



# Unit Outline (Higher Education)

**Institute / School:** Institute of Innovation, Science & Sustainability

**Unit Title:** DYNAMIC WEB DEVELOPMENT

**Unit ID:** ITECH3108

**Credit Points:** 15.00

**Prerequisite(s):** (ITECH1400 or ITECH2001) (ITECH2003)

**Co-requisite(s):** Nil

**Exclusion(s):** (ITECH3224)

**ASCED:** 020103

**Description of the Unit:**

In this unit you will learn about core web technologies, languages, and development paradigms that enable the creation of dynamic and interactive web applications. You will build industry readiness by considering design, authentication, data storage, security, and privacy, enabling you to implement high quality web-based systems.

**Grade Scheme:** Graded (HD, D, C, P, MF, F, XF)

**Work Experience:**

No work experience: Student is not undertaking work experience in industry.

**Placement Component:** No

**Supplementary Assessment:** Yes

Where supplementary assessment is available a student must have failed overall in the Unit but gained a final mark of 45 per cent or above, has completed all major assessment tasks (including all sub-components where a task has multiple parts) as specified in the Unit Description and is not eligible for any other form of supplementary assessment

**Course Level:**

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Introductory	■	■	■	■	■	■
Intermediate	■	■	■	■	■	■

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Advanced	■	■	✓	■	■	■

### Learning Outcomes:

#### Knowledge:

- K1.** Explain how web technologies, protocols, and systems enable creation of dynamic web applications.
- K2.** Compare the capabilities and limitations of client-side and server-side web code.
- K3.** Detect opportunities for increasing security and privacy of web applications.

#### Skills:

- S1.** Implement a client-side web application which uses a client-side programming language to access a web API.
- S2.** Connect to and manipulate a database management system programmatically using server-side code to persist web application data.
- S3.** Design and implement a web-based Application Programming Interface (API), with a supporting data model and documentation.
- S4.** Select and apply appropriate secure authentication approaches in a web context

#### Application of knowledge and skills:

- A1.** Design, develop, and test dynamic web applications to meet provided specifications.

#### Unit Content:

This unit examines the languages, protocols and technologies that enable the World Wide Web. Server-side web programming is introduced, which is used to build an online database application. Client-side scripting is given an in-depth treatment, building on earlier web units. Finally, methods for communicating between the web client and server are studied in detail. Students in the unit will extend their existing knowledge of HTML and CSS, TCP/IP networking and IT security.

Topics may include:

- The design and philosophy of the web.
- Client-side programming.
- Responding to requests using server-side code.
- Exchanging data between server-side and client-side application code.
- Programmatically connecting to and manipulating a database management system.
- Securely handling authentication and passwords.
- Web API design and implementation.
- Security and privacy considerations for web applications.
- Future directions of web technologies.

#### FEDTASKS

Federation University Federation recognises that students require key transferable employability skills to prepare them for their future workplace and society. FEDTASKS (**T**ransferable **A**tttributes **S**kills and **K**nowledge) provide a targeted focus on five key transferable Attributes, Skills, and Knowledge that are embedded within curriculum, developed gradually towards successful measures and interlinked with cross-discipline and Co-operative Learning opportunities. *One or more FEDTASK, transferable Attributes, Skills or Knowledge must be*

evident in the specified learning outcomes and assessment for each FedUni Unit, and all must be directly assessed in each Course.

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 1 Interpersonal	Students will demonstrate the ability to effectively communicate, interact and work with others both individually and in groups. Students will be required to display skills in-person and/or online in: <ul style="list-style-type: none"> <li>• Using effective verbal and non-verbal communication</li> <li>• Listening for meaning and influencing via active listening</li> <li>• Showing empathy for others</li> <li>• Negotiating and demonstrating conflict resolution skills</li> <li>• Working respectfully in cross-cultural and diverse teams.</li> </ul>	Not applicable	Not applicable
FEDTASK 2 Leadership	Students will demonstrate the ability to apply professional skills and behaviours in leading others. Students will be required to display skills in: <ul style="list-style-type: none"> <li>• Creating a collegial environment</li> <li>• Showing self-awareness and the ability to self-reflect</li> <li>• Inspiring and convincing others</li> <li>• Making informed decisions</li> <li>• Displaying initiative</li> </ul>	Not applicable	Not applicable
FEDTASK 3 Critical Thinking and Creativity	Students will demonstrate an ability to work in complexity and ambiguity using the imagination to create new ideas. Students will be required to display skills in: <ul style="list-style-type: none"> <li>• Reflecting critically</li> <li>• Evaluating ideas, concepts and information</li> <li>• Considering alternative perspectives to refine ideas</li> <li>• Challenging conventional thinking to clarify concepts</li> <li>• Forming creative solutions in problem solving</li> </ul>	A1	AT2, AT3
FEDTASK 4 Digital Literacy	Students will demonstrate the ability to work fluently across a range of tools, platforms and applications to achieve a range of tasks. Students will be required to display skills in: <ul style="list-style-type: none"> <li>• Finding, evaluating, managing, curating, organising and sharing digital information</li> <li>• Collating, managing, accessing and using digital data securely</li> <li>• Receiving and responding to messages in a range of digital media</li> <li>• Contributing actively to digital teams and working groups</li> <li>• Participating in and benefiting from digital learning opportunities</li> </ul>	S2, S4, A1	AT1, AT2, AT3
FEDTASK 5 Sustainable and Ethical Mindset	Students will demonstrate the ability to consider and assess the consequences and impact of ideas and actions in enacting ethical and sustainable decisions. Students will be required to display skills in: <ul style="list-style-type: none"> <li>• Making informed judgments that consider the impact of devising solutions in global economic environmental and societal contexts</li> <li>• Committing to social responsibility as a professional and a citizen</li> <li>• Evaluating ethical, socially responsible and/or sustainable challenges and generating and articulating responses</li> <li>• Embracing lifelong, life-wide and life-deep learning to be open to diverse others</li> <li>• Implementing required actions to foster sustainability in their professional and personal life.</li> </ul>	K3	AT2, AT4

**Learning Task and Assessment:**

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, K2, K3, S1, S2, S3, S4	Complete ten weekly lab exercises.	Demonstration of completion	10%
K2, K3, S1, A1	Create a dynamic client/server web application.	Individual Practical Project	20-40%
S1, S2, S3, S4, A1	Create a full-stack dynamic web interface with a persistent back-end	Individual Practical Project	20-40%
K1, K2, K3, A1	Provide theoretical answers and practical solutions to a range of questions and problem types drawn from theory and topics used during this unit, in one or more quizzes	Exam(s) or Test(s)	20-30%

**Adopted Reference Style:**

APA

Refer to the [library website](#) for more information

Fed Cite - [referencing tool](#)