

NWEN243 (2017) - Network Applications

Prescription

The course provides a broad introduction to computer networks and a basic understanding of network application programming, with an emphasis on the working principles and application of computer networks. It covers a range of topics including basic data communication and computer network concepts, protocols, networked computing concepts and principles, network applications development and network security. The course features an interactive laboratory component with projects examining modern networking technologies such as, GPS enabled mobile phone applications, multimedia and distributed applications. Students are recommended, but not required, to have some familiarity with C programming prior to taking this course.

Course learning objectives

Students who pass this course will be able to:

1. Explain the basics of networks and the design of their associated protocols (GA 3(a), 3(b), 3(d), 3(e), 3(f))
2. Explain how networks are utilised for various roles (GA 3(a), 3(b), 3(d), 3(e), 3(f)).
3. Explain the role of the application layer, the socket API and the basics of building networked or distributed applications and the design of their associated protocols (GA 3(a), 3(b), 3(d), 3(e), 3(f)).
4. Implement applications that make use of the Socket API, Webservices (SOAP and REST), and Networked Applications (Android).

Course content

This course introduces protocols and algorithms for networked and distributed systems. Specific emphasis will be placed on security, application layer protocols, and distributed algorithms. Topics will include: 1. Security, Public Key Cryptography, Authentication and Digital Signatures. 2. Introduction to Networking, Lans, Protocols, the protocol Stack. 3. TCP/IP and the socket API 4. Models of Networked Applications. 5. Media and Application requirements for Networked applications. 6. Application layer case studies: including the Domain Name System (DNS) and Hypertext Transport Protocol (HTTP) 7. Webservices, SOAP, REST .

Withdrawal from Course

Withdrawal dates and process:

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

Lecturers

Aaron Chen (Coordinator)

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405 Alan MacDiarmid Building, Kelburn

Ali Ahmed

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104 Easterfield, Kelburn

Teaching Format

During the trimester there will be two lectures per week and tutorials will be scheduled as needed.

Dates (trimester, teaching & break dates)

- Teaching: 17 July 2017 - 20 October 2017
- Break: 28 August 2017 - 08 September 2017
- Study period: 24 October 2017 - 26 October 2017
- Exam period: 27 October 2017 - 18 November 2017

Class Times and Room Numbers

17 July 2017 - 27 August 2017

- **Monday** 12:00 - 12:50 – LT102, Maclaurin, Kelburn
- **Wednesday** 12:00 - 12:50 – LT102, Maclaurin, Kelburn
- **Thursday** 12:00 - 12:50 – LT102, Maclaurin, Kelburn

11 September 2017 - 22 October 2017

- **Monday** 12:00 - 12:50 – LT102, Maclaurin, Kelburn
- **Wednesday** 12:00 - 12:50 – LT102, Maclaurin, Kelburn
- **Thursday** 12:00 - 12:50 – LT102, Maclaurin, Kelburn

Set Texts and Recommended Readings

Required

There are no required texts for this offering.

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.
- pass (50%) at least 6 Lab projects.

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

This course will be internally and externally assessed through the following:

- You must achieve at least a D grade in the final examination.
- You must pass (50%) at least 6 Lab projects.

6 laboratory reports	CLO: 1,2,3,4	50%
Final examination (2 hours)	CLO: 1,2,3	50%

Workload

In order to maintain satisfactory progress in NWEN 243, you should plan to spend an average of at least 10 hours per week on this paper. A plausible and approximate breakdown for these hours would be:

- Lectures and tutorials: 3
- Laboratory: 2
- Assignments and practical work: 5

Teaching Plan

Links to General Course Information

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

Offering CRN: [19863](#)

Points: 15

Prerequisites: COMP 103

Duration: 17 July 2017 - 19 November 2017

Starts: Trimester 2

Campus: Kelburn