Module Specification

Internet of Things

Version: 2023-24, v3.0, 16 Mar 2023

Contents

Part 1: Information

Module title: Internet of Things

Module code: UFCFDN-15-3

Level: Level 6

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

Faculty: Faculty of Environment & Technology

Department: FET Dept of Computer Sci & Creative Tech

Partner institutions: None

Delivery locations: Not in use for Modules

Field: Computer Science and Creative Technologies

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Not applicable

Features: Not applicable

Educational aims: On successful completion of this module apprentices will be able to:

1. Explain common security risks present when building and publishing web driven

IoT solutions (Component A)
2. Evaluate key IoT hardware and software solutions (Component A)
3. Evaluate different M2M protocols (Component A)
4. Plan, develop and test a secure multi-client IoT solution to meet a defined scenario using suitable IoT enabled hardware and software. (Component B)
5. Use a variety of sensors to monitor, record data and trigger actions to empower a complete IoT solution (Component B)

Outline syllabus: System architecture (e.g. centralised and decentralised)
Sensing technologies (e.g. sensors and actuators)
Machine-to-Machine (M2M) Communication
Wireless technologies
Messaging/communication protocols
Hardware and software platforms for IoT
Legal, social, ethical, and moral implications of IoT e.g. IoT security and privacy
Effective cyber security in relation to IoT
Data security and management with regards to IoT

Part 3: Teaching and learning methods

Teaching and learning methods: Introductory lectures covering the fundamentals and technical underpinning of the module for the first assessment before progressing onto practical delivery through a series of lessons, workshops and practical tasks in the classroom to develop the tools and techniques required to complete the practical assessment for this module. Students are also provided with access to a suitable hosting platform and University networking facilities for the completion of this module.

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

MO1 Evaluate potential security risks present when building and publishing web driven IoT solutions.

MO2 Evaluate complex IoT hardware / software solutions and different machine-to-machine protocols

MO3 Demonstrate systematic knowledge and understanding of current legislation impacting IoT Solutions

MO4 Synthesise a range of knowledge and skills to plan, develop and test a secure multi-client IoT solution.

MO5 Use a variety of sensors to monitor, record data and trigger actions to empower a complete IoT solution

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Total = 150

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://uwe.rl.talis.com/modules/ufcfdn-15-3.html

Part 4: Assessment

Assessment strategy: Assessment 1
Presentation (includes the following):
Fundamentals of IoT technology (e.g. Hardware, software, sensors, frameworks)
Evaluate/compare different M2M protocols
Key legislation impacting the publication of IoT Solutions, e.g. Data Governance (IPO, GDPR, DataProtection), privacy policies, use of data etc.

Assessment 2
Practical Portfolio (includes the following):
Evidence of planning and design of a IoT solution to support an agreed scenario
Implementation of an IoT solution to support a scenario consisting of a device and a

selection of suitable sensors.
Deploying and test a completed IoT solution
Documenting complete IoT solution

Assessment components:

Presentation (First Sit)
Description: Presentation (15 mins)
Weighting: 30 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO2, MO3

Practical Skills Assessment (First Sit)
Description: Practical Skills Assessment -Design, build, and test an IoT solution
Weighting: 70 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO4, MO5

Presentation (Resit)
Description: Presentation (15 mins)
Weighting: 30 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO2, MO3

Practical Skills Assessment (Resit)
Description: Practical Skills Assessment -Design, build, and test an IoT solution
Weighting: 70 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO4, MO5

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Digital and Technology Solutions (Cyber Security Analyst) {Apprenticeship-UCW} [Sep][FT][UCW][4yrs] BSc (Hons) 2021-22

Digital and Technology Solutions (Data Analyst) {Apprenticeship-UCW} [Sep][FT][UCW][4yrs] BSc (Hons) 2021-22