



Prescription

This course addresses key concepts, techniques and tools needed to provide security in computer and communications systems. Topics include the need for security, system and network security threats such as malware or denial-of-service attacks, secure systems design, identity management, authentication, access control, and computer network defence. Practical work will involve developing operating system and network security tools such as keyloggers as well as choosing and implementing appropriate security controls to meet a small organisation's network security needs. The examination will be related to the lecture material and learning during the assignments.

Course learning objectives

Students who pass this course will be able to:

1. Define system and network security in terms of information properties and explain the importance of secure system design.
2. List and explain common TCP/IP protocols' vulnerabilities, associated attacks and, identify and explain the existing countermeasures.
3. Compare and contrast different approaches to network defence such as access control, cryptographic mechanisms, host-based protection, firewalls, intrusion detection and prevention systems.
4. Evaluate a small organisation's network security needs and deploy network defences to enforce appropriate network security policies.

Course content

2022: The course is primarily offered in-person but there are components such as workshops that may require in-person attendance. There will be a remote option for all the assessment components of the course. The remote option for tests will use a Zoom-based system for online supervision of the tests.

Students taking this course remotely must have access to a computer with camera and microphone and a reliable high speed internet connection that will support real-time video plus audio connections and screen sharing. Students must be able to use Zoom; other communication applications may also be used. A mobile phone connection only is not considered sufficient. The computer must be adequate to support the programming required by the course: almost any modern windows, macintosh, or unix laptop or desktop computer will be sufficient, but an Android or IOS tablet will not.

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This course addresses key operating system and communication systems security concepts and discusses the vulnerabilities and threats associated with widely-used communication protocols. The course also examines appropriate security controls and their implementation to meet a small organisation's network security needs.

Required Academic Background

Students are required to have a basic understanding of security concepts (CYBR171), and have prior knowledge of networking and communication protocols (NWEN243) and operating system (Basic

knowledge of Linux and Shell scripting).

Withdrawal from Course

Withdrawal dates and process:

<https://www.wgtn.ac.nz/students/study/course-additions-withdrawals>

Lecturers

Dr Masood Mansoori (Coordinator)

masood.mansoori@vuw.ac.nz 04 886 5369

CO 130 Cotton Building (All Blocks), Gate 7, Kelburn Parade, Kelburn

Teaching Format

This course will be offered through dual-mode delivery (i.e. in-person and online). Students are encouraged to attend the course sessions in person if possible. It is however possible to take the course remotely for those who cannot attend on-campus sessions, with all the components provided in-person also made available online.

There are two lectures per week which will be automatically recorded and accessible through Blackboard.

Lab sessions are however not recorded. Instructions for each lab session will be provided before the session date on the course website. Students are required to read the lab documents thoroughly, complete the tasks and submit them by the due date specified in each lab document.

Students may attend the lab sessions in person or complete the labs remotely and submit the results through the ECS submission system.

Student feedback

Student feedback on University courses may be found at:

www.cad.vuw.ac.nz/feedback/feedback_display.php

Dates (trimester, teaching & break dates)

- Teaching: 28 February 2022 - 03 June 2022
- Break: 11 April 2022 - 24 April 2022
- Study period: 06 June 2022 - 09 June 2022
- Exam period: 10 June 2022 - 25 June 2022

Class Times and Room Numbers

28 February 2022 - 10 April 2022

- **Tuesday** 09:00 - 09:50 – LT101, Murphy, Kelburn
- **Thursday** 09:00 - 09:50 – LT101, Murphy, Kelburn

25 April 2022 - 05 June 2022

- **Tuesday** 09:00 - 09:50 – LT101, Murphy, Kelburn
- **Thursday** 09:00 - 09:50 – LT101, Murphy, Kelburn

Other Classes

Students must sign up in myAllocator for a regular one-hour lab session.

Set Texts and Recommended Readings

Required

Guide to Network Defense and Countermeasures, 3rd Edition by Randy Weaver, Dawn Weaver, Dean Farwood is primarily used throughout the course and includes most of the topics covered in this course. ([Available from Vic Books](#), or you can seek out alternate options or e-books from any publisher or supplier available to you.)

Additional notes are provided before/after each lecture session accordingly.

Mandatory Course Requirements

In addition to achieving an overall pass mark of at least 50%, students must:

- Achieve at least a **D** grade in the final examination, because the examination assesses understanding of concepts and learning from assignments independently.
- Submit at least three of the five lab exercises over the duration of the course.
- Make a reasonable attempt at all major assessments/assignments.

If you believe that exceptional circumstances may prevent you from meeting the mandatory course requirements, contact the Course Coordinator for advice as soon as possible.

Assessment

The assignments will apply the concepts learnt in the lectures and laboratory sessions, while the final assessment will be related to the lecture materials and learnings during the assignments.

| Assessment Item | Due Date or Test Date | CLO(s) | Percentage |
|--|---|-----------------|------------|
| Assignment One | Week 6 | CLO: 1,2 | 30% |
| Assignment Two | Week 12 | CLO: 3,4 | 30% |
| Final Assessment | TBA | CLO: 1,2,3,4 | 20% |
| Lab activities (5 labs, Weeks 2, 4, 6, 8 and 10) | 2 weeks after each lab is announced and released. | CLO: 1,2,3,4 | 20% |

Penalties

Late assignment submissions will receive a penalty of 10% for each late day (pro-rata).

Extensions

Each student will have **three** "late days" which you may choose to use for any assignments during the

course. There will be no penalty applied for these late days. You do not need to apply for these. Any late days you have left will be automatically applied to assignments that you submit late.

Submission & Return

All work is submitted through the ECS submission system, accessible through the course web page. Marks and comments will be returned through the ECS marking system; also available through the course web page.

Marking Criteria

All assessments are marked according to the scheme produced by the lecturers and specified in each assessment document.

Workload

The total workload for CYBR 371 is 150 hours. In order to maintain satisfactory progress in this course, you should plan to spend an average of 10 hours per week on this course. An approximate breakdown for these hours would be:

- Lectures and laboratories: 4 hours per week
- Consolidating lectured material, through readings, completion of exercises, worksheets: 3 hours per week
- Assignments: 3 hours per week

Teaching Plan

See https://ecs.wgtn.ac.nz/Courses/CYBR371_2022T1/LectureSchedule

Communication of Additional Information

All online material for this course can be accessed at https://ecs.wgtn.ac.nz/Courses/CYBR371_2022T1/.

Links to General Course Information

- Academic Integrity and Plagiarism: <https://www.wgtn.ac.nz/students/study/exams/integrity-plagiarism>
- Academic Progress: <https://www.wgtn.ac.nz/students/study/progress/academic-progress> (including restrictions and non-engagement)
- Dates and deadlines: <https://www.wgtn.ac.nz/students/study/dates>
- Grades: <https://www.wgtn.ac.nz/students/study/progress/grades>
- Special passes: Refer to the Assessment Handbook, at <https://www.wgtn.ac.nz/documents/policy/staff-policy/assessment-handbook.pdf>
- Statutes and policies, e.g. Student Conduct Statute: <https://www.wgtn.ac.nz/about/governance/strategy>
- Student support: <https://www.wgtn.ac.nz/students/support>
- Students with disabilities: https://www.wgtn.ac.nz/st_services/disability/
- Student Charter: <https://www.wgtn.ac.nz/learning-teaching/learning-partnerships/student-charter>
- Terms and Conditions: <https://www.wgtn.ac.nz/study/apply-enrol/terms-conditions/student-contract>
- Turnitin: <http://www.cad.vuw.ac.nz/wiki/index.php/Turnitin>
- University structure: <https://www.wgtn.ac.nz/about/governance/structure>

- VUWSA: <http://www.vuwsa.org.nz>

Offering CRN: [32072](#)

Points: 15

Prerequisites: CYBR 171, NWEN 241, 243

Duration: 28 February 2022 - 26 June 2022

Starts: Trimester 1

Campus: Kelburn