Module Specification

AI Group Project Model

Version: 2022-23, v1.0, 28 Mar 2022

Contents

Part 1: Information

Module title: AI Group Project Model

Module code: UFCEM1-60-M

Level: Level 7

For implementation from: 2022-23

UWE credit rating: 60

ECTS credit rating: 30

Faculty: Faculty of Environment & Technology

Department: FET Dept of Computer Sci & Creative Tech

Partner institutions: None

Delivery locations: Frenchay Campus

Field: Computer Science and Creative Technologies

Module type: Project

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: This module will provide you with the opportunity to bring together all of the knowledge and skills you have gathered throughout the programme by conducting a project designing, implementing, evaluating and presenting an AI-based solution to a problem displaying a level of complexity typical of real-world problems.

To make the task and assessment authentic and reflect current commercial practice you will work in small groups, selecting and using appropriate project management tools and methodologies to deliver your project on-time. This will involve making best use of the technical and human resources available to you.

A series of lectorials by staff and guest speakers will draw on current and recent research projects to introduce a range contemporary state-of-the-art techniques for handling the issues that often arise during AI-based projects such as:

obtaining, handling and protecting the privacy of confidential data,

designing systems to cope with uncertainty such as missing or noise data

presenting complex methods and issues to non-expert audiences

Features: Not applicable

Educational aims: This module aims to provide students experience tackling complex tasks in the field that reflect what the kind of challenges they will be facing in the workplace.

Students will bring together all of the knowledge and skills they have gathered from previous modules by conducting a project designing, implementing, evaluating and presenting an AI-based solution to a problem displaying a level of complexity typical of real-world problems.

To make the task and assessment authentic and reflect current industrial practice, students will work in small groups, selecting and using appropriate project management tools and methodologies to deliver their project on-time making best use of the technical and human resources available to them.

Outline syllabus: Professional skills:

Group Project Management,

Presentation skills,

Legal concerns. such as GDPR, Intellectual Property and licensing,

Obtaining and using confidential data in an appropriate ethical and data management framework.

Technical skills:

constraint handling,

dealing with uncertainty, for example, noisy and/or incomplete data,

surrogate assisted optimisation,

'human-in-the-loop' methods such as active machine learning and interactive optimisation.

Part 3: Teaching and learning methods

Teaching and learning methods: Students will be assigned to groups by the module team and each group provided with one of a range of problems.
To ensure authenticity, the problems to be tackled will be designed in collaboration with one or more of the many commercial partners with whom the department has on-going relationships.

Each group will be assigned a mentor, with whom they will have regular scheduled meetings to present and discuss progress.
Together with the mentor, the group will agree on a proposed distribution of marks across the group members, within a framework determined by the Faculty.

A series of timetabled face-to-face lectorials by staff and guest speakers will

introduce concepts and techniques relevant to tackling complex problems. These lectures will also cover contemporary thinking around issues such as:

presentation to different audiences,

legal aspects : e.g. GDPR and Intellectual Property,

ethical issues: e.g. Fairness, Accountability and Trust,

privacy issues.

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Ability to select and apply contemporary project management techniques, justifying the methodology taken in terms of scale of project and group.

MO2 Ability to work within on a professional environment and successfully work in a group to identify and apply a range of appropriate Artificial Intelligence techniques

MO3 Create effective solutions to problems that display a level of complexity characteristic of real-world problems.

MO4 Ability to communicate the outcomes a project in ways suitable for a range of different audiences.

Hours to be allocated: 600

Contact hours:

Independent study/self-guided study = 580 hours

Face-to-face learning = 20 hours

Total = 600

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://rl.talis.com/3/uwe/lists/C7D3969E-C761-6228-5E91-916761F5ABB7.html

Part 4: Assessment

Assessment strategy: Students will work in small groups to design, implement and document an AI-based solution to a complex task with ‘difficult’ characteristics such as time complexity, limited data, or uncertainty in one or more forms.
Each group will be assigned a tutor ’mentor’ who they can request to attend project meetings to provide formative feedback.
With the mentor they will agree their proposed distribution of marks amongst the group. The final distribution will be determined by the markers after the group presentation.

Assessment will have three components:

A: Mid-module presentation to mentor of project planning to include:

Assignment of roles,

Milestones decided,

Risk Register,

Project management approach adopted e.g. sprint planning, co-ordination,

This is a pass/fail element to ensure the group are on-track to deliver a successful outcome and that their management strategy has enabled all members the group to be engaged. This assessment may be repeated during the module run so that students who fail this element may address problems identified through feedback and have every opportunity to pass this element within the first sit.

B: In controlled conditions in a lab, the group will present and be questioned on:

a short video describing the project at a level suitable for a non-technical audience (e.g. management),

a demonstration of the software solution produced,

how the different members the group have contributed.

C: Online submission of a written document of less than 2500 words, suitable for a more technical audience. This should critically review:

Challenges presented by the problem characteristics,

Candidate approaches considered,

The design and implementation of the chosen (possibly hybrid) system,

The choice of metrics used to evaluate the proposed solution,

The performance of their chosen system.

The resit will take the same form as the main run.
Wherever possible students will be assigned new groups and be assigned new tasks.

It is recognised that situations may arise where an individual assessment may need to be set for the resit. In such cases the assessment task will be set to ensure all learning outcomes will be met and the task set has an equivalent challenge to the first sit assessment.

Assessment components:

Presentation - Component A (First Sit)
Description: Presentation of selected approach to project management to include roles and responsibilities, risk management and time management planning.
Weighting:
Final assessment: No

Group work: Yes
Learning outcomes tested: MO1

Presentation - Component A (First Sit)
Description: In controlled conditions in a lab, the group will present and be questioned on:
a short video describing the project at a level suitable for a non-technical audience (e.g. management), to include a discussion of the ethical/legal issues encountered.
a demonstration of the software solution produced.
Weighting: 50 %
Final assessment: Yes
Group work: Yes
Learning outcomes tested: MO2

Online Assignment - Component B (First Sit)
Description: Online submission of a written document of less than 2500 words, suitable for a more technical audience. This should critically review:
- Challenges presented by the problem characteristics,
- Candidate approaches considered,
- The design and implementation of the chosen system,
- The choice of metrics used to evaluate the proposed solution,
- The performance of their system.
Weighting: 50 %
Final assessment: No
Group work: Yes
Learning outcomes tested: MO4

Presentation - Component A (Resit)
Description: Presentation of selected approach to project management to include roles and responsibilities, risk management and time management planning.
Weighting:
Final assessment: No
Group work: Yes
Learning outcomes tested: MO1

Presentation - Component A (Resit)
Description: In controlled conditions in a lab, the group will present and be questioned on:
a short video describing the project at a level suitable for a non-technical audience (e.g. management), to include a discussion of the ethical/legal issues encountered.
a demonstration of the software solution produced.
Weighting: 50 %
Final assessment: Yes
Group work: Yes
Learning outcomes tested: MO2

Online Assignment - Component B (Resit)
Description: Online submission of a written document of less than 2500 words, suitable for a more technical audience. This should critically review:
- Challenges presented by the problem characteristics,
- Candidate approaches considered,
- The design and implementation of the chosen system,
- The choice of metrics used to evaluate the proposed solution,
- The performance of their system.
Weighting: 50 %
Final assessment: No
Group work: Yes
Learning outcomes tested: MO4

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Artificial Intelligence [Frenchay] MSc 2022-23