Technology Ireland ICT Skillnet

Technology Ireland Software Skillnet

DCU Ollscoil Chathair Bhaile Átha Cliath Dublin City University

Masters Programme in IoT

The Internet of Things (IoT) is a computing concept describing the interconnectivity and collaboration of a wide variety of everyday physical objects connected via the Internet. Rapid IoT development has been driven by ongoing research and technological advances (notably in 5G mobile communications and in Artificial Intelligence). IoT technologies are enabling a wide range of business opportunities in the context of "smart" homes, neighbourhoods and cities and in the exploitation of intelligent infrastructure and services, in areas such as transport, power and healthcare.

IoT systems involve the convergence of multiple technologies, existing and new, including Sensors & Actuators, Low-energy Communication, Networking and Cloud, Big Data & Data Analytics, Machine Learning, Security, and Application Deployment and Management.

There is a now a significant and growing need for greater numbers of highly qualified and competent engineers to work in the design, development, management and support of IoT systems.

This programme, leading to a final Award of **MSc in Electronic and Computer Technology (IoT)** is being sponsored by the Technology Ireland ICT Skillnet and developed and delivered by Dublin City University (DCU). It aims to provide a pathway for existing ICT professionals and those wishing to convert from associated disciplines to acquire the necessary skills to pursue careers in the IoT technology and applications domain.

MSc in Electronic and Computer Technology (IoT)

90 ECTS Credits Level 9 (MSc) Award

Supporting Modules (30 Credits)
Students must choose up to four

Essential skills & competencies (introductory modules)
A student must determine that they have the requisite knowledge in these two modules before selecting alternatives from the list below:

- **EE402: OOP with Embedded Systems**
  7.5 Credits (Semester 1 & 2) 75% Exam, 25% CA
- **EE488: Mathematical Techniques & Problem Solving**
  7.5 Credits (Semester 1 & 2) 50% Exam, 50% CA

- **EE452: Wireless/Mobile Communications**
  7.5 Credits (Semester 1) 75% Exam, 25% CA
- **EE417: Web Application Development**
  7.5 Credits (Semester 2) 75% Exam, 25% CA
- **EE445: Bioelectronics**
  7.5 Credits (Semester 2) 70% Exam, 30% CA

Core modules (37.5 credits)
Students must complete at least five

- **EE513: Connected Embedded Systems**
  7.5 Credits (Semester 2) 75% Exam, 25% CA
- **EE515: Real-Time Digital Signal Processing (DSP)**
  7.5 Credits (Semester 1) 70% Exam, 30% CA
- **EE514: Data Analytics and Machine Learning**
  7.5 Credits (Semester 1) 75% Exam, 25% CA
- **EE562: Network Stack Implementation**
  7.5 Credits (Semester 1) 75% Exam, 25% CA
- **EE5SWN: Security for Wireless Networks**
  7.5 Credits (Semester 2) 50% Exam, 50% CA
- **EE507: Entrepreneurship for Engineers**
  7.5 Credits (Semester 2) 75% Exam, 25% CA

Project Components (22.5 Credits)
Must complete both elements

- **EE5RDI: RD&I Training and Project Planning**
  7.5 Credits (Early Summer) 100% CA
- **EE5PRO: MSc IoT Project**
  15 Credits (Summer) 100% CA
  Students put module theoretical knowledge and practical assignments to use in a practical industry-based project related to the Internet of Things (IoT) and document the project outputs.

What's Special about this Programme?

Participants in the programme will be supported to acquire focused skills that are directly applicable to the development of IoT technologies. The programme modules and the project component will enable them to apply state-of-the-art research to industrial applications, solving relevant real-world problems from their own experience and context.

The programme is highly flexible in terms of entry routes, timing and selection of modules, so that participants can tailor their learning directly to their own employment circumstances.

Delivery

The programme will typically be completed over two years on a part-time basis. The taught components will be delivered entirely online complemented with a small number of on-campus workshops at DCU. Two to three taught modules will be delivered per Semester via on-line lectures. These will also be available, together with supporting materials, for download and offline viewing. Participants will have access to on-line fora with lecturers and peers to handle questions and reinforce learning. The program will use continuous assessment through individual assignments to evaluate the achievement of learning objectives, augmented with formal examinations on-campus, where the nature of the specific modules requires.

The final part of the program will be an individual IoT Research Development and Innovation (RDI) project involving the development and proving of a specific IoT technology or application component, related to the participant's industrial context.

Who Should Apply

The **MSc (in Electronic and Computer Technology) Internet of Things** is designed to meet the demand for a new kind of IT specialist and skills, those who can:

- engineer new interactive products – things;
- acquire, fuse and process the data they collect from things;
- interact with, and interconnect these things as part of larger, more diverse, systems.

Eligibility Criteria

The course is aimed at those employed in Republic of Ireland registered companies. The minimum entry requirement for standard entrants to the programme is a 2.2 (GPA 2.5 or equivalent), in a Level 8 primary degree in Computing/Engineering or an equivalent cognate discipline. Candidates not attaining this standard level may be offered the option of undertaking a 'qualifier' subset of the programme modules which, if successfully completed, would allow them to continue with the main programme (with credit).

How To Apply

Applications are now being accepted for a start in September with a closing date of 23rd July. In the first instance applicants should submit their CV directly to **info@ictskillnet.ie**. After initial screening applicants will be advised on next steps.

Technology Ireland ICT Skillnet

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An Roinn Oideachais agus Scileanna
Department of Education and Skills

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