes.

Course Materials

Lecture notes will be made available to you on the Learning@GriffithCollege site on the student portal and you are advised to print these out before each class to help guide you in your study program. You are expected to bring these lecture notes with you to each class so that extra notes can be added. You are also expected to bring your text book and calculator to each class.

Independent Learning

You are expected to reinforce your learning from class time by undertaking sufficient independent study {approximately 6 hours per week outside of class time} so that you can achieve the learning outcomes of the course.

You are expected to spend 1 hour per credit point per week on course related activities which include attending lectures, tutorials, workshops, reading the recommended texts / lecture notes, research and revision.

Program Progression

You are reminded that satisfactory Program Progression requires that attendance in classes is maintained at equal to or greater than 80%, and that GPA is maintained at equal to or greater than 3.5 [please see Griffith College Policy Library - Program Progression Policy - for more information].

Content Schedule

The structure of the course content firstly lays the foundation of key principles which apply to computer science. Subsequent topics focus on the design and function of computer components as well as how they interact with one another through networks.

Weekly Teaching Schedule

Week	Topic	Activity	Readings
1	Introduction	Lecture	Recommended reading: Blundel (2007), Chapter 1
	Introduction	Workshop	
2	Data Representations	Lecture	Recommended reading: Blundel (2007), Chapter 1, 4
	Exploring ASCII representation in a 6800 simulator	Tutorial	
	Practice Exam Questions / Workbook Review / Laboratory Exercises	Workshop	
3	Digital Logic	Lecture	Recommended reading: Blundel (2007), Chapter 2
	Build a simple logic circuit in a simulator	Tutorial	

	Practice Exam Questions / Workbook Review / Laboratory Exercises	Workshop	
4	Processors & Memory Organisation	Lecture	Recommended reading: Blundel (2007), Chapter 3, 5, 7
	Role-play the fetch-execute cycle	Tutorial	
	Practice Exam Questions / Workbook Review / Laboratory Exercises	Workshop	
5	Instruction Sets	Lecture	Recommended reading: Behrouz (2007), Chapter 5
	Writing a 6800 program	Tutorial	
	Practice Exam Questions / Workbook Review / Laboratory Exercises	Workshop	
6	Assembly Language	Lecture	See course website
	Loops and branches	Tutorial	
	Practice Exam Questions / Workbook Review / Laboratory Exercises	Workshop	
7	Assembly Language	Lecture	See course website.
	Writing a 6800 adder	Tutorial	
	Practice Exam Questions /	Workshop	

	Workbook Review / Laboratory Exercises		
8	Operating Systems and Applications	Lecture	Chapter 8
	Calling a 6800 subroutine	Tutorial	
	Practice Exam Questions / Workbook Review / Laboratory Exercises	Workshop	
9	Computer Networks	Lecture	Recommended reading: Blundel (2007), Chapter 9
	Research operating systems	Tutorial	
	Practice Exam Questions / Workbook Review / Laboratory Exercises	Workshop	
10	Packet Transmission and Internetworking	Lecture	Recommended reading: Blundel (2007), Chapter 10
	Network simulation game. How IP works & subnetting	Tutorial	
	Practice Exam Questions / Workbook Review / Laboratory Exercises	Workshop	
11	Security & Internet Applications	Lecture	Recommended reading: Blundel (2007), Chapter 11

	Cryptography, hashing & digital certificates	Tutorial	
	Practice Exam Questions / Workbook Review / Laboratory Exercises	Workshop	
12	Course Review / Practice Exam Questions	Lecture	See course website.
	Review Questions	Tutorial	

Assessment

This section sets out the assessment requirements for this course.

Summary of Assessment

Item	Assessment Task	Weighting	Relevant Learning Outcomes	Due Date
1	Mini Test 1	5%	1,2	4
2	Lab 1	2%	1,2,3,4,5	3
3	Lab 2	2%	1,2,3,4,5	4
4	Lab 3	2%	1,2,3,4,5,	5
5	Lab 4	2%	1,2,3,4,5,	6

6	Lab 5	3%	1,2,3,4,5	7
7	Lab 6	3%	1,2,3,4,5	8
8	Lab 7	3%	1,2,3,4,5	9
9	Lab 8	3%	1,2,3,4,5	10
12	Mini Test 2	5%	1,2,3	8
13	Project	20%	1,2,3,4	10
14	Final Exam	50%	1,2,3,4,5	Exam Week

Assessment Details

All assessment in this course is individual assessment.

Labs

The assessed labs are incremental assessment items that are performed during tutorials. The rationale behind these labs is to incremental assessment that is performed during workshop/ laboratory times. The rationale behind this assessment item is to provide students with practice in good study habits and to reinforce understanding of the lecture and workshop material. This is a formative item of assessment. Unless at least 5 of the weekly lab exercises are performed, this assessment item will be considered not to have been submitted and no mark will be recorded. The assessed labs will be held weekly from weeks 2, 3, 4, 5, 6, 7, 8, 10. This is a formative type of assessment.

Mini Tests
The Mini Test 1 will be conducted during the Lecture time in Week 4. It will cover lecture material from weeks 1 to 3. The Mini Test 2 will be conducted during the Lecture time in Week 8. It will cover material from weeks 1 to 8 with a focus on materials covered from weeks 4 to 7.

Project
The project tests the students' ability to apply and synthesise the knowledge and skills obtained in the lecture and laboratory sessions. This is a summative item of assessment. You will be required to explain your submission to teaching staff as part of the assessment process.

Final Exam

The final exam is a summative assessment item that tests the students' grasp of the theoretical aspects of the course.

You are responsible for submitting all assessment on time and in the correct format as specified by the lecturer.

You are responsible for maintaining copies of assessment drafts prior to submission (including electronic backups). No extensions or special consideration will be given if you are unable to submit an assessment because of data loss or corruption. No extensions or special consideration will be given if you are unaware of assessment deadlines.

Submission and Return of Assessment Items

Normally you will be able to collect your assignments in class within fourteen [14] days of the due date for submission of the assignment.

Retention of Originals

You must be able to produce a copy of all work submitted if so requested. Copies should be retained until after the release of final results for the course.

Extensions

To apply for an extension of time for an assignment, you must submit an Application for Extension of Assignment form to your teacher at least 24 hours before the date the assignment is due. Grounds for extensions are usually: serious illness, accident, disability, bereavement or other compassionate circumstances and must be able to be substantiated with relevant documentation [e.g. Griffith College Medical Certificate]. Please refer to the Griffith College website - Policy Library - for guidelines regarding extensions and deferred assessment.

Assessment Feedback

Marks awarded for assessment items will be available on the on-line grades system on the Student Website within fourteen [14] days of the due date. You may also arrange an appointment during the designated consultation time to discuss assessment in more detail.

Generic Skills

Griffith College aims to develop graduates who have an open and critical approach to learning and a capacity for lifelong learning. Through engagement in their studies, students are provided with opportunities to begin the development of these and other generic skills.

Studies in this course will give you opportunities to begin to develop the following skills:

Generic Skills	Taught	Practised	Assessed
Written Communication		Yes	Yes
Oral Communication		Yes	
Information Literacy	Yes	Yes	Yes
Secondary Research			
Critical and Innovative Thinking	Yes	Yes	Yes
Academic Integrity	Yes	Yes	Yes
Self Directed Learning	Yes	Yes	
Team Work			
Cultural Intelligence			
English Language Proficiency		Yes	

Additional Course Generic Skills

Additional Course Information

All course material is available on the website located at griffith.tech

Teacher and Course Evaluation

Your feedback is respected and valued by your lecturers and tutors. You are encouraged to

provide your thoughts on the course and teaching, both positive and critical, directly to your lecturer and tutor or by completing course and lecturer evaluations via Griffith College's online evaluation tool whenever these are available.

Academic Integrity

Griffith College is committed to maintaining high academic standards to protect the value of its qualifications. Academic integrity means acting with the values of honesty, trust, fairness, respect and responsibility in learning, teaching and research. It is important for students, teachers, researchers and all staff to act in an honest way, be responsible for their actions, and show fairness in every part of their work. Academic integrity is important for an individual's and the College's reputation.

All staff and students of the College are responsible for academic integrity. As a student, you are expected to conduct your studies honestly, ethically and in accordance with accepted standards of academic conduct. Any form of academic conduct that is contrary to these standards is considered a breach of academic integrity and is unacceptable.

Some students deliberately breach academic integrity standards with intent to deceive. This conscious, pre-meditated form of cheating is considered to be one of the most serious forms of fraudulent academic behaviour, for which the College has zero tolerance and for which penalties, including exclusion from the College, will be applied.

However, Griffith College also recognises many students breach academic integrity standards without intent to deceive. In these cases, students may be required to undertake additional educational activities to remediate their behaviour and may also be provided appropriate advice by academic staff.

As you undertake your studies at Griffith College, your lecturers, tutors and academic advisors will provide you with guidance to understand and maintain academic integrity; however, it is also your responsibility to seek out guidance if and when you are unsure about appropriate academic conduct.

In the case of any allegation of academic misconduct made against a student he or she may request the guidance and support of a Griffith College Student Learning Advisor or Student Counsellor.

Please ensure that you are familiar with the Griffith College Academic Integrity Policy; this policy provides an overview of some of the behaviours that are considered breaches of academic integrity, as well as the penalties and processes involved when a breach is identified.

For further information please refer to the Academic Integrity Policy on the Griffith College website – Policy Library.

Risk Assessment Statement

There are no out of the ordinary risks associated with this course.
