School of Information and Physical Sciences

SENG1050: Web Technologies

Callaghan
Semester 2 - 2023

COURSE OUTLINE

OVERVIEW

Course Description

This course introduces web technologies and the fundamental concepts of internet architecture and how they support the massive growth and varied uses of the medium. A strong emphasis is placed on practical skills such as using various communication techniques, building web pages, and securing information via encryption. The course is designed to give students a sound understanding of the potential as well as the limitations of web technology. Previous computing experience is helpful but not required.

Contact Hours

Callaghan
Computer Lab *
Face to Face On Campus
2 hour(s) per Week for 11 Weeks starting Week 2

Lecture
Face to Face On Campus
2 hour(s) per Week for 12 Weeks starting Week 1

* This contact type has a compulsory requirement.

Unit Weighting

10

Workload

Students are required to spend on average 120-140 hours of effort (contact and non-contact) including assessments per 10 unit course.

CONTACTS

Course Coordinator

Callaghan
A/Pr Raymond Chiong
Raymond.Chiong@newcastle.edu.au
(02) 4921 7367
Consultation: By appointment only

Teaching Staff

Other teaching staff will be advised on the course Canvas site.

School Office

School of Information and Physical Sciences
SR233, Social Sciences Building
Callaghan
CESE-SIPS-Admin@newcastle.edu.au
+61 2 4921 5513
9am-5pm (Mon-Fri)

SYLLABUS

Course Content

- Introduction to computer networking
- Past, present and potential future of the Internet
- Client-server computing, search engines, Internet protocols
- World-wide web languages: XHTML, XML, CSS, XSLT and Javascript
- HCI and communication issues relating to Web page design
- Cryptography
- Compression
- Social aspects of the Internet: privacy, responsibility and legal issues.

Course Learning Outcomes

On successful completion of this course, students will have:
1. Sound understanding of basic web technology architectures

2. Familiarization with a variety of aspects of electronic communication.

3. Understanding of syntax and semantics of several Markup languages for use in information communication.

4. Detailed knowledge of the concepts and practical aspects of data encryption and compression in networking environments.

Course Materials

Lecture Materials:
Students enrolled in the course can login https://canvas.newcastle.edu.au/ to access the Canvas site used to support this course.

Recommended Reading:
Web Development and Design Foundations with HTML5 (9e) by Terry Felke-Morris, Pearson
Data Communications and Networking (5e) by Behrouz A. Forouzan, McGraw-Hill
Programming the World Wide Web (8e) by Robert W. Sebesta, Pearson

COMPULSORY REQUIREMENTS

In order to pass this course, each student must complete ALL of the following compulsory requirements:

Contact Hour Requirements:

- Computer Lab: There is a compulsory attendance requirement in this course. Attendance/participation will be recorded in the following components:
  - Lab (Method of recording: All students' attendance will be recorded using the myUON app.)

  All students must attend at least 80% of the labs. You can check in using the app or advise the academic staff member at the commencement of the session if you need them to check in on your behalf. All students' attendance will be recorded using the my UON app.

Course Assessment Requirements:

- Assessment 4 - Formal Examination: Minimum Grade / Mark Requirement - Students must obtain a specified minimum grade / mark in this assessment item to pass the course. Students whose overall mark in the course is 50% or more, but who score less than 40% in the compulsory item and thus fail to demonstrate the required proficiency, will be awarded a Criterion Fail grade, which will show as FF on their formal transcript. However, students in this position who have scored at least 25% in the compulsory item will be allowed to undertake a supplementary 'capped' assessment in which they can score at most 50% of the possible mark for that item.

SCHEDULE

Week	Week Begins	Topic	Learning Activity	Assessment Due
1	17 Jul	The Internet, Concepts and Communication	Written materials and exercises	
2	24 Jul	HTML Basics		
3	31 Jul	XML and DTD		
4	7 Aug	CSS		
5	14 Aug	Advanced HTML with CSS		
6	21 Aug	The Client-Server Model		Assignment 1 – Due Friday 5 pm
7	28 Aug	Content Management and XSLT		Midterm Quiz
8	4 Sep	JavaScript		Assignment 2 – Milestone 1
9	11 Sep	Website Design and HCI		
10	18 Sep	Encoding and Compression		Assignment 2 – Milestone 2
Mid Term Break				
Mid Term Break				
11	9 Oct	Encryption		
12	16 Oct	Security and Ethics		Assignment 2 – Due Friday 5 pm
13	23 Oct			
Examination Period				
Examination Period				

ASSESSMENTS

This course has 4 assessments. Each assessment is described in more detail in the sections below.

	Assessment Name	Due Date	Involvement	Weighting	Learning Outcomes
1	Mid-semester quiz	Week 7	Individual	20%	1, 2
2	Web-based assignment 1	Friday Week 6 – 5 pm	Individual	15%	3
3	Web-based assignment 2	Friday Week 12 – 5 pm	Individual	25%	3
4	Final exam*****	Formal exam period	Individual	40%	1, 2, 3, 4

* This assessment has a compulsory requirement.

Late Submissions The mark for an assessment item submitted after the designated time on the due date, without an approved extension of time, will be reduced by 10% of the possible maximum mark for that assessment item for each day or part day that the assessment item is late. Note: this applies equally to week and weekend days.

Assessment 1 - Mid-semester quiz

Assessment Type Quiz
Purpose The purpose and benefit of a quiz is to provide the students with mid-term feedback on student learning. This quiz will highlight areas of concern and may stimulate discussion with tutors and lecturers.
Description Mixed response quiz
Weighting 20%
Due Date Week 7
Submission Method Online
Assessment Criteria See Canvas
Return Method Not Returned
Feedback Provided Online

Assessment 2 - Web-based assignment 1

Assessment Type Project
Purpose To author an initial web page using HTML and CSS. To create an elementary XML document with accompanying DTD.
Description Individual assignment
Weighting 15%
Due Date Friday Week 6 – 5 pm
Submission Method Online
Assessment Criteria See Canvas
Return Method Online
Feedback Provided Online

Assessment 3 - Web-based assignment 2

Assessment Type Project
Purpose To complete the web site begun in Assignment 1 including advanced HTML, XML, and Javascript.
Description Individual assignment
Weighting 25%
Due Date Milestone 1: Checked by the lab demonstrator in Week 8's lab
Milestone 2: Checked by the lab demonstrator in Week 10's lab
Project due: Friday Week 12 – 5 pm
Submission Method Online
Assessment Criteria See Canvas
Return Method Online
Feedback Provided Online

Assessment 4 - Final exam

Assessment Type	Formal Examination
Purpose	The final formal examination is designed to test the individual student's knowledge of the course material and their ability to describe, analyse and hypothesise from this material.
Description	Final examination
Weighting	40%
Compulsory Requirements	Minimum Grade / Mark Requirement - Students must obtain a specified minimum grade / mark in this assessment item to pass the course.
Length	2 hours
Due Date	Formal Exam Period
Submission Method	Formal Exam
Assessment Criteria	Marks per question will be on the exam paper.
Return Method	Not Returned
Feedback Provided	No Feedback
Opportunity to Reattempt	Students WILL be given the opportunity to reattempt this assessment. See course outline for details.

ADDITIONAL INFORMATION

Grading Scheme

This course is graded as follows:

Range of Marks	Grade	Description
85-100	High Distinction (HD)	Outstanding standard indicating comprehensive knowledge and understanding of the relevant materials; demonstration of an outstanding level of academic achievement; mastery of skills*; and achievement of all assessment objectives.
75-84	Distinction (D)	Excellent standard indicating a very high level of knowledge and understanding of the relevant materials; demonstration of a very high level of academic ability; sound development of skills*; and achievement of all assessment objectives.
65-74	Credit (C)	Good standard indicating a high level of knowledge and understanding of the relevant materials; demonstration of a high level of academic achievement; reasonable development of skills*; and achievement of all learning outcomes.
50-64	Pass (P)	Satisfactory standard indicating an adequate knowledge and understanding of the relevant materials; demonstration of an adequate level of academic achievement; satisfactory development of skills*; and achievement of all learning outcomes.
0-49	Fail (FF)	Failure to satisfactorily achieve learning outcomes. If all compulsory course components are not completed the mark will be zero. A fail grade may also be awarded following disciplinary action.

*Skills are those identified for the purposes of assessment task(s).

Communication Methods

Communication methods used in this course include:

- Canvas Course Site: Students will receive communications via the posting of content or announcements on the Canvas course site.
- Email: Students will receive communications via their student email account.
- Face to Face: Communication will be provided via face to face meetings or supervision.

Course Evaluation

Each year feedback is sought from students and other stakeholders about the courses offered in the University for the purposes of identifying areas of excellence and potential improvement.

Oral Interviews (Vivas)

As part of the evaluation process of any assessment item in this course an oral examination (viva) may be conducted. The purpose of the oral examination is to verify the authorship of the material submitted in response to the assessment task. The oral examination will be conducted in accordance with the principles set out in the Oral Examination (viva) Procedure. In cases where the oral examination reveals the assessment item may not be the student's own work the case will be dealt with under the Student Conduct Rule.

Academic Misconduct

All students are required to meet the academic integrity standards of the University. These standards reinforce the importance of integrity and honesty in an academic environment. Academic Integrity policies apply to all students of the University in all modes of study and in all locations. For the Student Academic Integrity Policy, refer to https://policies.newcastle.edu.au/document/view-current.php?id=35.

Adverse Circumstances

The University acknowledges the right of students to seek consideration for the impact of allowable adverse circumstances that may affect their performance in assessment item(s). Applications for special consideration due to adverse circumstances will be made using the online Adverse Circumstances system where:

1. the assessment item is a major assessment item; or
2. the assessment item is a minor assessment item and the Course Co-ordinator has specified in the Course Outline that students may apply the online Adverse Circumstances system;
3. you are requesting a change of placement; or
4. the course has a compulsory attendance requirement.

Before applying you must refer to the Adverse Circumstance Affecting Assessment Items Procedure available at:
https://policies.newcastle.edu.au/document/view-current.php?id=236

Important Policy Information

The Help button in the Canvas Navigation menu contains helpful information for using the Learning Management System. Students should familiarise themselves with the policies and procedures at https://www.newcastle.edu.au/current-students/no-room-for/policies-and-procedures that support a safe and respectful environment at the University.

GRADUATE PROFILE STATEMENTS

The following table illustrates how this course contributes towards building the skills students will need to work in their profession.

Level of capability

- Level 1 indicates an introduction to a topic at a university level
- Levels 2 and 3 indicate progressive reinforcement of that topic
- Level 4 indicates skills commensurate with a graduate – entry to professional practice
- Level 5 indicates highly specialist or professional ability

	University of Newcastle Bachelor of Computer Science Graduate Profile Statement	**Taught**	**Practised**	**Assessed**	**Level of capability**
1	Knowledge of basic science and computer science fundamentals				
2	In depth technical competence in the discipline of computer science	X	X	X	1
3	An ability to carry out problem analysis, requirements capture, problem formulation and integrated software development for the solution of a problem				
4	Capacity to continue developing relevant knowledge, skills and expertise in computer science throughout their careers	X	X	X	1
5	An ability to communicate effectively with other Computer Scientists, Software Engineers, other professional disciplines, managers and the community generally	X	X	X	1
6	Ability to undertake and co-ordinate large computer science projects and to identify problems, their formulation and solution				
7	Ability to function effectively as an individual, a team member in multidisciplinary and multicultural teams and as leader/manager with capacity to assist and encourage those under their direction				
8	Understanding of social, cultural, global and business opportunities of the professional computer scientist; understanding the need for and principles of sustainability and adaptability				
9	Understanding of professional and ethical responsibilities and a commitment to them				
10	Understanding of entrepreneurship; need of and process of innovation, as well as the need of and capacity for lifelong learning				

	University of Newcastle Bachelor of Engineering Graduate Profile Statements	Taught	Practised	Assessed	Level of capability
	Knowledge Base				
1	1.1. Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline.				
2	1.2. Conceptual understanding of the, mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline.				
3	1.3. In-depth understanding of specialist bodies of knowledge within the engineering discipline.	X	X	X	1
4	1.4. Discernment of knowledge development and research directions within the engineering discipline.	X	X	X	1
5	1.5. Knowledge of contextual factors impacting the engineering discipline.				
6	1.6. Understanding of the scope, principles, norms, accountabilities and bounds of contemporary engineering practice in the specific discipline.				
	Engineering Ability				
7	2.1. Application of established engineering methods to complex engineering problem solving.				
8	2.2. Fluent application of engineering techniques, tools and resources.	X	X	X	1
9	2.3. Application of systematic engineering synthesis and design processes.				
10	2.4. Application of systematic approaches to the conduct and management of engineering projects.				
	Professional Attributes				
11	3.1. Ethical conduct and professional accountability				
12	3.2. Effective oral and written communication in professional and lay domains.				
13	3.3. Creative, innovative and pro-active demeanour.				
14	3.4. Professional use and management of information.				
15	3.5. Orderly management of self, and professional conduct.				
16	3.6. Effective team membership and team leadership.				

	University of Newcastle Bachelor of Information Technology Graduate Profile Statement	Taught	Practised	Assessed	Level of capability
1	Demonstrate a comprehensive understanding of the discipline of information technologies with an emphasis on net-centric applications, information management, and user requirements for ethical professional practice.	X	X	X	1
2	Apply critical reasoning and systems thinking to understand and support the operation and constraints of contemporary enterprises and their dynamic environment.				
3	Work independently and collaboratively to locate, manage and organise information and resources and apply evidence-based methodologies to create, modify and maintain designs and design solutions.	X	X	X	1
4	Use creativity, problem solving skills, project management skills and technical expertise to analyse, interpret, evaluate and generate solutions to complex technical and organisational problems.				
5	Demonstrate professional judgement and responsibility by communicating information technology principles, practices, standards to specialist and non-specialist audience clearly and persuasively.	X	X	X	1

This course outline was approved by the Head of School. No alteration of this course outline is permitted without Head of School approval. If a change is approved, students will be notified and an amended course outline will be provided in the same manner as the original.