1. KentVision Code and title of the module

COMP8380 - Internet of Things and Mobile Devices

## Division and School/Department or partner institution which will be responsible for management of the module

Division of Computing, Engineering and Mathematical Sciences

School of Computing

## The level of the module (Level 4, Level 5, Level 6 or Level 7)

Level 7

## The number of credits and the ECTS value which the module represents

15 credits (7.5 ECTS)

## Which term(s) the module is to be taught in (or other teaching pattern)

Spring

## Prerequisite and co-requisite modules and/or any module restrictions

Pre-requisite: COMP8820 Advanced Object-Oriented Programming
or COMP8710 Advanced Java for Programmers

## The course(s) of study to which the module contributes

Compulsory to the following courses:

MSc Networks and Security with and without Year in Industry

Optional to the following courses:

MSc Computer Science with and without Year in Industry

MSc Computer Science (Artificial Intelligence) with and without Year in Industry

MSc Computer Science (Cyber Security) with and without Year in Industry

MSc Advanced Computer Science with and without Year in Industry

MSc Artificial Intelligence with and without Year in Industry

MSc Cyber Security with and without Year in Industry

## The intended subject specific learning outcomes.On successfully completing the module students will be able to:

8.1 Describe the technologies used for the Internet of Things and mobile devices, including (passive and active) sensors, actuators, the physical communications layer, communications protocols, programming frameworks, and an understanding of energy and bandwidth constraints.

8.2 Design and implement software for Internet of Things applications, including both low-level firmware on embedded devices and higher-level data processing for data obtained from sensors, taking ideas and techniques from recent research in the area.

8.3 Design and build a sensor network based on Internet of Things technology.

8.4 Develop application software of moderate complexity for a well-used mobile platform.

8.5 Critically discuss current research issues and application areas of the Internet of Things and mobile devices, including an understanding of the commercial context and privacy/security issues, and make well-informed speculations on the future of the area.

## The intended generic learning outcomes.On successfully completing the module students will be able to:

9.1 Enhance their communication skills by writing and presenting the scientific and technological research performed.

## A synopsis of the curriculum

The module will cover a mixture of theoretical and practical topics in the area of mobile devices and the Internet of Things (IoT), that is, the use of Internet technologies to access and interact with objects in the physical world. This will include coverage of the range of sensor and actuator devices available, ways in which they communicate and compute, methods for getting information to and from IoT-enabled devices, ways of visualising and processing data gained from the IoT, and associated privacy and security issues. Application development for mobile devices such as smartphones will also be introduced using a popular mobile platform.

## Reading list

## The University is committed to ensuring that core reading materials are in accessible electronic format in line with the Kent Inclusive Practices.

## The most up to date reading list for each module can be found on the university's [reading list pages](https://kent.rl.talis.com/index.html).

Books in this subject area become out of date very quickly.

See current reading list for suggestions.

## Contact Hours

Private Study: 120

Contact Hours: 30

Total: 150

## Assessment methods

* 1. Main assessment methods

100% coursework, composed of:

A1- Simple embedded programming (individual) (15%)

A2 - IoT System (individual or groups of 2 students)

 A2.1 – Concept poster (10%)

 A2.2 – IoT Device video (10%)

 A2.3 – IoT System final (65%)

13.2 Reassessment methods

Like for like.

## Map of module learning outcomes (sections 9 & 10) to learning and teaching methods (section 13) and methods of assessment (section 14)

**Module learning outcomes against learning and teaching methods:**

| **Module learning outcome** | 8.1 | 8.2 | 8.3 | 8.4 | 8.5 | 9.1 |
| --- | --- | --- | --- | --- | --- | --- |
| Private Study | x | x | x | x | x | x |
| Lectures | x | x | x |  | x | x |

**Module learning outcomes against assessment methods:**

| **Module learning outcome** | 8.1 | 8.2 | 8.3 | 8.4 | 8.5 | 9.1 |
| --- | --- | --- | --- | --- | --- | --- |
| A1 – Simple embedded programming |  | x | x |  |  |  |
| A2.1 – Concept poster | x |  |  |  | x | x |
| A2.2 – IoT Device video | x | x | x | x | x | X |
| A2.3 – IoT System final | x | x | x | x | x | x |

## Inclusive module design

The Division recognises and has embedded the expectations of current equality legislation, by ensuring that the module is as accessible as possible by design. Additional alternative arrangements for students with Inclusive Learning Plans (ILPs)/declared disabilities will be made on an individual basis, in consultation with the relevant policies and support services.

The inclusive practices in the guidance (see Annex B Appendix A) have been considered in order to support all students in the following areas:

a) Accessible resources and curriculum

b) Learning, teaching and assessment methods

## Campus(es) or centre(s) where module will be delivered

Canterbury

## Internationalisation

The topics addressed by this module relate to a field which is of international importance, given the global role of computers in today's technological innovation.  The topics covered by this module are international in nature, being identical worldwide and independent of traditional spoken language.

**DIVISIONAL USE ONLY**

**Module record – all revisions must be recorded in the grid and full details of the change retained in the appropriate committee records.**

| Date approved | New/Major/minor revision | Start date of delivery of (revised) version | Section revised(if applicable) | Impacts PLOs (Q6&7 cover sheet) |
| --- | --- | --- | --- | --- |
| 24/01/22 | Major | September 2022 | 9, 13, 14 | No |
|  |  |  |  |  |