BSC (HONOURS) IN **COMPUTING**

Duration:
Four Years Full-Time

CAO Points Guide:*
270

NFQ Level:
Level 8

CAO Code:
NC003

SUSI

*For each course we have given a guideline based on our points over the past three years. This is a guide only, points vary each year.

> "From building small scale to enterprise-level applications, building desktop and web applications to creating cutting edge machine learning models, this course truly provides students with a huge amount of computing knowledge and skills."
>
> **Joshua Cassidy**
> *BSc Hons in Computing*

About the Course
NCI's innovative BSc (Honours) in Computing will provide you with programming and advanced problem-solving skills, to create software applications that solve real-world problems. This exciting course will expose you to areas like games programming, software development, cybersecurity, blockchain, artificial intelligence/machine learning/data analytics, internet of things and digital business transformation.

The course is industry-focused with a six-month work placement in the third year. NCI students are highly sought after and complete their work experience in companies such as Microsoft, O2, ESB, Wells Fargo, Dotmobi, Datalex and Intel.

Graduates of this course can create software applications on mobile devices, in the cloud, on the web and in gaming, using the latest technologies; understand how to incorporate multimedia into software applications; can analyse and interpret data to address real business problems; understand the cloud computing paradigm and its implications for software, infrastructure and platforms; and can secure software applications from malware and hacking.

Who is the course for?
This full-time computing course will appeal to students interested in the possibilities created by information and communications technology. The course is for school leavers, mature students and graduates of QQI level 5/6 programmes who wish to embark on a course of full-time study.

Career Prospects
Graduates of this course can perform a number of roles, including software developer, mobile application developer, IT support, project engineer, security analyst and games developer. Previous employers have included Microsoft, Lionbridge, Hewlett Packard, KPMG, Tapadoo, Arvato, Salesforce, Facebook and Vivendi Games. This course is also suitable for those who wish to pursue a career in teaching as it is recognised by the Teaching Council to teach computing.

Course Structure and Award
This undergraduate course is a four-year honours degree. The course is run over eight semesters with continuous assessments held throughout the course and examinations at the end of each semester. On completion, you will receive a QQI BSc (Honours) Degree in Computing at level 8 on the National Framework of Qualifications. The course also prepares students for industry-recognised certification in leading technologies.

Further Study Options
Upon successful completion of the BSc (Honours) in Computing, graduates can progress to postgraduate courses at level 9 on the National Framework of Qualifications such as the MSc in Cybersecurity, MSc in Data Analytics, MSc in Fintech or the MSc in Artificial Intelligence at NCI.
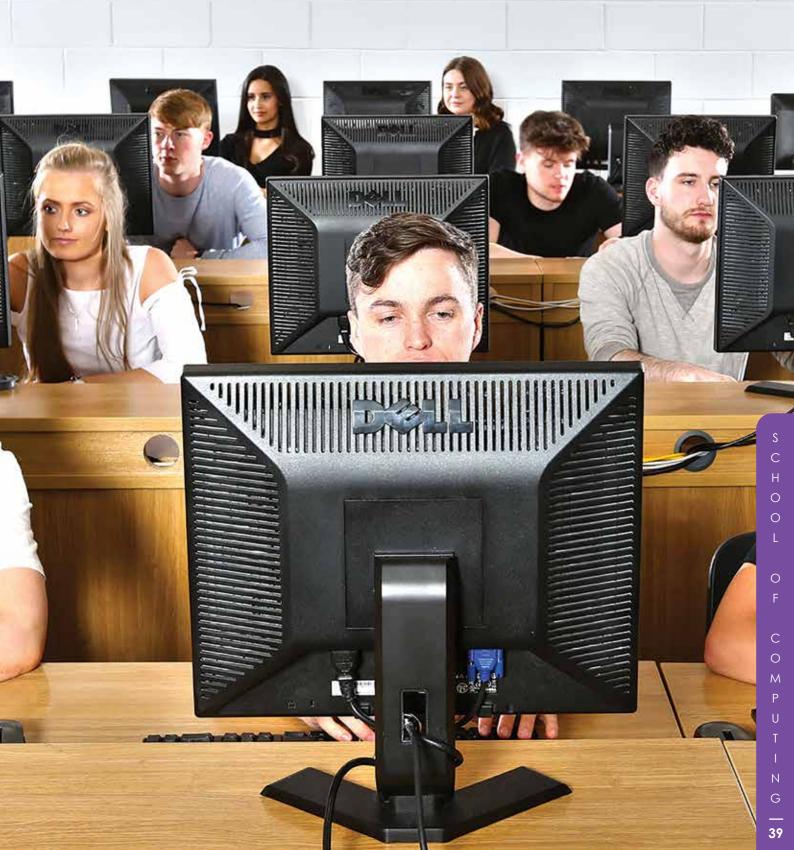
Course Fees
This course qualifies under the Free Fees Initiative and Student Grant Scheme.

Admission Requirements and Policies
Minimum entry requirements are a grade H5 or above in two higher level subjects together with a minimum of O6/H7 in four other subjects. A minimum of grade O6/H7 must be obtained in English or Irish. A grade O6/H7 must be obtained in Mathematics. Applicants from a PLC/further education course must have a full level 5/6 award, three distinctions and meet the CAO points requirement. Mature applicants, applicants with a disability or those applying through the DARE or HEAR access schemes should refer to our Admissions section on p63, which also includes our admission policies, including laptop requirements.

Graduates have worked in organisations like **Microsoft, Lionbridge, Hewlett Packard, KPMG, Tapadoo, Realex Payments, Opennet, Leaseplan, Arvato, Salesforce, Facebook and Vivendi Games.**

COURSE CONTENT

Year 1

Semester 1
• Discrete Mathematics
• Problem Solving and Programming Concepts
• Web Design and Development
• The Computing Industry
• Computational Thinking

Semester 2
• Computer Architecture
• Introduction to Programming
• Digital Multimedia
• Introduction to Data Modelling and Databases
• Operating Systems

Year 2

Semester 1
• Data Communications and Networking
• Object Oriented Programming
• Web Application Development
• Advanced Databases

Semester 2
• Innovation and Business Entrepreneurship
• Data Structures and Algorithms
• Team Project
• Software Engineering
• Software Quality and Testing

Year 3

Semester 1
• Security Fundamentals and Development
• Advanced Computer Networks
• **Technical Electives**
  - Introduction to Artificial Intelligence and Machine Learning
  - Advanced Programming

  Or

• **Business Electives***
  - Business and Artificial Intelligence
  - Project Management

Semester 2

Work Placement
Full time six months within an organisation
OR
Academic Internship

Year 4 - Choose a Specialisation

Year 4

Games Programming*

Semester 1
• Computing Project
• IT Governance, Security and Ethics
• Cloud Application Development
• Game Systems

Semester 2
• Computing Project
• Mixed Reality
• Games Programming

Year 4

Software Development *

Semester 1
• Computing Project
• IT Governance, Security and Ethics
• Cloud Application Development
• IoT Fundamentals and Development

Semester 2
• Computing Project
• Secure Application Programming
• DevOpsSec

Year 4

Cybersecurity*

Semester 1
• Computing Project
• IT Governance, Security and Ethics
• Cloud Application Development
• Secure Application Programming

Semester 2
• Computing Project
• Penetration Testing
• Digital Forensics

Year 4

Blockchain*

Semester 1
• Computing Project
• IT Governance, Security and Ethics
• Cloud Application Development
• Blockchain Foundations

Semester 2
• Computing Project
• Blockchain Application Development I
• Blockchain Application Development II

Year 4

Artificial Intelligence/Machine Learning/Data Analytics*

Semester 1
• Computing Project
• IT Governance, Security and Ethics
• Cloud Application Development
• Artificial Intelligence

Semester 2
• Computing Project
• Data Application Development
• Machine Learning

Year 4

Digital Business Transformation**

Semester 1
• Computing Project
• IT Governance, Security and Ethics
• Cloud Application Development
• Business Analysis

Semester 2
• Computing Project
• Digital Transformation
• Strategic Management

Year 4

Internet of Things*

Semester 1
• Computing Project
• IT Governance, Security and Ethics
• Cloud Application Development
• IoT Fundamentals and Development

Semester 2
• Computing Project
• Data Mining and Visualisation Principles
• IoT Application Development

*Students that complete the technical electives will progress to the fourth year specialisation in Games Programming, Software Development, Cybersecurity, Blockchain, Artificial Intelligence/Machine Learning/Data Analytics and Internet of Things.

**Students that complete the business electives will progress to the 4th year specialisation in Digital Business Transformation.

Electives and specialisations may include prerequisites, are subject to change, and availability is subject to class sizes.