School of Information and Physical Sciences

INFT2031: Systems and Network Administration

Callaghan

Semester 1 - 2024

COURSE OUTLINE

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

Contact Hours

Callaghan
Computer Lab
Face to Face On Campus
2 hour(s) per week(s) for 12 week(s) starting Week 2

Lecture
Face to Face On Campus
2 hour(s) per week(s) for 12 week(s) starting Week 1

Unit Weighting Workload

10
Students are required to spend on average 120-140 hours of effort (contact and non-contact) including assessments per 10 unit course.

CONTACTS

Course Coordinator

Callaghan
Dr Rukshan Athauda
Rukshan.Athauda@newcastle.edu.au
(02) 4985 4507
Consultation: Thursday 9am - 11am. Email for appointment.

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
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9am-5pm (Mon-Fri)

SYLLABUS

Course Content

1. Theoretical aspects of computer communications.
2. The role of computer networks.
3. Computer network architecture.
4. Systems software for computer networks.
5. Applications software and computer networks.
6. Implementation and maintenance of computer networks.

Course Learning Outcomes

On successful completion of this course, students will be able to:
1. Describe network communication methods and protocols.
2. Develop and present a design for a peer-to-peer networks to share resources.
3. Configure a peer-to-peer network to share resources.
4. Develop a design for a local area network for a given scenario.
5. Develop an IP addressing scheme for a given scenario.
6. Configure an IP addressing schemes for a given scenario.
7. Develop a design and configure a client-server network and required network services for a given scenario.

Course Materials

Recommended Reading:

- Joseph Davies, Understanding IPv6, 3rd Edition, 2012, Microsoft, ISBN 978-0-7356-5914-8
- 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

Recommended Text:

- 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
- Rick Graziani, IPv6 Fundamentals: A Straightforward Approach to Understanding IPv6, 2nd Edition, 2017, Cisco Press, ISBN 978-1-58714-477-6

COMPULSORY REQUIREMENTS

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

Course Assessment Requirements:

- Assessment 4 - Formal examination: Pass requirement - Must pass this assessment item to pass the course. 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 10th 11:59pm), Assignment 2 (May 31st 11:59pm)	Group	20%	4, 5, 7
2	Practical Tests	Practical Test 1 (Week 6), Practical Test 2 (Week 12)	Combination	30%	2, 3, 6, 7
3	Weekly Tasks	Weeks 4-13	Individual	20%	1
4	Formal examination*	Formal examination period	Individual	30%	1, 2, 4, 5, 7

* 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 Written Assignment
Description In assignment 1, student groups 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, student groups 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 10th 11:59pm),
Assignment 2 (May 31st 11:59pm)
Submission Method Online
Assessment Criteria The submitted designs and description are evaluated on how well they meet the requirements and criteria specified in the assignments. See rubric in assignment for further details.
Return Method Online
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 (Week 6),

	Practical Test 2 (Week 12)
Submission Method	Online
Assessment Criteria	The design is evaluated on how well they meet the requirements and criteria specified. Practical configurations are evaluated correctness in meeting the requirements as specified.
Return Method	Not Returned
Feedback Provided	In Class

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	Weeks 4-13
Submission Method	Online
Assessment Criteria	Completion of activities
Return Method	Not Returned
Feedback Provided	No Feedback

Assessment 4 - Formal examination

Assessment Type	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	Formal Exam
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 Distinction (HD)	Outstanding standard indicating comprehensive knowledge 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	Failure to satisfactorily achieve learning outcomes. If all

	(FF)	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.
- Face to Face: Communication will be provided via face to face meetings or supervision.

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 Information

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

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

Graduate attribute	University of Newcastle Bachelor of Computer Science Graduate Profile Statements	Taught	Practised	Assessed	Level of capability
1	Knowledge of basic science and computer science fundamentals	☑	☑	☑	**3**
2	In depth technical competence in the discipline of computer science	☑	☑	☑	**3**
3	An ability to carry out problem analysis, requirements capture, problem formulation and integrated software development for the solution of a problem	☑	☑	☑	**3**
4	Capacity to continue developing relevant knowledge, skills and expertise in computer science throughout their careers	☑	☑	☑	**2**
5	An ability to communicate effectively with other Computer Scientists, Software Engineers, other professional disciplines, managers and the community generally	☑	☑	☑	**2**
6	Ability to undertake and coordinate large computer science projects and to identify complex problems, their formulation and solution				
7	Ability to function effectively as an individual, a team member in multidisciplinary and multicultural teams and as a leader/manager with capacity to assist and encourage those under their direction				
8	Understanding of social, cultural, global and business opportunities of the professional computer scientist; understanding the need for and principles of sustainability and adaptability				
9	Understanding of professional and ethical responsibilities and a commitment to them				
10	Understanding of entrepreneurship; need of and process of innovation, as well as the need of and capacity for lifelong learning				

Graduate Profile Statements – Information Technology (UG)

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

Graduate attribute	University of Newcastle Bachelor of IT Graduate Profile Statements	Taught	Practised	Assessed	Level of capability
1	Demonstrate a comprehensive understanding of the discipline of information technologies with an emphasis on net-centric applications, information management and user requirements for ethical professional practice	☑	☑	☑	**3**
2	Apply critical reasoning and systems thinking to understand and support the operation and constraints of contemporary enterprises and their dynamic environment	☑	☑	☑	**3**
3	Work independently and collaboratively to locate, manage and organize information and resources and apply evidence-based methodologies to create, modify and maintain designs and design solutions	☑	☑	☑	**3**
4	Use creativity, problem solving skills, project management skills and technical expertise to analyse, interpret, evaluate and generate solutions to complex technical and organizational problems	☑	☑	☑	**3**
5	Demonstrate professional judgement and responsibility by communicating information technology principles, practices, standards to specialist and non-specialist audience clearly and persuasively	☑	☑	☑	**2**

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.