Introduction

The M.Sc. in Computer Science (Networks and Distributed Systems) (NDS) encourages high-achieving graduate and industry-experienced students to develop into future leaders of the ICT industry. Established in 1997, NDS’s 220 graduates are leaders in academia, multinational corporations, Irish and international Small and Medium Enterprises, and successful and scaling start-up businesses.

NDS takes a balanced approach to student development, offering modules in technical Research and Development, management of projects and teams, and Business Innovation and Entrepreneurship. Students undertake a significant dissertation leading to publications in leading international forums. The course philosophy is to produce the thought leaders of tomorrow and dynamic self-starters. Students find the course to be an intense, challenging experience, which is hugely rewarding and produces life-long friendships.

Industry heavyweights Intel, IBM, Google, Amazon, Microsoft, Accenture, Deloitte and Ericsson, employ our graduates, and engage with the course content.

“NDS has a very strong reputation in Ireland and internationally. …. always been at least one person at every interview who has heard of NDS and all considered it a benchmark of ability” Brian Myler, Graduate

“NDS graduates are problem solvers. They learn quickly, think creatively and contribute to the business from day one. I make a point of seeking them out” Donal Sullivan, Director, Lighthouse BCS.

“The focus on deep technical understanding, entrepreneurship skills and team work makes NDS graduates the perfect candidates for employment at companies of all levels, from early stage startups to established multinationals. As an employer, I prioritise NDS graduates over other candidates” Cormac Driver, Principal Researcher at RealNetworks Inc.

Goals

Our goal is to equip graduates with an integrated set of skills that will develop their professional careers as researchers, innovators, entrepreneurs, architects and consultants, in the exciting field of information technology.

The programme’s focus is on skills not normally imparted to undergraduate students that will develop graduates’ capacity as leaders in the field.
Course design

Unlike comparable courses that focus on one subject area, NDS is explicitly designed to underpin the potential for graduates’ careers in leadership roles as architects/engineers, consultants, entrepreneurs or researchers.

These career paths require a set of common skills, and our focus is on ensuring that individual modules are designed with common skills foundations, in particular analytical skills (through research-lead coursework), engineering (through practical application of advanced technology), management and process (through a large-scale, group-based development project), and innovation (innovative ideas are developed, as are business cases assessed by professional venture capitalists).

Students undertake substantial projects (both individual and group), many defined by industry, ranging from multinationals such as Microsoft, to small-scale organizations such as Frontline. Students’ work has been published in international forums, and been the subject of patent applications.

“NDS keeps up to date with the very latest Internet and Web technologies and trends”
Professor Jeff Magee, Imperial College London

The teaching staff are international experts, for example, the security module is taught by the recently-appointed Internet Engineering Task Force (IETF) security area director. Modules are updated annually – this year we added a module on Sustainable Computing that explores hot topics such as Cloud Computing, including on-site visits to Microsoft’s Cloud Computing team.
Employability

Research: The TCD School of Computer Science and Statistics has an international reputation as a centre of excellence in networks and distributed systems. The cradle of such successful companies as IONA Technologies and EUnet, the School has attracted 30 million euro in research funding in the last five years. Researchers within the School work closely with indigenous and international companies in the field. NDS has academic world leaders on its teaching staff and is a feeder course into the School’s Structured PhD Programme.

“I currently work building distributed systems in Morgan Stanley in London, so I use concepts from the course every day” Peter Byrne, Graduate.

Industry: NDS Graduates are currently employed by large-scale multinationals such as Microsoft, Intel, IBM, Amazon and Google; by consulting organizations such as Accenture and Deloitte; and by small-scale start-ups such as LighthouseBCS and BriteBill. Indeed, graduates have engaged in their own startups.

“I loved the “Dragon’s Den” style proposal and project we went through” David Lynch, Graduate.

Graduate professional careers

- Research
- Engineering
- Consulting
- Entrepreneur

Student Experience

A dedicated course director is responsible for the welfare of the students, supported by a technical and administrative team. At College level, a postgraduate advisory service is available to students who are experiencing difficulties of any kind.

Over the years, there have been students from over 20 different nationalities, ranging in age and experience levels. This diversity enriches the student experience and lifelong friendships emerge in every cohort.

“Lecturers really excelled, were highly passionate about their areas of expertise, and made themselves available for questions, no matter how loosely related to the topic those questions may have been” Caroline Burgess, Graduate.

Class sizes are small (20), allowing close interactions with world-class academics. Students are given the use of laptops, and each year, new equipment is purchased to support their explorations of new technologies and their experiments addressing innovative research questions.
Showcase of MSc Research: Each year, the course’s research dissertation results are showcased and students mingle and discuss their research with our industry guests. At the 2010 event: Stephen Purcell, class of 2009/2010; Dr. Siobhán Clarke, NDS Course Director; Mark Dineen, Senior Manager, Accenture, and NDS graduate.

Recent Survey of all Graduates

1. Ease of finding employment
   94% had no difficulty finding employment immediately after graduating
   “I had three job offers before I finished my thesis, so I could pick which best suited me.”

2. Usefulness of course content
   90% regularly make use of course content in their work
   “Lots of practical experience working in teams and delivering on deadlines.”

3. Teaching quality
   97% found teaching quality to be Very Good or Excellent
   “Overall the teaching was excellent as we were taught by individuals with a wealth of experience in their respective areas.”

4. Student resources
   87% found resources to be Very Good or Excellent
   “We were helped with all the necessary resources and more!... we were able to work with many different types of cutting edge technology.”