Level 9 NFQ
90 ECTS

National College of Ireland

Technology Ireland ICT Skillnet

Master of Science in CYBERSECURITY

Online Part-time
Duration: 2 years (4 semesters)

WHY STUDY THIS PROGRAMME?

The MSc in Cybersecurity course is technical and practical in nature, uniquely embedded in industry, and develops in-depth expertise of core technical topics within the cybersecurity area. The programme emphasises the development of technical and research skills in the cybersecurity area through analysis, investigation, requirements elicitation, problem-solving, and teamwork. In addition, emphasis is placed on the study of the latest appropriate technology and techniques necessary for the cultivation of advanced investigative skills.

The programme is taught over 2 years and is delivered blended/online through both synchronous and asynchronous directed-learning activities using state-of-the-art technologies and teaching techniques to support the virtual classroom. Asynchronous directed activities consist of short videos, recommended reading, and tutorial exercises. Learners are expected to engage with this content each week before their live class to build an understanding and to prompt questions.

The part-time element of the course helps busy professionals to study and work at the same time and as the programme is designed from an applied perspective, all learnings can immediately be incorporated into the work environment.

The fees for this programme are part-funded by Technology Ireland ICT Skillnet

ELIGIBILITY REQUIREMENTS

Candidates must have an honours (level 8) primary degree in computing or a cognate area with a 2.2 award or higher. Cognate area means a STEM (Science, Technology, Engineering, and Mathematics) degree that also has taught programming/ application development-related modules. Candidates are expected to have programming ability, which can be demonstrated through transcripts, recognised certifications, and/or relevant work experience. An assessment and/or interview may be conducted to ascertain suitability if necessary, for candidates who do not meet the normal academic requirements.

The college operates a Recognition of Prior Experiential Learning (RPEL) scheme meaning applicants who do not meet the normal academic requirements may be considered based on relevant work and other experience. This may be assessed using a portfolio of learning, demonstration of work produced, and an interview. The programming ability of the applicant will also be assessed.

Candidates must be working in private or commercial semi-state organisations in the Republic of Ireland to avail of part-funded fees.

LAPTOP REQUIREMENTS

This programme is blended/online delivered and as such, students are expected to successfully participate in lectures, laboratories, and projects using a laptop computer with a substantial hardware configuration. The minimal suitable configuration is 8GB of RAM (16GB are recommended); a modern 64-bit x86 multi-core processor (Intel i5 or superior); 250+ GB of available space in hard disk; WiFi card; and a recent version of Ubuntu, macOS or Windows. Learners must also ensure they have sufficient broadband speed and reliable connectivity from their place of study.

It is the responsibility of each learner to ensure their laptop computer is functioning correctly and that they have full administrator rights. NCI IT cannot provide support for these personal devices.

Programme Outline

The blended/online MSc in Cybersecurity is a 2-year 90-ECTS course. Learners are required to complete 20-ECTS during each of the taught semesters and then a final 6-month semester completing the Practicum/Internship module. Learners will be asked to elect one of the two specialisations:

- Investigation specialisation (S1)
- Secure Development specialisation (S2)

Year 1

Semester 1

- Security Fundamentals
- Data Governance, Ethics, and Sustainability
- Forensics and eDiscovery (S1)
- Secure Web Development (S2)

Semester 2

- Network Security and Penetration Testing
- Cryptography and Blockchain
- Malware Analysis (S1)
- Secure Application Development (S2)

Year 2

Semester 1

- Cloud Architectures and Security
- AI/ML in Cybersecurity
- Business Resilience and Incident Management

Semester 2

Research Elective

- Practicum Part 1 & Part 2
- Internship Part 1 & Part 2

Note that there are dependencies between secure development specialisation electives. To study Secure Application Development in Year 1 Semester 2, learners must have studied Secure Web Development in Year 1Semester 1. However, all learners can elect to study Malware Analysis in Semester 2.

Specialisations will run subject to a minimum number of learners. Learners will be asked to choose their specialisation before programme commencement.

ASSESSMENT

The course will be assessed with a blend of continuous assessments and/or project work and/or exams. This varies between modules but typically assessment is 40% continuous assessment and 60% project or exam. Please note that in some instances exams may take place in the daytime, evenings and at weekends.

DURATION

Year 1: Semester 1 – January 2024 to May 2024
Semester 2 – September 2024 to January 2025

Year 2: Semester 1 – January 2025 to May 2025
Semester 2 – May 2025 to January 2026

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An Roinn Breisoideachais agus Ardoideachais, Taighde, Nuálaíochta agus Eolaíochta
Department of Further and Higher Education, Research, Innovation and Science

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