# BSc (Honours)
# Software Development

*"Software is a great combination between artistry and engineering."* - Bill Gates

If you have a passion for programming this flagship bachelor's degree can open up multiple career opportunities for you. Software engineers design and develop large complex systems used in industry, banking, manufacturing, financial services, logistics, technology and medical applications, to name but a few.

As this is a modern industry-linked degree you will study relevant up-to-date modules. The programme was designed with several pillars. These pillars include Computer Science, Software Development, Data Science, Operating Systems and Software Engineering.

The Software Development pillar takes you on a journey from Programming Fundamentals to Modular Programming to Object Oriented Principles to Object Oriented Programming to Distributed Systems Programming to App Development Frameworks topping off with Data Driven Microservies.

The Data Science pillar starts with an Introduction to Databases before moving on to Database Design, NoSQL Data Architectures, Programming for Data Analytics, Machine Learning and finally Big Data & Analytics. Please refer to the programme schedule for of all module details.

The programme has a significant work placement element where students are placed with selected employers for up to 9 months starting in January of year three.

## Undergraduate

**This programme is delivered full-time over four academic years.**

## Contact us

Dr Vincent Emeakaroha
Department of Computer Science
Cork Institute of Technology
Rossa Avenue
Bishopstown
Cork T12 P928
Ireland

+353 21 4336191
vincent.emeakaroha@cit.ie
http://cs.cit.ie/cs

**CIT**
## CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ

## Department of Computer Science

The Department of Computer Science at Cork Institute of Technology is one of the largest Computer Science departments in Ireland. We offer a range of modern undergraduate programmes and a host of opportunities at master's degree and at PhD level. Our industry engaged programmes match the needs of our economy and have an excellent reputation for producing the most employable computer science graduates. These highly skilled graduates are in huge demand and contribute significantly to the development of the region. As technology plays a greater role in our society the growth in the demand for these graduates will continue year after year.

## BSc (Honours) Software Development Programme Schedule

Detailed module descriptors can be viewed at http://cs.cit.ie/sdh-schedule.

| Year 1 - Semester 1 | CR |
|---|---|
| Programming Fundamentals (SOFT6018) | 5 |
| Web Development Fundamentals (SOFT6007) | 5 |
| Computer Architecture (COMH6002) | 5 |
| Computer Security Principles (COMP6035) | 5 |
| Maths for Computer Science (MATH6055) | 5 |
| Creativity, Innovation & Teamwork (CMOD6001) | 5 |

| Year 1 - Semester 2 | CR |
|---|---|
| Modular Programming (SOFT6017) | 5 |
| Introduction to Databases (COMP6041) | 5 |
| Operating Systems in Practice (COMP6042) | 5 |
| Networking Fundamentals (COMP6027) | 5 |
| Discrete Mathematics (MATH6004) | 5 |
| Physical Computing (COMP6043) | 5 |

| Year 2 - Semester 1 | CR |
|---|---|
| Object Oriented Principles (SOFT7004) | 5 |
| Database Design (SOFT7022) | 5 |
| Operating Systems (SOFT7006) | 5 |
| Requirements Engineering (SOFT7007) | 5 |
| Linear Data Structures & Algorithms (COMP7035) | 5 |
| Server-side Web Development (SOFT7008) (E) | 5 |

| Year 2 - Semester 2 | CR |
|---|---|
| Object Oriented Programming (COMP7013) | 5 |
| NoSQL Data Architectures (COMP7037) | 5 |
| C Programming (SOFT7019) | 5 |
| OO Analysis and Design (SOFT7005) | 5 |
| Nonlinear Data Structures & Algorithms (COMP7038) | 5 |
| Probability & Statistics (STAT7007) | 5 |

| Year 3 - Semester 1 | CR |
|---|---|
| Distributed Systems Programming (SOFT8023) | 5 |
| Group Project (SOFT7003) | 5 |
| Programming Mobile Devices (SOFT7035) | 5 |
| Agile Processes (COMP7039) | 5 |
| Programming for Data Analytics (SOFT8032) | 5 |
| Technical Writing Using XML (COMP7040) (E) | 5 |

| Year 3 - Semester 2 | CR |
|---|---|
| Work Placement/Internship (PLAC7009) | 30 |
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| Year 4 - Semester 1 | CR |
|---|---|
| Application Development Frameworks (SOFT8020) | 5 |
| Project Research Phase (INTR8016) | 5 |
| Embedded Systems Tools & Models (COMP8049) | 5 |
| Security for Software Systems (COMP8050) | 5 |
| Machine Learning (COMP8043) | 5 |
| Game Development (SOFT8009) (E) | 5 |

| Year 4 - Semester 2 | CR |
|---|---|
| Data Driven Microservices (SOFT8026) | 5 |
| Project Implementation Phase (INTR8015) | 10 |
| Advanced OS & Virtualisation (COMP8051) | 5 |
| Big Data & Analytics (SOFT8033) | 5 |
| Applied Cryptography (COMP8004) (E) | 5 |
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CR = ECTS Credit, (E) = Example elective module. Work Placement is normally paid and organised by the department.