Australian National University

PROGRAMS AND COURSES

CLASS SUMMARY | BACK TO COURSE DETAILS

Networked Information Systems

A Postgraduate course offered by the **School of Computing**.

COMP6340

Overview | Assessment | Submission | Contacts

CLASS NUMBER 4420	TERM CODE 3230
CLASS INFO	**CLASS DATES**
Unit Value	Class Start Date
6 units	**21/02/2022**
Mode of Delivery	Class End Date
In Person	**27/05/2022**
COURSE CONVENER	Census Date
Prof Hanna Suominen	**31/03/2022**

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LECTURER	Last Date to Enrol
Mindika Premachandra	**28/02/2022**

Data communications and computer networking systems are growing rapidly in both size and function. It is impossible to think of a successful business day without the Internet. Modern communication technologies such as WiFi, *Bring Your Own Device* (BYOD), and *Internet of Things* (IoT) help us to stay connected with our family, friends, and work regardless of present location.

Networked Information Systems (NISs) are becoming an essential part of everyday experiences, in our kitchen appliances, cars, and public transport and for Internet banking and shopping. Because they can make or break a day, understanding how networks work, and how they should be set up and managed to for reliability, scalability, mobility, and security is of the utmost importance to us.

In this course, you will learn fundamental concepts of data communication and networking in addition to gaining a working knowledge of network scalability, mobility, security, and managing capabilities. You will have the foundational basis to understand, evaluate, and compare new technologies and their applications. You will also develop a working knowledge of measuring risks and security threats and considering network monitoring and management procedures. Finally, you will build an ethics awareness and the communication skills needed to apply these networking concepts to a range of real-life analytical scenarios.

Learning Outcomes

Upon successful completion, students will have the knowledge and skills to:

1. Analyse how network applications and their components work in real-life socio-economic, ethical, and legal contexts and develop their risk assessments and security controls.

2. Evaluate the role of network standards, protocols, and layered models.

3. Analyse network design principles, topologies, architectures, and their components.

4. Design logical and physical networks at levels from the local area to the Internet.

5. Create a virtual machine and apply tools for packet analysis and file encryption in a lab environment.

NETWORKED INFORMATION SYSTEMS (COMP6340)

Research-Led Teaching

The teaching and learning activities below are founded on state-of-the-art research outcomes and currently ongoing research projects. For example, networked information systems in healthcare are considered through the strategic Our Health In Our Hands (OHIOH) initiative of The ANU, created in partnership with ACT Health.

Examination Material or equipment

Learning Outcomes related to the Assessment Details below:

Upon successful completion of the unit, students will have the knowledge, abilities, and skills to

L1. Analyse how network applications and their components work in real-life socio-economic, ethical, and legal contexts and develop their risk assessments and security controls.

L2. Evaluate the role of network standards, protocols, and layered models.

L3. Analyse network design principles, topologies, architectures, and their components.

L4. Design logical and physical networks at levels from the local area to the Internet.

L5. Create a virtual machine and apply tools for packet analysis and file encryption in a lab environment.

L1-L5 above refer to the learning objectives of this unit. See, e.g., https://www.bloomstaxonomy.net/ for further information about the Bloom's taxonomy to define and differentiate levels of thinking — or depth of learning — related to discuss, analyse, evaluate, apply, design, develop, create, and other action words above.

Required Resources

Textbook

- Fitzgerald J, Dennis A, Durcikova A (2019). *Business Data Communications and Networking*, 13th Australia & New Zealand Edition. Hoboken, NJ, USA: Wiley. You can purchase it as an online or hard copy, for example, from Wiley. The ANU Library may have copies as well.

Recommended Student Actions to take ASAP

- Get the aforementioned textbook.

- Enable online studies (e.g., a laptop, Internet connection, Wattle, and Zoom).

- Get remote access to the ANU, Virtual Private Network services, and CECS computing labs. You may also find these software access, installation, and virtual machine instructions by CECS helpful. Please note that for students without remote access to ANU CECS computing labs, learning outcomes related to experiencing at least two devices communicating to each other may be suboptimal.

- Follow ANU Wattle closely and participate in discussions and polls.

- Study the learning contents, week by week, once offered. Keep up with these learning contents and activities; see the recommended weekly schedule above.

Recommended Resources

Whether you are on campus or studying remotely, there are a variety of online platforms you will use to participate in your study program. These could include videos for lectures and other instruction, two-way video conferencing for interactive learning, email and other messaging tools

for communication, interactive web apps for formative and collaborative activities, print and/or photo/scan for handwritten work and drawings, and home-based assessment.

ANU outlines recommended student system requirements to ensure you are able to participate fully in your learning. Other information is also available about the various Learning Platforms you may use.

ANU Library

- https://anulib.anu.edu.au/

ANU Academic Skills

- https://www.anu.edu.au/students/contacts/academic-skills

Staff Feedback

Students will be given feedback in the following forms:

- Written marks and feedback for the online quizzes on Wattle.
- Written marks of the computing lab exam with option to discuss verbally.
- Written marks and feedback on the assignment with option to discuss verbally.
- Written marks of the mid-term exam with option to discuss verbally.
- Written marks of the final exam with option to discuss verbally.
- Casual verbal feedback and comments during lectures, tutorials, and labs.

Marks for assessment items, with the exception of the of the final exam, are retuned to students within 2 weeks from the respective submission dates, using Wattle. If you have questions related to your mark, you must contact Hanna Suominen within 14 days from the mark release. In accordance with the ANU examination policies, final exam marks are released only after the final marks for the entire unit have been released by the ANU.

Note that consistent scaling for each of the units may occur with the final marks. Students must get a minimum final overall mark of at least 50/100 (50%) to pass the subject. Final marks are moderated by the examiners meeting of the School of Computing. Supplementary assessment will be awarded to those students with an overall unit mark of between 45 and 49.

Student Feedback

ANU is committed to the demonstration of educational excellence and regularly seeks feedback from students. Students are encouraged to offer feedback directly to their Course Convener or through their College and Course representatives (if applicable). Feedback can also be provided to Course Conveners and teachers via the Student Experience of Learning & Teaching (SELT) feedback program. SELT surveys are confidential and also provide the Colleges and ANU Executive with opportunities to recognise excellent teaching, and opportunities for improvement.

Class Schedule

WEEK/SESSION	SUMMARY OF ACTIVITIES	ASSESSMENT
1	Data Communications (Textbook Chapter (Ch.) 1), Lecture (2 hours), Computer Lab 1 (2 hours)	Wattle Quiz 1
2	Academic Writing, Lecture (2 hours), Tutorial (1 hour)	Wattle Quiz 2

WEEK/SESSION	SUMMARY OF ACTIVITIES	ASSESSMENT
3	Application Layer (Ch. 2), Lecture (2 hours), Computer Lab 2 (2 hours), Tutorial (1 hour)	Wattle Quiz 3
4	Network and Transport Layers (Ch. 4), Lecture (2 hours), Tutorial (1 hour)	Wattle Quiz 4
5	Local Area Networks (LANs, Ch. 7), Lecture (2 hours), Computer Lab 3 (2 hours), Tutorial (1 hour)	Wattle Quiz 5
6	Backbone Networks (Ch. 8), Lecture (2 hours), Tutorial (1 hour)	Wattle Quiz 6, Assignment Specification released on Wattle
7	Network Design and Management (Ch. 6 & 12), Lecture (2 hours), Computer Lab 4 (2 hours), Tutorial (1 hour)	Wattle Quiz 7, Assignment Group chosen on Wattle, Mid-Term Exam (2 hours)
8	Virtual LANs and Wide Area Networks (Ch. 9), Lecture (2 hours), Tutorial (1 hour)	Wattle Quiz 8
9	Ethics and Security in Networked Cyber-physical Systems and the Internet (Ch. 10 & 11), Lecture (2 hours), Computer Lab 5 (2 hours), Tutorial (1 hour)	Wattle Quiz 9, Mid-Term Exam Mark released on Wattle
10	Ethics and Security in Networked Cyber-physical Systems and the Internet, Lecture (2 hours), Tutorial (1 hour)	Wattle Quiz 10
11	Ethics and Security in Networked Cyber-physical Systems and the Internet, Lecture (2 hours), Tutorial (1 hour)	Wattle Quiz 11, Assignment Submission due on Wattle, Computing Lab Exam Mark released on Wattle
12	Ethics and Security in Networked Cyber-physical Systems and the Internet, Lecture (2 hours), Tutorial (1 hour)	Wattle Quiz 12
13	Examination Period	Assignment Mark Released on Wattle, Final Exam (3 hours)

Tutorial Registration

See the COMP2410/COM6340 webpage on ANU Wattle for details.

Assessment Summary

ASSESSMENT TASK	VALUE	LEARNING OUTCOMES
Online Quizzes	5 %	Online Quizzes, L1-L5
Computing Lab Exam	5 %	Computing Lab Exam, L5
Mid-term Exam	20 %	Mid-Term Exam, L1-L5
Group Assignment	20 %	Group Assignment, L1-L4
Final Exam	50 %	Final Exam, L1-L5

* If the Due Date and Return of Assessment date are blank, see the Assessment Tab for specific Assessment Task details

Policies

ANU has educational policies, procedures and guidelines , which are designed to ensure that staff and students are aware of the University's academic standards, and implement them. Students are expected to have read the Academic Integrity Rule before the commencement of their course. Other key policies and guidelines include:

- Academic Integrity Policy and Procedure

- Student Assessment (Coursework) Policy and Procedure

- Special Assessment Consideration Guideline and General Information

- Student Surveys and Evaluations

- Deferred Examinations

- Student Complaint Resolution Policy and Procedure

- Code of practice for teaching and learning

Responsible Officer: Registrar, Student Administration   /   **Page Contact:** Website Administrator   /   Frequently Asked Questions