

BACHELOR OF SCIENCE (HONS) IN COMPUTING

With specialisations in

Software Development, Internet of Things, Cybersecurity, Games Programming, Blockchain, Artificial Intelligence/Machine Learning/Data Analytics, Digital Business Transformation.

FACTFILE

Start Date

Sept 2023

Duration

4 years; 3 semesters per year. Use of Online/ Blended Learning.

Delivery

Blended - Livestream with some on-campus stream classes, scheduled in advance. See page 4 for more information.

Indicative Timetable

Two evenings per week, 18.00 - 22.00 and Saturdays 09.00 - 18.00

Fees

€4,200 per annum (Fees revised annually)

Application

Apply online at www.ncirl.ie



Course Description

This innovative BSc (Hons) in Computing with specialisations is intended to appeal to anyone who is interested in developing practical knowledge and skills in the application of technology to help solve problems in business, data analytics, artificial intelligence, machine learning, blockchain, gaming and cybersecurity. In your final year, you will study modules based on your chosen specialisation from important and exciting areas of computer science.

This computing course will equip you to create software applications for business transformation, artificial intelligence, data analytics, gaming, blockchain and internet of things. You will also understand how to incorporate user data into software applications and how to engineer a software application from requirements through analysis, design, implementation and testing. The course will also allow you to develop your business and interpersonal skills.

Who is the course for?

This part-time course is aimed at those working in the information and communications technology industry and wishing to develop their knowledge and skills in the area of computing and so improve their career prospects. It will also appeal to anyone wishing to move into the information and communications technology industry.

Entry Requirements

This IT degree course is designed to appeal to those at work or seeking to re-enter the workforce. There are no specific academic requirements with applicants considered based on relevant work and other experience. Applicants may be required to attend an interview as part of the application process. Applicants under 21 will be assessed based on Leaving Certificate or equivalent.

Laptop Requirement

This programme has a BYOD (Bring Your Own Device) policy. Specifically, students are expected to successfully participate in lectures, laboratories and projects using a laptop computer with a substantial hardware configuration. A suitable configuration is 8GB of RAM (16GB are recommended); a modern 64-bit x86 processor (Intel i5 or superior); 250+ GB of available space in hard



disk; WiFi card; and a recent version of Ubuntu, macOS or Windows. It is the responsibility of the student to ensure their laptop is functioning correctly and that they have full administrator rights to the machine.

NCI IT does not provide support for personal devices. Some students may be able to avail of the Student Laptop Loan Scheme, subject to eligibility. See page 85 for more information.

Award and Progression

The Bachelor of Science (Honours) in Computing is awarded by QQI at level 8 on the National Framework of Qualifications. This award will allow progression to level 9 courses on the NFQ. The final award is calculated from weighted results of stage 2, 3 and 4. The course also prepares students for industry-recognised certificates in leading technologies.

COURSE CONTENT

Year 1

Semester 1

- Discrete Mathematics
- Problem Solving and Programming Concepts
- Computational Thinking*
- Operating Systems

Semester 2

- Computer Architecture*
- Introduction to Programming
- Introduction to Data Modelling and Databases

Semester 3

- Web Design and Development*
- Digital Multimedia*
- The Computing Industry*

Year 2

Semester 1

- Data Communications and Networking*
- Object Oriented Programming
- Advanced Databases

Semester 2

- Data Structures and Algorithms
- Software Engineering*
- Software Quality and Testing

Semester 3

- Web Application Development*
- Innovation and Business Entrepreneurship*
- Team Project*

Year 3

Semester 1

- Advanced Computer Networks*
- Technical Electives:#
 - Introduction to Artificial Intelligence and Machine Learning
 - Advanced Programming
- Business Computing Electives:**
 - Business and Artificial Intelligence
 - Project Management

*Students who complete the Technical Electives may go on to the 4th Year specialisation in either Games Programming, Software Development, Cybersecurity, Blockchain, Artificial Intelligence/Machine Learning/ Data Analytics and Internet of Things.

**Students who complete the Business Elective will go on to the 4th Year specialisation in Digital Business Transformation.

Semester 2

- Security Fundamentals and Development*

Semester 2 & Semester 3

Six-month work placement within an organisation
OR
Academic Internship

* This module will be delivered in a blended format, meaning classes will be timetabled with both online and on-campus sessions.

Year 4 - Choose a Specialisation

Year 4

Games Programming

Semester 1

- Project
- Cloud Application Development
- Games Systems

Semester 2

- Project
- Mixed Reality
- Games Programming
- IT Governance, Security and Ethics

Semester 3

- Project

Year 4

Software Development Specialisation

Semester 1

- Project
- Cloud Application Development
- IoT Fundamentals and Development

Semester 2

- Project
- Secure Application Programming
- IT Governance, Security and Ethics
- DevOpsSec

Semester 3

- Project

Year 4

Cybersecurity Specialisation

Semester 1

- Project
- Cloud Application Development
- Secure Application Programming

Semester 2

- Project
- Penetration Testing
- IT Governance, Security and Ethics
- Digital Forensics

Semester 3

- Project

Year 4

Internet of Things Specialisation

Semester 1

- Project
- Cloud Application Development
- IoT Fundamentals and Development

Semester 2

- Project
- Data Mining and Visualisation Principles
- IT Governance, Security and Ethics
- IoT Application Development

Semester 3

- Project

Year 4

Blockchain Specialisation

Semester 1

- Project
- Cloud Application Development
- Blockchain Foundations

Semester 2

- Project
- IT Governance, Security and Ethics
- Blockchain Application Development I
- Blockchain Application Development II

Semester 3

- Project

Year 4

Artificial Intelligence/ Machine Learning/Data Analytics

Semester 1

- Project
- Cloud Application Development
- Artificial Intelligence

Semester 2

- Project
- Data Application Development
- IT Governance, Security and Ethics
- Machine Learning

Semester 3

- Project

Year 4

Digital Business Transformation

Semester 1

- Project
- Cloud Application Development
- Business Analysis

Semester 2

- Project
- Digital Transformation
- IT Governance, Security and Ethics
- Strategic Management

Semester 3

- Project

Availability of specialisations is subject to student numbers

Assessment

The course will be assessed with a blend of continuous assessments and/or project work and exams. Please note that in some instances exams may take place in the daytime, evenings and at weekends.