UNIVERSITY of TASMANIA

Unit Outline

KIT514

Secure Web and Cloud Development

Semester 2, 2025

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CRICOS Provider Code: 00586B

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What is the Unit About?

Unit Description

This unit will introduce you to advanced principles and practice of developing secure web deployments. It will focus on the implementation strategies and technology for deploying scalable web applications. Web applications nowadays need to provide customised experiences to the users to provide a consistent use experience and capabilities. The interface must retain user attentions as much as possible. Web pages should be designed carefully, and the interface may change dynamically according to user demands or trends. You will use a cloud platform to create your own deployments of secure distributed web applications, load balancing and server configurations. The web applications will be designed with suitable Web Design Architecture in PHP or NodeJS and suitable database management, e.g., MySQL.

Intended Learning Outcomes

As per the Assessment and Results Policy 1.3, your results will reflect your achievement against specified learning outcomes.

On completion of this unit, you will be able to:

1. Analyse security and performance issues in traditional and cloud-based web applications
2. Develop webservices to implement cloud-based web applications
3. Evaluate and implement appropriate countermeasures and prevention techniques to secure a web application
4. Design cloud-based web applications using the intelligent interface and back-end aligned with business requirements

Requisites

REQUISITE TYPE	REQUISITES
Pre-requisite	KIT502

Alterations as a result of student feedback

Addition of GitHub.

Streamlined instructions for Virtual Machine interaction (including longer idle-detection shutdown times).

Additional NodeJS content.

Teaching arrangements

ATTENDANCE MODE	TEACHING TYPE	LEARNING ACTIVITY	CONTACT HOURS	FREQUENCY
On Campus	Lecture (Online)	A real-time (i.e. synchronous) interactive activity involving the whole class whose primary purpose is the presentation and structuring of information/ideas/skills to facilitate student learning. All students are expected to attend.	2	Weekly
	Tutorial	A structured real-time (i.e. synchronous) activity in a small-group setting where the primary purpose is the clarification, exploration or reinforcement of subject content presented or accessed at another time or place (e.g. lecture, preparatory work). It is reliant on student-teacher and student-student interaction and dialogue for achievement of its learning outcomes. The students enrolled in the tutorial are expected to attend.	2	Weekly
Online	Independent Learning	Involving reading, listening to audio, watching video, and/or completing exercises and/or quizzes, self-study is individual work undertaken when the student chooses (i.e. asynchronous), most likely through engagement with MyLO. The content is examinable, and may need to be completed prior to attending classes and/or attempting assessment tasks.	2	Weekly

Attendance / engagement expectations

If your unit is offered On campus, it is expected that you will attend all on-campus and onsite learning activities. This is to support your own learning and the development of a learning community within the unit. If you are unable to attend regularly, please discuss the situation with your course coordinator and/or our UConnect support team.

If your unit is offered Online or includes online activities, it is expected you will engage in all those activities as indicated in the Unit Outline or MyLO, including any self-directed learning.

If you miss a learning activity for a legitimate reason (e.g., illness, carer responsibilities) teaching staff will attempt to provide alternative activities (e.g., make up readings) where it is possible.

How will I be Assessed?

For more detailed assessment information please see MyLO.

Assessment schedule

ASSESSMENT TASK #	ASSESSMENT TASK NAME	DATE DUE	WEIGHT	LINKS TO INTENDED LEARNING OUTCOMES
Assessment Task 1:	Quiz 1	Week 8	20 %	LO1, LO2, LO3
Assessment Task 2:	Assignment 1	Week 8	25 %	LO1, LO3, LO4
Assessment Task 3:	Quiz 2	Week 13	20 %	LO1, LO2, LO4
Assessment Task 4:	Assignment 2	Week 14	25 %	LO1, LO2, LO3, LO4
Assessment Task 5:	Tutorials	Refer to Assessment Description	10 %	LO1, LO2, LO3, LO4

Assessment details

Assessment Task 1: Quiz 1

Task Description:	The open book Quiz will contain multiple sections. Section 1 will be short answers questions about specific details regarding the security settings. Section 2 will test students system design/programming capabilities with diagrams and programs.
Task Length:	1 hour
Due Date:	Week 8
Weight:	20 %

CRITERION #	CRITERION	MEASURES INTENDED LEARNING OUTCOME(S)
1	Analyse the security issues in a given scenario	LO1, LO3
2	Indicate solutions and techniques to solve security and scalability issues	LO2, LO3

Assessment Task 2: Assignment 1

Task Description:	Implement a Web Application with Security features Students will design a basic web application with fundamental security plans. The web application will be of a particular scenario and consist of design a number of web pages connected to each other. To protect access, the web servers will have to be configured correctly.
Task Length:	~ 6 hours
Due Date:	Week 8
Weight:	25 %

CRITERION #	CRITERION	MEASURES INTENDED LEARNING OUTCOME(S)
1	Design and implement secure web application	LO4
2	Analyse the situation and implement countermeasures to develop a secure web application	LO1, LO3
3	Configure the web server securely	LO1, LO3

Assessment Task 3: Quiz 2

Task Description:	The open book Quiz will contain multiple sections. Section 1 will be short answers questions about specific details regarding the intelligent web services. Section 2 will test students system design/programming capabilities with diagrams and programs.
Task Length:	1 hour
Due Date:	Week 13
Weight:	20 %

CRITERION #	CRITERION	MEASURES INTENDED LEARNING OUTCOME(S)
1	Design intelligent cloud-based intelligent web applications	LO4
2	Analyse and discuss security issues in traditional and cloud-based web applications	LO1
3	Design configuration plans for cloud resources	LO2

Assessment Task 4: Assignment 2

Task Description:	Implement a Web Application with Web Service based Intelligent Front-end Student will add new features to their web application with the APIs. The interface should be able to provide intelligent recommendations and feedback to the user according to their choices.
Task Length:	~ 6 hours
Due Date:	Week 14
Weight:	25 %

CRITERION #	CRITERION	MEASURES INTENDED LEARNING OUTCOME(S)
1	Implement secure web application to handle user input	LO4
2	Implement individual web services for each component of the Web API	LO1, LO3
3	Apply a configuration plan to web server	LO2

Assessment Task 5: Tutorials

Task Description:	Weekly Tutorials Each week a topic for secure configurations or web programming will be covered. Students will be required to complete tutorial exercises and answer weekly questions about what they have completed.
Task Length:	2 hours weekly

Due Date:	Refer to Assessment Description
Weight:	10 %

CRITERION #	CRITERION	MEASURES INTENDED LEARNING OUTCOME(S)
1	Apply different aspects of intelligent cloud computing solutions	LO2, LO4
2	Analyse prevention techniques to solve security and scalability issues	LO1, LO3

How your final result is determined

To pass this unit, you need to demonstrate your attainment of each of the Intended Learning Outcomes, achieve a final unit grade of 50% or greater, and pass any hurdle tasks.

Academic progress review

The results for this unit may be included in a review of your academic progress. For information about progress reviews and what they mean for all students, see Academic Progress Review in the Student Portal.

Submission of assignments

Where practicable, assignments should be submitted to an assignment submission folder in MYLO. You must submit assignments by the due date or receive a penalty (unless an extension of time has been approved by the Unit Coordinator). Students submitting any assignment in hard copy, or because of a practicum finalisation, must attach a student cover sheet and signed declaration for the submission to be accepted for marking.

Academic integrity

Academic integrity is about acting responsibly, honestly, ethically, and collegially when using, producing, and communicating information with other students and staff members.

In written work, you must correctly reference the work of others to maintain academic integrity. To find out the referencing style for this unit, see the assessment information in the MyLO site, or contact your teaching staff. For more detail about Academic Integrity, see Important Guidelines & Support.

Requests for extensions

If you are unable to submit an assessment task by the due date, you should apply for an extension.

A request for an extension should first be discussed with your Unit Coordinator or teaching support team where possible. A request for an extension must be submitted by the assessment due date, except where you can provide evidence it was not possible to do so. Typically, an application for an extension will be supported by documentary evidence: however, where it is not possible for you to provide evidence please contact your Unit Coordinator.

The Unit Coordinator must notify you of the outcome of an extension request within 3 working days of receiving the request.

Late penalties

Assignments submitted after the deadline will receive a late penalty of 5% of the original available mark for each calendar day (or part day) that the assignment is late. Late submissions will not be accepted more than 10 calendar days after the due date, or after assignments have been returned to other students on a scheduled date, whichever occurs first. Further information on Late Penalties can be found on the Assessments and Results Procedure.

Review of results and appeals

You are entitled to ask for a review of the marking and grading of your assessment task if there is an irregularity in the marking standards or an error in the process for determining the outcome of an assessment. Details on how to request a review of a mark for an assignment are outlined in the Review and Appeal of Academic Decisions Procedure.