Module Specification

Internet of Things

Version: 2027-28, v4.0, Approved

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Part 1: Information

Module title: Internet of Things

Module code: UFCFVK-15-2

Level: Level 5

For implementation from: 2027-28

UWE credit rating: 15

ECTS credit rating: 7.5

College: College of Arts, Technology and Environment

School: CATE School of Computing and Creative Technologies

Partner institutions: None

Field: Computer Science and Creative Technologies

Module type: Module

Pre-requisites: Computer and Network Systems 2027-28, Computer Architecture 2026-27, Foundations of Computer Systems 2026-27, Introduction to Programming 2026-27, Principles of Programming 2027-28, Programming for Cyber Security 2027-28, Programming in C 2027-28

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: The Internet of Things(IoT) refers to the interconnection of devices able interface with the physical environment to collect data and/or trigger actions to modify this environment. The variety of communication protocols and hardware platform, some of those resource-constrained, make the development of IoT systems

distinctive from other systems.
The module will provide an introduction of the IoT systems and the relevant architectures. Then the focus will be on communication protocols and the development of IoT solutions.

Pre-requisites:
Students must achieve
EITHER
One module out of: UFCFGL-30-1 Programming for Cyber Security (Programming in C++), or UFCFF6-30-1 Programming in C, or UFCF93-30-1 Computer and Network Systems, or UFCFHS-30-1 Principles of Programming, or UFCET6-30-1 Foundations Of Computer Systems
OR
UFCEXR-10-1 Computer Architecture + UFCEY5-20-1 Introduction to Programming

Features: Not applicable

Educational aims: The module aims to give students a clear, concise introduction to IoT systems and architectures, focusing on the distinctive challenges of heterogeneous and resource-constrained devices; to enable comparison and selection of common IoT communication protocols; and to develop practical skills for building end-to-end IoT solutions.

Outline syllabus: The syllabus includes:
Introduction to the Internet of Things (IoT)
IoT Architectures
IoT Security
IoT Network protocols (MAC layer)
Wireless technologies for IoT (Layer 1 & 2)
IoT hardware and software development
Data analytics for IoT

Part 3: Teaching and learning methods

Teaching and learning methods: Laboratory exercises will allow the student to gain familiarisation with the tools and techniques required for the implementation and verification of applications for Internet of Things.

Students will be expected to demonstrate self-direction and originality in their learning which will be facilitated through student directed tutorials.

Scheduled learning: in the form of tutorials, demonstrations and practical classes will comprise approximately 1/3 of the total study time for this module.

Independent learning: will constitute the remaining study time with an expectation of self-directed study and coursework preparation.

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

MO1 Explain the principles and operation of the general Internet and the Internet of Things.

MO2 Demonstrate the use of development approaches for Internet of Things systems and applications.

MO3 Describe and evaluate specific characteristics, communication technologies and challenges, including those security-related, that make Internet-Of-Things systems distinctive of other systems.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Staff-guided learning = 36 hours

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/ufcfvk-15-2.html

Part 4: Assessment

Assessment strategy: Summative assessment is achieved through the demonstration of obtained development skills and knowledge of Internet of Things (IoT) systems through the submission of log-book/worksheets.

Formative assessment will be provided as oral feedback throughout the laboratory sessions particularly with respect to the IoT system development and the log-book entries /worksheets.

Students will also be assessed against the quality of their program design and documentation.

Resit strategy will be the same as the main sit strategy.

Assessment tasks:

Portfolio (First Sit)
Description: Worksheets/Logbook and demonstration of final product
Weighting: 100 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2, MO3

Portfolio (Resit)
Description: Logbook and video demonstration of final product
Weighting: 100 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2, MO3

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Computer Science {Foundation} [GCET] BSc (Hons) 2025-26

Computer Science {Foundation} [GCET] DipHE 2025-26

Computer Science (Smart Devices) {Foundation} [GCET] DipHE 2025-26

Computer Science (Smart Devices) {Foundation} [GCET] BSc (Hons) 2025-26

Computer Science {Foundation} [Frenchay] BSc (Hons) 2025-26

Computer Science {Foundation} [Frenchay] BSc (Hons) 2025-26

Computer Science [Frenchay] BSc (Hons) 2026-27

Computer Science [Frenchay] BSc (Hons) 2026-27

Computer Science [Villa] BSc (Hons) 2026-27

Computer Science [Villa] BSc (Hons) 2026-27

Computer Science [Phenikaa] BSc (Hons) 2026-27

Computer Science [Phenikaa] BSc (Hons) 2026-27

Cyber Security and Digital Forensics {Foundation} [Frenchay] BSc (Hons) 2025-26

Cyber Security and Digital Forensics [Frenchay] BSc (Hons) 2026-27

Computer Science [Frenchay] BSc (Hons) 2026-27

Computer Science {Foundation} [Frenchay] BSc (Hons) 2025-26

Cyber Security and Digital Forensics [NepalBrit] BSc (Hons) 2026-27

Computer Science [Phenikaa] BSc (Hons) 2026-27

Computer Science {with International Year One} [UWEBIC] BSc (Hons) 2026-27

Cyber Security and Digital Forensics {with International Year One}[UWEBIC] BSc (Hons) 2026-27