

INFT6031: Systems and Network Administration

Online

Semester 1 - 2024



THE UNIVERSITY OF
NEWCASTLE
AUSTRALIA

OVERVIEW

Course Description	This course introduces students to the foundational concepts and experience in networking and systems administration. The course provides the basic theory, concepts and practical experience in the design, installation and configuration of personal computers, peer-to-peer networks and client-server networks meeting user requirements.
Academic Progress Requirements	Nil
Assumed Knowledge	SENG1050 Web Technologies (previously COMP1050 Internet Communications) or INFT1004 Introduction to Programming or equivalent.
Unit Weighting	10
Workload	Students are required to spend on average 120-140 hours of effort (contact and non-contact) including assessments per 10 unit course.

COURSE OUTLINE

CONTACTS

Course Coordinator	Online Dr Rukshan Athauda Rukshan.Athauda@newcastle.edu.au (02) 4985 4507 Consultation: Thursday 5pm - 6pm (Zoom)
Teaching Staff	Other teaching staff will be advised on the course Canvas site.
School Office	School of Information and Physical Sciences SR233, Social Sciences Building Callaghan CESE-SIPS-Admin@newcastle.edu.au +61 2 4921 5513 9am-5pm (Mon-Fri)

SYLLABUS

Course Content	Topics will include: <ul style="list-style-type: none">• Theoretical aspects of computer communications.• The role of computer networks.• Computer network architecture.• Systems software for computer networks.• Applications software and computer networks.• Implementation and maintenance of computer networks.
Course Learning Outcomes	On successful completion of this course, students will be able to: <ol style="list-style-type: none">1. Explain network communication methods and protocols.2. Design and configure peer-to-peer networks to share resources.3. Analyse requirements and design a local area network for a given scenario.4. Design and configure IP addressing schemes for a given scenario.5. Design and configure a client-server network and required network services for a given scenario.6. Evaluate and critique a design for a systems and network solution.
Course Materials	Recommended Text: <ul style="list-style-type: none">- Behrouz A. Forouzan, Data Communications and Networking, 5th Edition, 2013, McGraw Hill Higher Education, ISBN 978-0-07-337622-6- Greg Tomsho, Guide to Networking Essentials, 8th Edition, 2019, Cengage Learning, ISBN 978-0-3571-1828-3- Jason W. Eckert, Hands-On Microsoft Windows Server 2019, Third Edition, Cengage Learning, ISBN: 978-0-357-43615-8- Rick Graziani, IPv6 Fundamentals: A Straightforward Approach to Understanding IPv6, 2nd Edition, 2017, Cisco Press, ISBN 978-1-58714-477-6 Required Reading: <ul style="list-style-type: none">- Joseph Davies, Understanding IPv6, 3rd Edition, 2012, Microsoft, ISBN 978-0-7356-5914-8- Tamara Dean, Network+ Guide to Networks, 5th Edition, 2010, Cengage Learning, ISBN-10: 1-423-90245-9- Jean Andrews, A+ Guide to Managing and Maintaining Your PC, 7th Edition, 2010, Cengage Learning, ISBN-10: 1-435-49778-3- Jeffrey L. Carrell, Laura A. Chappell, Ed Tittel, James Pyles. Guide to TCP/IP, 4th Edition, 2013, Cengage Learning, ISBN 978-1-133-01986-2

COMPULSORY REQUIREMENTS

In order to pass this course, each student must complete ALL of the following compulsory requirements:

Course Assessment Requirements:

- Minimum Grade / Mark Requirement - Students must obtain a specified minimum grade / mark in this assessment item to pass the course. Students whose overall mark in the course is 50% or more, but who score less than 40% in the compulsory item and thus fail to demonstrate the required proficiency, will be awarded a Criterion Fail grade, which will show as FF on their formal transcript. However, students in this position who have scored at least 25% in the compulsory assessment item will be allowed to undertake a supplementary 'capped' assessment in which they can score at most 50% of the possible mark for that item

ASSESSMENTS

This course has 4 assessments. Each assessment is described in more detail in the sections below.

	Assessment Name	Due Date	Involvement	Weighting	Learning Outcomes
1	Assignments	Assignment 1 (May 3rd 11:59pm), Assignment 2 (May 31st 11:59pm)	Group	20%	3, 4, 5
2	Practical Tests	Practical Test 1 - Design Task (Mar 22nd) Practical Test 1 - Practical Task (Mar 25th – Mar 29th), Practical Test 2 (May 27th – May 31st)	Combination	30%	2, 4, 5
3	Weekly Tasks	Module 1 Weekly Tasks (Mar 22nd 11:59pm), Module 2 Weekly Tasks (Apr 5th 11:59pm), Module 3 Weekly Tasks (May 3rd 11:59pm), Module 4 Weekly Tasks (May 31st 11:59pm)	Individual	20%	1
4	Online Open Book Formal Examination*	Formal examination period	Individual	30%	1, 2, 3, 4, 5, 6

* This assessment has a compulsory requirement.

Late Submissions

The mark for an assessment item submitted after the designated time on the due date, without an approved extension of time, will be reduced by 10% of the possible maximum mark for that assessment item for each day or part day that the assessment item is late. Note: this applies equally to week and weekend days.

Assessment 1 - Assignments

Assessment Type Description

Written Assignment

In assignment 1, students will design a logical network diagram and an IPv4 addressing scheme for a given scenario. Students will specify both network hardware, IPv4 addressing scheme as well as justify their proposed solution for the scenario.

In assignment 2, students will design an Active Directory diagram for a given scenario. Students must specify how the design meets the requirements.

Weighting

20%

Due Date

Assignment 1 (May 3rd 11:59pm),
Assignment 2 (May 31st 11:59pm)

Submission Method

Online

Assessment Criteria

The submitted designs and description is evaluated on how well they meet the requirements

and criteria specified in the assignments. See rubric in assignment for further details.

Return Method
Feedback Provided Online

Assessment 2 - Practical Tests

Assessment Type In Term Test
Description In practical test 1, students design and configure a peer-to-peer network and share resources by configuring permissions as specified. The design task will be undertaken in groups. In practical test 2, students configure network services for a given scenario as specified in the test.
Weighting 30%
Due Date Practical Test 1 - Design Task (Mar 22nd)
Practical Test 1 - Practical Task (Mar 25th – Mar 29th),
Practical Test 2 (May 27th – May 31st)
Submission Method Online
Assessment Criteria The design is evaluated on how well they meet the requirements and criteria specified. Practical configurations are evaluated for correctness in meeting the requirements.
Return Method Not Returned
Feedback Provided Online

Assessment 3 - Weekly Tasks

Assessment Type Participation
Description In these tasks, students are provided with online quizzes, discussion board and review exercises. Student are expected to participate and contribute to the class discussions.
Weighting 20%
Due Date Module 1 Weekly Tasks (Mar 22nd 11:59pm),
Module 2 Weekly Tasks (Apr 5th 11:59pm),
Module 3 Weekly Tasks (May 3rd 11:59pm),
Module 4 Weekly Tasks (May 31st 11:59pm)
Submission Method Online
Assessment Criteria Completion of activities
Return Method Not Returned
Feedback Provided No Feedback

Assessment 4 - Online Open Book Formal Examination

Assessment Type Online Open Book Formal Examination
Description This is a formal examination providing students the opportunity to demonstrate their learning in the course in an exam setting. The final exam is a 2-hour open-book exam consisting of multiple-choice, short-answer and design-based questions.
Weighting 30%
Compulsory Requirements Pass requirement - Must pass this assessment item to pass the course.
Due Date Formal examination period
Submission Method Online
Assessment Criteria Multiple choice questions are evaluated based on the correct responses. The answers to essay and design-based questions are evaluated based on the correctness and completeness in meeting the specified requirements.
Return Method Not Returned
Feedback Provided No Feedback
Opportunity to Reattempt Students WILL be given the opportunity to reattempt this assessment.

ADDITIONAL INFORMATION

Grading Scheme

This course is graded as follows:

Range of Marks	Grade	Description
85-100	High	Outstanding standard indicating comprehensive knowledge

	Distinction (HD)	and understanding of the relevant materials; demonstration of an outstanding level of academic achievement; mastery of skills*; and achievement of all assessment objectives.
75-84	Distinction (D)	Excellent standard indicating a very high level of knowledge and understanding of the relevant materials; demonstration of a very high level of academic ability; sound development of skills*; and achievement of all assessment objectives.
65-74	Credit (C)	Good standard indicating a high level of knowledge and understanding of the relevant materials; demonstration of a high level of academic achievement; reasonable development of skills*; and achievement of all learning outcomes.
50-64	Pass (P)	Satisfactory standard indicating an adequate knowledge and understanding of the relevant materials; demonstration of an adequate level of academic achievement; satisfactory development of skills*; and achievement of all learning outcomes.
0-49	Fail (FF)	Failure to satisfactorily achieve learning outcomes. If all compulsory course components are not completed the mark will be zero. A fail grade may also be awarded following disciplinary action.

*Skills are those identified for the purposes of assessment task(s).

Communication Methods

Communication methods used in this course include:

- Canvas Course Site: Students will receive communications via the posting of content or announcements on the Canvas course site.
- Email: Students will receive communications via their student email account.

Course Evaluation

Each year feedback is sought from students and other stakeholders about the courses offered in the University for the purposes of identifying areas of excellence and potential improvement.

Oral Interviews (Vivas)

As part of the evaluation process of any assessment item in this course an oral examination (viva) may be conducted. The purpose of the oral examination is to verify the authorship of the material submitted in response to the assessment task. The oral examination will be conducted in accordance with the principles set out in the [Oral Examination \(viva\) Procedure](#). In cases where the oral examination reveals the assessment item may not be the student's own work the case will be dealt with under the [Student Conduct Rule](#).

Academic Misconduct

All students are required to meet the academic integrity standards of the University. These standards reinforce the importance of integrity and honesty in an academic environment. Academic Integrity policies apply to all students of the University in all modes of study and in all locations. For the Student Academic Integrity Policy, refer to <https://policies.newcastle.edu.au/document/view-current.php?id=35>.

Adverse Circumstances

The University acknowledges the right of students to seek consideration for the impact of allowable adverse circumstances that may affect their performance in assessment item(s). Applications for special consideration due to adverse circumstances will be made using the online Adverse Circumstances system where:

1. the assessment item is a major assessment item; or
2. the assessment item is a minor assessment item and the Course Co-ordinator has specified in the Course Outline that students may apply the online Adverse Circumstances system;
3. you are requesting a change of placement; or
4. the course has a compulsory attendance requirement.

Before applying you must refer to the Adverse Circumstance Affecting Assessment Items Procedure available at:

<https://policies.newcastle.edu.au/document/view-current.php?id=236>

Important Policy

The Help button in the Canvas Navigation menu contains helpful information for using the

Information

Learning Management System. Students should familiarise themselves with the policies and procedures at <https://www.newcastle.edu.au/current-students/respect-at-uni/policies-and-procedures> that support a safe and respectful environment at the University.

Graduate Profile Statements – Cyber Security (PG)

The following table illustrates how this course contributes towards building the skills students will need to work in their profession.

Level of capability

- Level 1 indicates an introduction to a topic at a university level
- Levels 2 and 3 indicate progressive reinforcement of that topic
- Level 4 indicates skills commensurate with a graduate – entry to professional practice
- Level 5 indicates highly specialist or professional ability

Master of Cybersecurity

	University of Newcastle Master of Cybersecurity Graduate Profile Statement	Taught	Practised	Assessed	Level of capability
1	The ability to identify and analyse complex problems within cybersecurity and design solutions to the problems at a highly skilled level	☑	☑	☑	2
2	A depth of technical expertise in at least one facet of cybersecurity sufficient for a career in cybersecurity together with the capacity to continue developing relevant knowledge, skills, and expertise throughout their careers	☑	☑	☑	3
3	The ability to manage projects in aspects of cybersecurity relevant to their field of study, including the ability to develop, manage and participate at all levels in team environments				
4	An understanding of professionalism and ethics in the context of the global cybersecurity industry				
5	The ability to communicate effectively through a range of verbal, written and/or presentation skills at an advanced level	☑	☑	☑	2
6	The ability to apply their knowledge and skills to plan and execute a substantial capstone experience or a research-based project and/or piece of scholarship.				

This course outline was approved by the Head of School. No alteration of this course outline is permitted without Head of School approval. If a change is approved, students will be notified and an amended course outline will be provided in the same manner as the original.

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