More and more applications are being designed to run on large-scale networks of co-operating computers. The consolidation of the global Internet, the emergence of cluster computing, new technologies for high bandwidth and wireless data communications, and the availability of ever cheaper and more powerful computers are enabling a new generation of distributed applications to be built. Such applications pervade industry, commerce, health, education and, indeed, personal lives as the integration of computer technology and digital communications continues.

It is difficult to overestimate the impact global networks of co-operating computers have had on society in recent years. Social networks have hundreds of millions of users, changing individuals’ lives, linking families and friends on a global basis and providing a platform for business and indeed, large-scale, political campaigns. Real-time video news saves lives when disasters happen. Commerce is made truly global and competitive, with countless examples ranging from large-scale goods portals to tourism to market provision for the local artisan producer. Education has been transformed with the availability of detailed information on any topic. Health care is undergoing radical transformations in patient care. Indeed, there are few aspects of life that are not enhanced by networked, distributed systems, but that also must be tempered by security and energy sustainability concerns.

The Course

The primary goal of this M.Sc. course is to equip graduate students with an integrated set of skills that will allow them to develop their professional careers in this area of information technology. The particular focus of the programme is to equip students with the theoretical, practical and entrepreneurial background that is necessary to enable them to participate in the design of complex networked and distributed systems, and influence their future direction. The course is composed of taught modules that are taken by all students, plus a research dissertation. In all modules, students gain an appreciation of open research issues.

TOPICS TYPICALLY COVERED INCLUDE

**Networked Applications**
covers emerging and established paradigms and architectures for scaled distributed systems construction.

**Data Communications and Wireless Networking**
introduces the state of the art in computer networks and networking technology.

**Middleware**
covers the most important platforms for building distributed applications including client-server computing, distributed object technology, and component models.

**Software Engineering for Concurrent and Distributed Systems**
covers object oriented analysis and design techniques and their application to concurrent and distributed systems.

**Security and Management of Networks and Distributed Systems**
introduces the fundamentals of computer and network security and investigates different approaches to network management and the management of advanced information services.

**Business Innovation**
the development, from inception to pitch, of a business plan in the NDS space in a competitive setting.
Career Opportunities
The career potential for graduates equipped with the skills necessary to design, implement, and deploy distributed applications in almost every business sector is huge. Such graduates may be employed in end-user organisations, in software development companies, and in those companies specialising in the provision of networking and distributed systems technology. An understanding of distributed computing technologies such as client-server computing, distributed object technology, and Internet computing is increasingly a prerequisite for a career in the software industry. Moreover, a large number of Irish-based software companies, both indigenous and international, are active in the areas of networks and distributed systems.

Entry Requirements
Admission to this M.Sc. course is competitive and is normally restricted to graduates who have achieved an upper second class honours degree, or better, in computing, information technology, or a related discipline. Well-qualified candidates from disciplines such as engineering, mathematics, statistics, or physics who have sufficient knowledge of computing (including the ability to program) may also be accepted.

Further Information
Further information, Application Details, Fees and Closing Date available at:

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School of Computer Science & Statistics (SCSS)
Faculty of Engineering, Mathematics and Science

The College reserves the right to update or change syllabi, fees, timetables or other aspects of the course at any time