COURSE SPECIFICATION DOCUMENT

Academic School / Department: Science, Innovation & Technology

Programme: MSc Applied Computer Science (Conversion)

***FHEQ* Level:** 7

Course Title: Web Technologies with AI

Course Code: COMP 7109

Total Hours: 200
Timetabled Hours: 39
Guided Learning Hours 21
Independent Learning Hours: 140

Credit 20 UK CATS credits
10 ECTS credits
4 US credits

Course Description:
This course introduces students to the principles and practices of modern web technologies, with a particular focus on integrating artificial intelligence techniques into interactive web applications. Students explore front-end and back-end development concepts, server–client communication, data handling and the use of contemporary frameworks that support intelligent features. It also develops both conceptual understanding and hands-on skills, enabling students to design and implement dynamic web-based systems that incorporate AI components such as recommendation logic, classification models or natural language interfaces. Students also examine accessibility, usability, performance considerations of embedding AI within web experiences.

Prerequisites:
None.

Aims and Objectives:
- Introduce the core technologies and frameworks used in modern web development.
- Develop understanding of how AI models and services can be embedded within web systems.
- Enable students to design and implement functional, interactive and accessible web applications.
- Provide experience in evaluating technical, usability and ethical considerations in AI-enabled web environments.
- Support development of professional communication and documentation practices.

Programme Outcomes:
A5, B1, B3, C3, D1, D3

A detailed list of the programme outcomes are found in the Programme Specification. This is located at the archive maintained by Registry and found at:
https://www.richmond.ac.uk/programme-and-course-specifications/

Learning Outcomes:

1. On successful completion of the course, students will be able to:
   Critically explain and evaluate the technologies, architectures and frameworks underpinning modern web applications. (A5)
2. Analyse and design web-based solutions that integrate appropriate AI components to meet specified user or organisational requirements. (B1, B3)
3. Implement and justify the use of suitable web technologies, programming techniques and AI services in the development of interactive applications. (C3)
4. Evaluate and reflect on web application performance, accessibility, usability of AI integration. (B3, D3)
5. Communicate and document design decisions, implementation processes and outcomes using professional formats and digital tools. (D1, D3)

Indicative Content:

- Web architectures: client–server models, APIs, microservices, event-driven and serverless
- Front-end development fundamentals utilising frameworks/libraries
- Back-end technologies and data exchange
- Integrating AI models and services into web systems
- Use of cloud-based AI APIs (e.g., classification, NLP, recommendation)
- Usability, accessibility and inclusive design considerations
- Performance optimisation and deployment
- Ethical considerations of AI in online environments
- Documentation, version control and professional practice

Assessment:
This course conforms to the Richmond University Standard Assessment Norms approved at Academic Board and are located at https://www.richmond.ac.uk/university-policies/

Teaching Methodology:
Teaching involves lectures, demonstrations, coding workshops and guided learning activities. Students engage in practical development tasks, iterative design, and reflective evaluation of AI-enhanced web applications. Formative feedback supports skill development in both technical implementation and professional communication.

Indicative Text(s):

- Harrison, J. (2022). *Web designing*. New York: States Academic Press.
- Matuzovic, M. (2024). *Web accessibility cookbook: creating inclusive experiences*. 1st ed. Beijing Boston Farnham Sebastopol Tokyo: O'Reilly Media, Incorporated.

- Miller, B.D. and Ackerman, J. (2022). *Principles of web design*. New York: Allworth Press.

Journals

Design and Artificial Intelligence.
International Journal of Information System.
Modelling and Design.
Web Intelligence.

See syllabus for complete reading list.

Change Log for this CSD:

Nature of Change	Date Approved & Approval Body (School or AB)	Change Actioned by Registry Services
Guided Learning Hours menu updated	October 2025	
Total Hours Updated	October 2025	