Computer science is a professional discipline concerned with everything to do with computers and our relationship with them.

Computers are critical to the efficient running of modern societies, dealing with health, security, banking and finance, transportation, and now increasingly our interaction through social networks. Computing professionals, like their counterparts in medicine, law, engineering, accountancy and finance, deal with theoretical issues, solve complex problems, deal with matters of ethics and with society at large.

Trinity Computer Science students study for an honors Bachelor’s degree over four years and have the option to study for a fifth year leading to a Master in Computer Science (MCS) degree.

A core component of the MCS is an industry/research internship.

As a Trinity Computer Science graduate you will be able to work at the highest level in the global technology industry. You will develop entrepreneurial skills to enable you to build new products and solutions, making decisions that will affect all our futures.

Graduates find employment in many sectors from communications and entertainment to manufacturing and transportation, government, healthcare, education and many more.

Our Approach

Our approach is to teach you the theory and practice of computer systems, exposing you to the whole range of computing technology from hardware to software, from telecoms to social networking.

About the Programme

The choice to study over four years for a Bachelor’s degree (BA Mod in Computer Science) or over five years for a Master’s degree (MCS) is made at the end of the third year of the programme.

If you opt for the Bachelor’s degree, you will undertake a Final Year Project in your fourth year and you will begin specialisation in areas of interest.

If you opt for the Master’s degree you will undertake an internship in your fourth year and you will also begin your specialisation in areas of interest. In your final year, you will deepen your specialisation and you will also undertake a substantial research dissertation. Students graduating from the MCS will also graduate with the BA (Mod) in Computer Science.
What do the graduates say?

“I joined Murex as a Junior Java Developer in June 2011. My advice to students who are looking for a job is to get a good page on LinkedIn – it’s as good as sending out CVs, that’s how I ended up working for Murex. When I am asked why study Computer Science? My answer is simple – it’s all about creating something out of nothing – it’s where our futures are and where the money is.”

Shaun Gray, Computer Science graduate

“I wanted to pursue a career as a professional software developer and felt that Computer Science in Trinity was the perfect course to kick-start my career in computing. I recently graduated from the new five year Master in Computer Science (MCS) course and within three weeks of finishing, I took up the role of Software Developer at SAP.

The course itself is very engaging and full of variety. Each module of the course is challenging and provides the right level of experience and knowledge that students need to succeed in a computing career, whether they aim to work in the games industry, networking, software or hardware development. I focused on elements of web technologies and network design, but each student is given the opportunity to specialise in their own area of interest.

I think that the internship option in the fourth year of the course is extremely valuable. I worked in the Citi Innovation Lab where I was engrossed in the latest technology, design methodologies and innovative thinking that is driving the future of software development today. The experience looks great on your CV and definitely helped when applying for my current role. You also get the opportunity to meet a lot of people in the industry and make valuable networking connections.

Overall, the MCS has fully lived up to my expectations and I would highly recommend it to any future students.”

Conor McEvoy, MCS Computer Science graduate

Our society today is becoming more and more digitally involved and with computer science you get the knowledge and confidence to build new and exciting technologies that can span many different career paths. I started out doing a BA in Computer Science at Trinity as I wasn’t sure which career to go into after secondary school. I felt that since computers are used everywhere, a degree in computer science would allow me to apply for jobs in different areas later on.

I completed a PhD in computer graphics. During my time here I had the opportunity to meet many wonderful people including those that work for Disney, Pixar and Rhythm and Hues. I have also had the opportunity to travel to Austria, Crete, New York and L.A!

My peers have found jobs that are very diverse as you can apply the skills you learn through computer science to finance, arts or academia. It is now easier than ever to set up your own business gaining international success with the help of the internet.

Liliana Skrba, Computer Science graduate

Each year the School invites leading employers in the sector to attend a special recruitment fair at which students can chat informally regarding many career opportunities.
Internship

Fourth-year students who opt for the master’s degree undertake a seven-month internship in industry or in a research laboratory. The aim is to develop your understanding of how design and theoretical aspects of computer science are applied in a commercial or research workplace. Many companies find that hosting an intern provides the opportunity to focus on special projects.

Frequently asked questions

How much do I need to know about computers to do Computer Science?

No prior knowledge of computers is required. An interest in solving problems is essential.

What programming languages do you use?

Computer professionals need to be comfortable with lots of languages. We currently teach Java, C/C++ and Haskell and we use many others. We teach ARM assembly language and VHDL for courses in computer architecture and hardware design. Students can avail of individual advice and help from our Programming Centre.

How many hours of lectures, labs and tutorials will I have each week?

You could expect to have approximately twenty contact hours per week. In the first year you will have about fifteen hours of lectures and four hours of labs each week. You will need to spend additional time studying, working on coursework projects and assignments, in teams and on your own.

Can you describe first year for me?

In first year you will study programming, mathematics, computer hardware, electronics and telecommunications. In addition you will take part in a team-based programming project and explore relationships between computers and the wider society.

What supports will I have over the course of my studies?

All college supports are open to every student and include our unique tutoring system, health service, student counselling service, disability services, careers advisory service, and many more.

Do I need to be really good at maths?

You don’t need to be a genius at maths but you need to be comfortable using mathematical techniques to solve problems.
## BA (Mod) in Computer Science
### Master in Computer Science (MCS)

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<tr>
<th>First Year</th>
<th>Second Year</th>
<th>Third Year</th>
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<tbody>
<tr>
<td>Mathematics</td>
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<td>Mathematics</td>
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<tr>
<td>Computer Programming</td>
<td>Computer Programming</td>
<td>Symbolic Computation</td>
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<td>Team Programming Project</td>
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<td>Microprocessor Systems</td>
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<td>Digital Logic</td>
<td>Concurrency &amp; Operating Systems</td>
<td>Software Engineering</td>
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<td>Electronics</td>
<td>Information Management</td>
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<tr>
<td>Telecommunications</td>
<td>Telecommunications</td>
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### Fourth Year (BA (Mod) Computer Science) OR Fourth Year (Master in Computer Science)

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<tr>
<th>Human Factors</th>
<th>Technology Entrepreneurship</th>
<th>Industrial or Research Lab Internship</th>
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<tr>
<td>Group Project</td>
<td>Technology Entrepreneurship</td>
<td>Four of the following:</td>
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<tr>
<td>Individual Project</td>
<td>Industrial or Research Lab Internship</td>
<td>Four of the following:</td>
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Four of the following:
- Fuzzy Logic
- Formal Methods
- Functional Programming
- Mobile Communications
- Distributed Systems
- Computer Graphics
- Computer Vision
- Artificial Intelligence
- Compiler Design.

### Third Year

- Human Factors
- Technology Entrepreneurship
- Industrial or Research Lab Internship
- Four of the following options:
  - Middleware for Distributed Systems
  - Embedded Systems
  - Networked Applications
  - Management of Networks & Distributed Systems
  - Graphics & Console Hardware
  - Real-time Animation
  - Sustainable Computing
  - Security of Networks & Distributed Systems
  - Real-time Rendering
  - Financial Informatics
  - Behavioural Finance.

### Fifth Year (Master in Computer Science)

- Research Methods
- Four of the following options:
  - Middleware for Distributed Systems
  - Embedded Systems
  - Networked Applications
  - Management of Networks & Distributed Systems
  - Graphics & Console Hardware
  - Real-time Animation
  - Sustainable Computing
  - Security of Networks & Distributed Systems
  - Real-time Rendering
  - Financial Informatics
  - Behavioural Finance.

- MCS Dissertation

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1. The range of options offered each year is subject to change.
2. There are some restrictions on the modules that may be combined and the same module may only be taken once in Fourth Year or Fifth Year.