Prescription

This course introduces technologies, algorithms and systems for developing secure, scalable and reliable web server applications. Specific emphasis will be placed on application development middleware, computer security, network protocols and distributed systems. Particularly a variety of topics ranging from fundamental to advanced technologies for developing RESTful web applications, including MVC, distributed authentication and authorization, secure data communication, web caching and content replication, will be covered in lectures.

Course learning objectives

Students who pass this course should be able to:

1. Explain the application of techniques such as authentication, confidentiality, authorisation, caching, replication, consistency and transactions in engineering scalable and reliable applications in networked and distributed environments (GA 3(a), 3(e)).

2. Be able to analyse the security, scalability and fault tolerance of networked and distributed applications using a mix of mathematical and empirical methods (GA 3(b), 3(c), 3(d), 3(e))

3. Explain the responsibilities of developers of networked and distributed applications with respect to social, cultural and environmental issues and include these aspects in the evaluation of the final group project (GA 1(a)).

4. Be able to use web application development frameworks and middleware technologies to build, deploy and test web applications on a cloud computing infrastructure (GA 3(f)).

5. Be able to work in a team to design, develop and evaluate networked and distributed applications (GA 2(a)).

6. Present explanations in written and oral form (GA 2(b)).

Withdrawal from Course

Withdrawal dates and process:
https://www.wgtn.ac.nz/students/study/course-additions-withdrawals

Lecturers

Jyoti Sahni (Coordinator)

jyoti.sahni@vuw.ac.nz

Teaching Format

This course will be offered in-person and online. For students in Wellington, there will be a combination of in-person components and web/internet based resources. It will also be possible to take the course entirely online for those who cannot attend on campus, with all the components provided in-person also made available online.

During the trimester there will be two 50-minute lectures per week. Students are encouraged to approach the lecturers if they have questions; students can also discuss with tutor if they have questions on the assignments/labs.

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: 13 July 2020 - 18 October 2020
- Break: 17 August 2020 - 30 August 2020
- Exam period: 19 October 2020 - 25 October 2020

Class Times and Room Numbers

13 July 2020 - 16 August 2020
- **Wednesday** 10:00 - 10:50 – LT119, Hunter, Kelburn
- **Friday** 10:00 - 10:50 – LT103, Hugh Mackenzie, Kelburn

31 August 2020 - 18 October 2020
- **Wednesday** 10:00 - 10:50 – LT119, Hunter, Kelburn
- **Friday** 10:00 - 10:50 – LT103, Hugh Mackenzie, Kelburn

Other Classes

There will be weekly 2-hour in-person help-desks in CO246 reserved for NWEN304 labs. Online helpdesk through Zoom will also be made available for students who wish to take the course online.

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:
- Attend the project interview
- Participate in the progress report presentation
- Participate in the final group project presentation

If you believe that exceptional circumstances may prevent you from meeting the mandatory course

Assessment

This course will be assessed through the following:

Assessment Item	Due Date or Test Date	CLO(s)	Percentage
2 assignments	week 5, week 10	CLO: 1,2	10%
2 tests	week 5, week 12	CLO: 1,2	30%
Individual programming project	week 6, week 8	CLO: 3,4,5,6	25%
Group programming project	week 10, examination period	CLO: 3,4,5,6	35%

Penalties

In fairness to other students, work submitted after any deadline will incur a penalty for lateness. Late work handed is discounted 10% per day late up to 5 days. For example if an assignment is out of 20 and the assignment receives 50% then one day late means the mark will be out of 18 and the student will receive 50% of 18. On the other hand, if it is two days late, then the mark will be out of 16 and the student will receive 50% of 16.

Extensions

Individual extensions will only be granted in exceptional personal circumstances, and should be discussed with the course coordinator before the deadline whenever possible. Documentation (e.g., medical certificate) may be required.

Submission & Return

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

Marking Criteria

Details about the assessment requirements and marking criteria will be posted on the ECS course website.

Group Work

Although you will do some group project work in the labs, you will need to meet with your project groups outside the lab times (suggest regular weekly meetings, each for half a hour).

Where assessment involves group work, the course coordinator and lecturer will ensure the marks you receive will reflect a *holistic assessment of your overall demonstrated contribution to each assessment item*. In this course we will expect you to use your initiative and resources as a group (such as material from past courses and industry experience) to gather information and to ask questions of relevant staff and members from around the University.

Group project presentation will cover the design, implementation and testing of both the client and server side of the final project deliverable as well as a consideration of societal issues such as privacy. In addition, you will give a quick demo of your project deliverable as part of a final presentation. You will also take part in a progress presentation that is an opportunity for you to receive formative feedback on your project so far.

Workload

In order to maintain satisfactory progress in NWEN 304, you should plan to spend an average of 10 hours per week on this paper. A plausible and approximate breakdown for these hours would be:

- Readings and notes review: 2 Hours
- Assignments: 1 Hour
- Projects : 5 Hours
- Lectures: 2 Hours

Teaching Plan

See https://ecs.wgtn.ac.nz/Courses/NWEN304_2020T2/LectureSchedule

Communication of Additional Information

All online material for this course can be accessed at https://ecs.wgtn.ac.nz/Courses/NWEN304_2020T2/

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-progess (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: 19864

Points: 15
Prerequisites: ENGR 123 or MATH 161, NWEN 243; COMP 261 or NWEN 241 or SWEN 221
Duration: 13 July 2020 - 25 October 2020
Starts: Trimester 2
Campus: Kelburn