Module Descriptor

Title	Dynamic Web Technologies		
Session	2025/26	**Status**	Published
Code	COMP10013	**SCQF Level**	10
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Computing, Engineering and Physical Sciences**		
Module Co-ordinator	Pablo Salva-Garcia		

Summary of Module

This module explores the features, roles, and applications of various web and mobile development frameworks, focusing on the practical implementation of dynamic web/mobile applications. Students will develop a fully functional mobile application using modern JavaScript/TypeScript frameworks, integrating client-side technologies, Progressive Web Applications (PWA), and Native App Development methodologies. The selection of technologies will be guided by current industry trends and the evolving landscape of web and mobile development.

Throughout the module, students will gain an understanding of on-device storage solutions, CRUD operations, and the integration of HTML5/Native APIs (e.g., geolocation, camera, or push notifications). They will also explore the advantages and challenges of web and mobile frameworks, evaluating the tools and techniques that enhance application performance, usability, and scalability. Students will document their development process in a formal written report and demonstrate their application in a live technical presentation, showcasing their ability to implement, explain, and justify their technical decisions.

This module will work to develop a number of the key 'I am UWS' Graduate Attributes to make those who complete this module:

Universal

- Critical Thinker
- Ethically-minded
- Research-minded

Work Ready

- Problem-Solver
- Effective Communicator
- Ambitious

Successful

- Autonomous
- Resilient
- Driven

Module Delivery Method	On-Campus[1] ☐	Hybrid[2] ☒	Online[3] ☐	Work -Based Learning[4] ☐
Campuses for Module Delivery	☐ Ayr ☐ Dumfries	☐ Lanarkshire ☐ London ☒ Paisley	☐ Online / Distance Learning ☐ Other (specify)	

Terms for Module Delivery	Term 1	☐	Term 2	☒	Term 3	☐
Long-thin Delivery over more than one Term	Term 1 – Term 2	☐	Term 2 – Term 3	☐	Term 3 – Term 1	☐

Learning Outcomes	
L1	Demonstrate a deep and thorough understanding of the use of client-side frameworks and HTML5/Native APIs for the development of dynamic web sites and mobile apps.
L2	Apply client-side frameworks and HTML5 in real web and mobile app applications.
L3	Evaluate the advantages and disadvantages of using web and mobile app frameworks
L4	N/A
L5	N/A

Employability Skills and Personal Development Planning (PDP) Skills	
SCQF Headings	**During completion of this module, there will be an opportunity to achieve core skills in:**
Knowledge and Understanding (K and U)	**SCQF 10** Demonstrate a critical understanding of specialised subject areas and technological developments within web frameworks
Practice: Applied Knowledge and Understanding	**SCQF 10** Practise the use of web frameworks at a professional level in areas that may include a degree of novelty
Generic Cognitive skills	**SCQF 10** Identify problems, analyse results, and interpret common error messages to solve problems in a logical manner.

[1] Where contact hours are synchronous/ live and take place fully on campus. Campus-based learning is focused on providing an interactive learning experience supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus contact hours will be clearly articulated to students.

[2] The module includes a combination of synchronous/ live on-campus and online learning events. These will be supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus and online contact hours will be clearly articulated to students.

[3] Where all learning is solely delivered by web-based or internet-based technologies and the participants can engage in all learning activities through these means. All required contact hours will be clearly articulated to students.

[4] Learning activities where the main location for the learning experience is in the workplace. All required contact hours, whether online or on campus, will be clearly articulated to students

Communication, ICT and Numeracy Skills	**SCQF 10** This subject area is entirely computer based so ICT skills feature heavily in the practice of the subject area.
Autonomy, Accountability and Working with Others	**SCQF 10** Exercise autonomy and initiative to implement independently web frameworks at a professional level.

Prerequisites	**Module Code** COMP09006	**Module Title** Web Site Development
	Other	
Co-requisites	**Module Code**	**Module Title**

Learning and Teaching

In line with current learning and teaching principles, a 20-credit module includes 200 learning hours, normally including a minimum of 36 contact hours and maximum of 48 contact hours.

Problem based learning within a computer laboratory that encourages students to learn through the structured exploration of a problem.

Live demonstrations within a computer laboratory to enhance interest and understanding in students' development.

Fostering genuine discussion within a computer laboratory to increase students' interest in and understanding of course materials.

Students are encouraged to install and use the module software on home or laptop PCs to consolidate their laboratory experience and engender a spirit of independent study and confident experimentation.

Guests such as company directors of digital agencies and UWS graduate technical experts are invited. After their presentations and a Q&A session they are usually available to view student work and speak to individual students. The invited guests develop student awareness of web/mobile business perspectives, technologies, careers, desirable graduate attributes and professional standards of work. The guests are often employers of UWS graduates.

Time allocated for potential guest speakers is recorded as "Tutorial/Synchronous Support Activity" in the Learning Activities.

Learning Activities During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	**Student Learning Hours** (Note: Learning hours include both contact hours and hours spent on other learning activities)
Lecture / Core Content Delivery	12
Laboratory / Practical Demonstration / Workshop	34
Laboratory / Practical Demonstration / Workshop	2
Independent Study	152
Please select	
Please select	

TOTAL	200

Indicative Resources
The following materials form essential underpinning for the module content and ultimately for the learning outcomes: The following materials form essential underpinning for the module content and ultimately for the learning outcomes: Lecture notes, video recordings and lab sheets reside on a virtual learning environment in the form of static resources. In the timetabled computer laboratories such as J block suitable for live demos, code walkthroughs, debugging workshops, talks by guests and lecture elements can be held. Software used within the module will normally be open source or free to use, so that students can use it out of the University without cost being a barrier.
(N.B. Although reading lists should include current publications, students are advised (particularly for material marked with an asterisk*) to wait until the start of session for confirmation of the most up-to-date material)

Attendance and Engagement Requirements
In line with the Student Attendance and Engagement Procedure, Students are academically engaged if they are regularly attending and participating in timetabled on-campus and online teaching sessions, asynchronous online learning activities, course-related learning resources, and complete assessments and submit these on time. **For the purposes of this module, academic engagement equates to the following:** The School of Computing, Engineering and Physical Sciences considers attendance and engagement to mean a commitment to attending, and engaging in, timetabled sessions. You will scan your attendance via the scanners each time you are on-campus and you will login to the VLE several times per week. Where you are unable to attend a timetabled learning session due to illness or other circumstance, you should notify the Programme Leader that you cannot attend. Across the School an 80% attendance threshold is set. If you fall below this, you will be referred to the Student Success Team to see how we can best support your studies.

Equality and Diversity
The University's Equality, Diversity and Human Rights Procedure can be accessed at the following link: UWS Equality, Diversity and Human Rights Code. Aligned with the University's commitment to equality and diversity, this module supports equality of opportunity for students from all backgrounds and learning needs. Using the VLE, material will be presented electronically in formats that allow flexible access and manipulation of content. This module complies with University regulations and guidance on inclusive learning and teaching practice. This module has lab-based teaching and as such you are advised to speak to the Module Co-ordinator to ensure that specialist assistive equipment, support provision and adjustment to assessment practice can be put in place, in accordance with the University's policies and regulations.
(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)

Supplemental Information

Divisional Programme Board	**Computing**
Overall Assessment Results	☐ **Pass / Fail** ☒ **Graded**
Module Eligible for Compensation	☐ **Yes** ☒ **No** **If this module is eligible for compensation, there may be cases where compensation is not permitted due to programme accreditation requirements. Please check the associated programme specification for details.**
School Assessment Board	Business & Applied Computing
Moderator	Graeme McRobbie
External Examiner	A Jindal
Accreditation Details	This module is accredited by BCS as part of a number of specified programmes.
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	2.13

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
The written component requires students to produce a structured formal report documenting the development process of their project. The report should clearly define the technical feature selected, such as React Hooks, Progressive Web Applications (PWA), CRUD operations, IndexedDB, or specific React Native functionalities. Students must provide an introduction, explaining the relevance of the chosen feature, followed by a detailed breakdown of system architecture, implementation, and real-world application. The report should also include step-by-step tutorials, reproducible examples, and installation instructions. Additionally, students must provide a GitHub repository link containing their source code and a README.md file with comprehensive setup instructions. The report should conclude with an evaluation of lessons learned, a critical analysis of the feature's advantages and limitations, and recommendations for future improvements. This is worth 40% of the overall mark.
Assessment 2
The practical component involves a live technical demonstration where students present their developed mobile application, showcasing functionality, implementation, and problem-solving approach. The demonstration should highlight the use of on-device storage (e.g., IndexedDB, localStorage, or AsyncStorage) and at least two HTML5/Native APIs, such as geolocation, camera, or push notifications. Students must ensure their application is properly deployed, whether as a PWA (hosted online) or a Native mobile app (.apk or Expo Go). During the session, students will be expected to navigate their code confidently, explain their technical decisions, and respond to examiner questions. The assessment will focus not only on functionality but also on code quality, UI/UX design, and any additional innovative features integrated into the project. This is worth 60% of the overall mark.
Assessment 3
(N.B. (i) Assessment Outcomes Grids for the module (one for each component) can be found below which clearly demonstrate how the learning outcomes of the module will be assessed. (ii) An indicative schedule listing approximate times within the academic calendar when assessment is likely to feature will be provided within the Student Module Handbook.)

Component 1							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Written Component	☒	☒	☒	☐	☐	40	

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Practical Component	☒	☒	☒	☐	☐	60	

Component 3							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
	☐	☐	☐	☐	☐		
Combined total for all components						100%	hours

Change Control

What	**When**	**Who**
Attendance and Engagement Procedure and Equality and Diversity	20/1/25	F.Valentine
Update assessment descriptions and weights	19/02/25	P. Salva-Garcia