UNIVERSITY OF CANBERRA

Web Design and Programming

Unit code and version	7175.7
Unit offering option	213712
Study level	Level 2 - Undergraduate Intermediate Unit
Credit points	3
Faculty	Faculty of Science and Technology
Discipline	Academic Program Area - Technology
Unit offering details	Semester 2, 2023 , ON-CAMPUS , UC - Canberra, Bruce
Unit convener name and contact details	Unit Convener: A/Prof Dat Tran E: dat.tran@canberra.edu.au T: (02) 6201 2394 Office: 6C24, Bruce Campus
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Academic content

Unit description

This unit provides the principles and skills of web application development. It aims at providing both conceptual understanding and hand-on experiences for web design and programming technology and the skills for developing web oriented applications. Topics include HTML, CSS, JavaScript, web services, ASP.NET using C#, and PhP in the context of web development practices. This unit may be cotaught with 6691 Web Design and Programming G.

Learning outcomes

On successful completion of this unit, students will be able to:

1. Describe the various issues associated with structuring web pages for use with multiple platforms and a variety of mobile systems;
2. Apply problem solving skills in designing and development: Internet and web application structures, web applications with database,

accessibility, and security requirements;

3. Analyse and critique existing web sites and web technologies, and interpret the technical requirements for a given web site design;
4. Design web pages using HTML, CSS and JavaScript, and implement the integration between web pages and database structures using ASP.NET C# or PhP; and
5. Evaluate web sites for multiple platforms and usability testing.

Graduate attributes

1. UC graduates are professional
    - use creativity, critical thinking, analysis and research skills to solve theoretical and real-world problems
2. UC graduates are global citizens
    - make creative use of technology in their learning and professional lives
3. UC graduates are lifelong learners
    - reflect on their own practice, updating and adapting their knowledge and skills for continual professional and academic development

Skills development

As students of the University of Canberra, you will develop your critical thinking skills, your ability to solve complex problems, your ability to work with others, your confidence to learn independently, your written communication skills, your spoken communication skills and a number of work-related knowledge and skills.

Prerequisites

4478 Introduction to Information Technology.

Corequisites

None.

Accreditation

EA Accreditation. This unit is part of courses accredited by Engineers Australia. It meets the following Stage 1 competencies:

- Conceptual understanding
- In-depth understanding
- Discernment
- Understanding
- Application of established engineering methods
- Fluent application of engineering techniques, tools and resources
- Effective oral and written communication in professional and lay domains
- Creative, innovative and pro-active demeanour
- Professional use and management of information
- Orderly management of self, and professional conduct

ACS Accreditation. This unit is part of courses accredited by the ACS. It meets the following skill categories::

Skills framework for the Information Age (SFIA): This unit meets the following SFIA skills specification

- System Design DESN
- Methods and Tools METL
- Programming/Software Development PROG
- Software Design SWDN

- User Experience Evaluation USEV
- Testing TEST

Seoul Accord: The UC generic attributes address graduate attributes 1, 6, 7, 9, and 10 of the Seoul Accord. The remaining graduate attributes that are covered in this unit are:

- 2. Knowledge for Solving Computing Problems
- 3. Problem Analysis
- 4. Design/Development of Solutions
- 5. Modern Tool Usage

Timetable of activities

WEEK	LECTURE	TUTORIAL/LAB	DUE DATE (see Assessment Details for more information)
Week 1	Web Design and Programming Introduction. HTML and HTML5	No tutorial and lab	No due date
Week 2	CSS and CSS3	HTML and HTML5	Tutorial: End of tutorial session, Quiz: Friday 23:59
Week 3	HTML5, CSS3, Bootstrap and Responsive Design	CSS and CSS3	Tutorial: End of tutorial session, Quiz: Friday 23:59
Week 4	JavaScript	HTML5, CSS3, Bootstrap and Responsive Design	Tutorial: End of tutorial session, Quiz: Friday 23:59
Week 5	PyScript, SVG and Font Awesome	JavaScript	Tutorial: End of tutorial session, Quiz: Friday 23:59
Week 6	C#, ASP.NET Core and MVC for Web Application	PyScript, SVG and Font Awesome	Tutorial: End of tutorial session, Quiz: Friday 23:59
Week 7	ASP.NET Core, Database and Entity Framework	HTML5, CSS3, JavaScript, PyScript and ASP.NET Core MVC	Tutorial: End of tutorial session, Quiz: Friday 23:59

Week 8	Class free period	Class free period	Class free period		
Week 9	ASP.NET Core, HTML5, CSS3 and MVC Customisation	ASP.NET Core, Database and Entity Framework	Tutorial: End of tutorial session, Quiz: Friday 23:59		
Week 10	NodeJS, React and ASP.NET Core	ASP.NET Core, HTML5, CSS3 and MVC Customisation	Tutorial: End of tutorial session, Quiz: Friday 23:59		
Week 11	WordPress, Web Services, Web Host, Domain and Web Publishing	HTML5, CSS3, JavaScript and ASP.NET Core for Final Assignment	Final Assignment: Friday 23:59		
Week 12	TypeScript and Sass	NodeJS, React and ASP.NET Core	Tutorial: End of tutorial session, Quiz: Friday 23:59		
Week 13	Angular and Python Web	TypeScript and Sass	Tutorial: End of tutorial session, Quiz: Friday 23:59		

Unit resources

Required texts

Students are not required to buy textbook. Below are websites for tutorials and lectures

- W3Schools.com (Web Design, PHP, HTML, HTML5, CSS, CSS3, JavaScript, React, WordPress)
- ASP.NET Core: https://learn.microsoft.com/en-us/aspnet/core/?view=aspnetcore-7.0
- Microsoft Learn (HTML5, CSS3, JavaScript, ASP.NET Core and MVC, Cloud) https://docs.microsoft.com/en-gb/learn/
- PyScript: https://pyscript.net/
- Streamlit: https://streamlit.io/
- Node.js: https://nodejs.org/en/
- Angular: https://angular.io/
- Python Web: https://docs.microsoft.com/en-us/visualstudio/ide/quickstart-python?view=vs-2019

Materials and equipment

Software: Visual Studio Community, Visual Studio Code, Node.js.

Computers and software tools in laboratories are used in this unit. The use of private personal computers and relevant software is beneficial, but not essential.

Unit website

Each unit you are enrolled in has an online teaching site in the learning management system UCLearn. You access UCLearn through MyUC.

Assessment

Assessment item details

Week 2 Tutorial and Quiz

Due date

Tutorial: End of tutorial session, Quiz: Friday 23:59, Week 2

Weighting

6%

Assessment details

Concerning topics in Week 1. Full details will be available on the Canvas site.

Addresses learning outcomes

On successful completion of this unit, students will be able to:

- 1. Describe the various issues associated with structuring web pages for use with multiple platforms and a variety of mobile systems;
- 4. Design web pages using HTML, CSS and JavaScript, and implement the integration between web pages and database structures using ASP.NET C# or PhP; and

Related graduate attributes

1. UC graduates are professional
    - use creativity, critical thinking, analysis and research skills to solve theoretical and real-world problems
2. UC graduates are global citizens
    - make creative use of technology in their learning and professional lives
3. UC graduates are lifelong learners
    - reflect on their own practice, updating and adapting their knowledge and skills for continual professional and academic development

Week 3 Tutorial and Quiz

Due date

Tutorial: End of tutorial session, Quiz: Friday 23:59, Week 3

Weighting

6%

Assessment details

Concerning topics in Week 2. Full details will be available on the Canvas site.

Addresses learning outcomes

On successful completion of this unit, students will be able to:

- 1. Describe the various issues associated with structuring web pages for use with multiple platforms and a variety of mobile systems;
- 4. Design web pages using HTML, CSS and JavaScript, and implement the integration between web pages and

database structures using ASP.NET C# or PhP; and

Related graduate attributes

1. UC graduates are professional
    - use creativity, critical thinking, analysis and research skills to solve theoretical and real-world problems
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3. UC graduates are lifelong learners
    - reflect on their own practice, updating and adapting their knowledge and skills for continual professional and academic development

Week 4 Tutorial and Quiz

Due date

Tutorial: End of tutorial session, Quiz: Friday 23:59, Week 4

Weighting

6%

Assessment details

Concerning topics in Week 3. Full details will be available on the Canvas site.

Addresses learning outcomes

On successful completion of this unit, students will be able to:

- 1. Describe the various issues associated with structuring web pages for use with multiple platforms and a variety of mobile systems;
- 4. Design web pages using HTML, CSS and JavaScript, and implement the integration between web pages and database structures using ASP.NET C# or PhP; and

Related graduate attributes

1. UC graduates are professional
    - use creativity, critical thinking, analysis and research skills to solve theoretical and real-world problems
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    - make creative use of technology in their learning and professional lives
3. UC graduates are lifelong learners
    - reflect on their own practice, updating and adapting their knowledge and skills for continual professional and academic development

Week 5 Tutorial and Quiz

Due date

Tutorial: End of tutorial session, Quiz: Friday 23:59, Week 5

Weighting

6%

Assessment details

Concerning topics in Week 4. Full details will be available on the Canvas site.

Addresses learning outcomes

On successful completion of this unit, students will be able to:

- 1. Describe the various issues associated with structuring web pages for use with multiple platforms and a variety of mobile systems;
- 4. Design web pages using HTML, CSS and JavaScript, and implement the integration between web pages and database structures using ASP.NET C# or PhP; and

Related graduate attributes

1. UC graduates are professional
    - use creativity, critical thinking, analysis and research skills to solve theoretical and real-world problems
2. UC graduates are global citizens
    - make creative use of technology in their learning and professional lives
3. UC graduates are lifelong learners
    - reflect on their own practice, updating and adapting their knowledge and skills for continual professional and academic development

Week 6 Tutorial and Quiz

Due date

Tutorial: End of tutorial session, Quiz: Friday 23:59, Week 6

Weighting

6%

Assessment details

Concerning topics in Week 5. Full details will be available on the Canvas site.

Addresses learning outcomes

On successful completion of this unit, students will be able to:

- 1. Describe the various issues associated with structuring web pages for use with multiple platforms and a variety of mobile systems;
- 4. Design web pages using HTML, CSS and JavaScript, and implement the integration between web pages and database structures using ASP.NET C# or PhP; and

Related graduate attributes

1. UC graduates are professional
    - use creativity, critical thinking, analysis and research skills to solve theoretical and real-world problems
2. UC graduates are global citizens
    - make creative use of technology in their learning and professional lives
3. UC graduates are lifelong learners
    - reflect on their own practice, updating and adapting their knowledge and skills for continual professional and academic development

Week 7 Tutorial and Quiz

Due date

Tutorial: End of tutorial session, Quiz: Friday 23:59, Week 7

Weighting

6%

Assessment details

Concerning topics in Week 6. Full details of this assignment will be available on the Canvas site.

Addresses learning outcomes

On successful completion of this unit, students will be able to:

- 1. Describe the various issues associated with structuring web pages for use with multiple platforms and a variety of mobile systems;
- 2. Apply problem solving skills in designing and development: Internet and web application structures, web applications with database, accessibility, and security requirements;
- 3. Analyse and critique existing web sites and web technologies, and interpret the technical requirements for a given web site design;
- 4. Design web pages using HTML, CSS and JavaScript, and implement the integration between web pages and database structures using ASP.NET C# or PhP; and
- 5. Evaluate web sites for multiple platforms and usability testing.

Related graduate attributes

1. UC graduates are professional
    - use creativity, critical thinking, analysis and research skills to solve theoretical and real-world problems
2. UC graduates are global citizens
    - make creative use of technology in their learning and professional lives
3. UC graduates are lifelong learners
    - reflect on their own practice, updating and adapting their knowledge and skills for continual professional and academic development

Week 9 Tutorial and Quiz

Due date

Tutorial: End of tutorial session, Quiz: Friday 23:59, Week 9

Weighting

6%

Assessment details

Concerning topics in Weeks 6 and 7. Full details will be available on the Canvas site.

Addresses learning outcomes

On successful completion of this unit, students will be able to:

- 1. Describe the various issues associated with structuring web pages for use with multiple platforms and a variety of mobile systems;
- 2. Apply problem solving skills in designing and development: Internet and web application structures, web applications with database, accessibility, and security requirements;
- 3. Analyse and critique existing web sites and web technologies, and interpret the technical requirements for a given web site design;
- 4. Design web pages using HTML, CSS and JavaScript, and implement the integration between web pages and database structures using ASP.NET C# or PhP; and

Related graduate attributes

1. UC graduates are professional
    - use creativity, critical thinking, analysis and research skills to solve theoretical and real-world problems
2. UC graduates are global citizens
    - make creative use of technology in their learning and professional lives
3. UC graduates are lifelong learners
    - reflect on their own practice, updating and adapting their knowledge and skills for continual professional and academic development

Week 10 Tutorial and Quiz

Due date

Tutorial: End of tutorial session, Quiz: Friday 23:59, Week 10

Weighting

6%

Assessment details

Concerning topics in Week 9. Full details will be available on the Canvas site.

Addresses learning outcomes

On successful completion of this unit, students will be able to:

- 1. Describe the various issues associated with structuring web pages for use with multiple platforms and a variety of mobile systems;
- 2. Apply problem solving skills in designing and development: Internet and web application structures, web applications with database, accessibility, and security requirements;
- 3. Analyse and critique existing web sites and web technologies, and interpret the technical requirements for a given web site design;
- 4. Design web pages using HTML, CSS and JavaScript, and implement the integration between web pages and database structures using ASP.NET C# or PhP; and
- 5. Evaluate web sites for multiple platforms and usability testing.

Related graduate attributes

1. UC graduates are professional
    - use creativity, critical thinking, analysis and research skills to solve theoretical and real-world problems
2. UC graduates are global citizens

- make creative use of technology in their learning and professional lives

3. UC graduates are lifelong learners
    - reflect on their own practice, updating and adapting their knowledge and skills for continual professional and academic development

Week 12 Tutorial and Quiz

Due date

Tutorial: End of tutorial session, Quiz: Friday 23:59, Week 12

Weighting

6%

Assessment details

Concerning topics in Week 10 and Week 11. Full details will be available on the Canvas site.

Addresses learning outcomes

On successful completion of this unit, students will be able to:

- 1. Describe the various issues associated with structuring web pages for use with multiple platforms and a variety of mobile systems;
- 2. Apply problem solving skills in designing and development: Internet and web application structures, web applications with database, accessibility, and security requirements;
- 3. Analyse and critique existing web sites and web technologies, and interpret the technical requirements for a given web site design;
- 4. Design web pages using HTML, CSS and JavaScript, and implement the integration between web pages and database structures using ASP.NET C# or PhP; and
- 5. Evaluate web sites for multiple platforms and usability testing.

Related graduate attributes

1. UC graduates are professional
    - use creativity, critical thinking, analysis and research skills to solve theoretical and real-world problems
2. UC graduates are global citizens
    - make creative use of technology in their learning and professional lives
3. UC graduates are lifelong learners
    - reflect on their own practice, updating and adapting their knowledge and skills for continual professional and academic development

Week 13 Tutorial and Quiz

Due date

Tutorial: End of tutorial session, Quiz: Friday 23:59, Week 13

Weighting

6%

Assessment details

Concerning topics in Week 12. Full details will be available on the Canvas site.

Addresses learning outcomes

- 2. Apply problem solving skills in designing and development: Internet and web application structures, web applications with database, accessibility, and security requirements;
- 3. Analyse and critique existing web sites and web technologies, and interpret the technical requirements for a given web site design;
- 4. Design web pages using HTML, CSS and JavaScript, and implement the integration between web pages and database structures using ASP.NET C# or PhP; and
- 5. Evaluate web sites for multiple platforms and usability testing.

Related graduate attributes

1. UC graduates are professional
    - use creativity, critical thinking, analysis and research skills to solve theoretical and real-world problems
2. UC graduates are global citizens
    - make creative use of technology in their learning and professional lives
3. UC graduates are lifelong learners
    - reflect on their own practice, updating and adapting their knowledge and skills for continual professional and academic development

Final Assignment

Due date

23:59 Friday, Week 11

Weighting

40%

Assessment details

Concerning topics in Weeks 1-7 & 9-10. Full details of this assignment will be available on the Canvas site. This assignment has the same task with that for the WDP G 6691 unit but has different level rubrics.

Addresses learning outcomes

On successful completion of this unit, students will be able to:

- 1. Describe the various issues associated with structuring web pages for use with multiple platforms and a variety of mobile systems;
- 2. Apply problem solving skills in designing and development: Internet and web application structures, web applications with database, accessibility, and security requirements;
- 3. Analyse and critique existing web sites and web technologies, and interpret the technical requirements for a given web site design;
- 4. Design web pages using HTML, CSS and JavaScript, and implement the integration between web pages and database structures using ASP.NET C# or PhP; and
- 5. Evaluate web sites for multiple platforms and usability testing.

Related graduate attributes

1. UC graduates are professional
    - use creativity, critical thinking, analysis and research skills to solve theoretical and real-world problems
2. UC graduates are global citizens
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    - reflect on their own practice, updating and adapting their knowledge and skills for continual professional and academic development

Submission of assessment items

Responsibility for understanding

If there is any doubt with regard to the requirements of any particular assignments or assessment procedure, the onus for clarifying the issue rests with the student who should contact the unit convenor or tutor. Further, it is the responsibility of students to ensure that they are correctly enrolled in the unit and that the tutor and Student Administration have their correct contact details.

Extensions

Students can apply for an extension to the submission due date for an assessment item due to extenuating, evidenced circumstances (specific details are found in the Assessment Procedures). An extension must be applied for before the due date. Documentary evidence (e.g. medical certificate) will be expected for an extension to be granted, however this will not guarantee that the application will be successful. The Unit Convener or relevant Program Director/Course Convener will decide whether to grant an extension and the length of the extension.

An Assignment Extension form is available from the Student Forms page.

Late submissions

The following late submission period and penalty is applicable to any teaching period commencing after 1 April 2024.

To support the provision of timely feedback to students within the unit, late penalties will apply for summative assessments where late submission is permitted. Late submissions without an approved extension or reasonable adjustment will result in a penalty of a mark reduction of 10% of the maximum available marks for the assessment item per day (or part thereof) up to and including three calendar days. If a student submits more than three calendar days late without an approved extension or reasonable adjustment, the student will be allocated a mark of zero for that assessment, with no feedback provided.

Approval of extensions based on extenuating circumstances will be dependent upon the production of supporting documentation and at the discretion of the unit convener.

For teaching periods commencing prior to 1 April 2024, a late penalty of 5 % of the maximum available marks for the assessment item per day (or part thereof) was applied up to and including seven calendar days. An assignment submitted over 7 days late will not be accepted.

Special assessment requirements

For final assessment in the unit, the result will be one of the following grades: HD, DI, CR, P, or Fail (NX, NC or NN).

The final mark is calculated as follows:

Final mark (out of 100) = 10 Tutorial mark (out of 60) + Final Assignment mark (out of 40)

The final grade for the subject is then determined according to the following table:

85 <= Final mark <= 100	Final grade = HD

75 <= Final mark < 85	Final grade = DI
65 <= Final mark < 75	Final grade = CR
50 <= Final mark < 65	Final grade = P
0 <= Final mark < 50	Final grade = FAIL (NX, NC or NN)

Supplementary assessment

Refer to the Assessment Policy and Assessment Procedures

Academic integrity

Students have a responsibility to uphold University standards on ethical scholarship. Good scholarship involves building on the work of others and use of others' work must be acknowledged with proper attribution made. Cheating, plagiarism, and falsification of data are dishonest practices that contravene academic values. Refer to the University's Student Charter for more information.

To enhance understanding of academic integrity, all students are expected to complete the Academic Integrity Module (AIM) at least once during their course of study. You can access this module within UCLearn (Canvas) through the 'Academic Integrity and Avoiding Plagiarism' link in the Study Help site.

Use of Text-Matching Software

The University of Canberra uses text-matching software to help students and staff reduce plagiarism and improve understanding of academic integrity. The software matches submitted text in student assignments against material from various sources: the internet, published books and journals, and previously submitted student texts.

Student responsibility

Learner engagement

The amount of time you will need to spend on study in this unit will depend on a number of factors including your prior knowledge, learning skill level and learning style. Nevertheless, in planning your time commitments you should note that for a 3 credit point unit the total notional workload over the semester or term is assumed to be 150 hours. These hours include time spent in classes. The total workload for units of different credit point value should vary proportionally. For example, for a 6 credit point unit the total notional workload over a semester or term is assumed to be 300 hours.

Activities	Estimated hours
Weekly Lecture on Canvas: 2 hours/week, 12 weeks	24
Weekly Tutorial: 2 hours/week, 11 weeks and 2 hours in Week 1 for software installation	24
Weekly study commitment, in addition to the 2 items above: 2 hours/week, 12 weeks 2 hours/week, 12 weeks	24
Assignments: 78 hours (6 hours/week, 13 weeks)	78

Total	150

Inclusion and engagement

It is strongly recommended that students who need assistance in undertaking the unit because of disability or an ongoing health condition register with the Inclusion and Engagement Office as soon as possible so that reasonable adjustment arrangements can be made.

Participation requirements

Your participation in lectures and tutorials will enhance your understanding of the unit content and therefore the quality of your assessment responses. Lack of participation may result in your inability to satisfactorily pass assessment items.

Withdrawal

If you are planning to withdraw please discuss with your Unit Convener. UC College students must also seek advice from the College.

Required IT skills

The use of Visual Studio and ASP.NET Core software tools and the concept of object-oriented programming language (C# or Java or C++) are required.

Work integrated learning

None

Student feedback

All students enrolled in this unit will have opportunities to provide anonymous feedback on the unit through the InterFace Student Experience Questionnaire (ISEQ). The request for your feedback will be posted on your InterFace page at least twice during a teaching period. InterFace can be accessed through MyUC.

Changes to unit based on student feedback

As a result of student feedback, the following changes have recently been made to the unit:

1. All the study material and associated resources are provided fully online, including tutorials, lab activities, assignments and recordings of lectures.
2. Online and supervised tests quizzes are introduced to encourage regular study, and can facilitate students to self-assess, reflect and engage positively with the content.
3. Consultation will be provided in Canvas Virtual Room or in-person for students to meet lecturer regarding tutorials, assignments and lectures.

Authority of this unit outline

This unit outline must be read in conjunction with the University of Canberra's Policies and Procedures, including the Assessment Policy and associated Procedure. The Assessment Policy and Assessment Procedure include information on matters such as plagiarism, grade descriptors, moderation, feedback, and deferred exams.

Any change to the information contained in the Academic content and Assessment sections of this document, will only be made by the Unit Convener if the written agreement of the Program Director and a majority of students has been obtained; and if written advice of the change is then provided on the teaching site in UCLearn. If this is not possible, written advice of the change must be then forwarded to each student enrolled in the unit at their registered term address. Any individual student who believes themselves to be disadvantaged by a change is encouraged to discuss the matter with the Unit Convener.

Authority Text

Main

Exception – Potential changes to a unit's learning activities and assessment items (Approved Academic Board 2020)

In the event of Australian Government and/or ACT Government directive, such as those requiring physical distancing and restrictions on movement because of a pandemic, learning activities and/or assessment items in some units may change. These changes will not be updated in the published Unit Outline but will be communicated to students via the unit's UCLearn (Canvas) teaching site. The new learning activities and/or assessment items will continue to meet the unit's learning outcomes, as described in the Unit Outline.

New learning activities and/or assessment items will be available on the unit's UCLearn (Canvas) teaching site. Please contact the Unit Convener with any questions.

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CRICOS 00212K

TEQSA Provider ID: PRV12003 (Australian University)

UC acknowledges the Ngunnawal people, traditional custodians of the lands where Bruce campus is situated. We wish to acknowledge and respect their continuing culture and the contribution they make to the life of Canberra and the region. We also acknowledge all other First Nations Peoples on whose lands we gather.