Master of Science
Software Architecture & Design

"All architecture is design, but not all design is architecture." Grady Booch, IBM Fellow.

This programme is designed for software professionals, architects, and senior system design engineers. Managers of architecture teams will also benefit from this programme.

The programme aims to form part of the evolutionary path that a software developer takes to become a software architect, allowing each student to advance their technical career path.

Students will learn about the role of a software architect in creating an extensible and maintainable software solution by applying abstract knowledge and patterns to software architecture, and design.

The traditional role of a software architect will also be critically assessed in the face of agile development methodologies and the adoption of tools, and practices that avoid or decouple up front systems or architectural design.

The programme is taught by industry and academic experts who are either practicing software architects, senior technical architects or research active academics in the field.

ONLINE

This programme is delivered exclusively online.

Contact us

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MTU
Ollscoil Teicneolaíochta na Mumhan
Munster Technological University

Department of Computer Science

The Department of Computer Science at MTU Cork 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 in the region. 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.

Background

Software Architecture spans a number of pillars which include the application, system, software and enterprise. Application architecture represent the fundamental building blocks of software and at this layer an architect needs to make decisions about the programming language, the constructs, libraries and frameworks that will be used to develop software.

It is rare that an application lives in isolation and typically a system is composed of multiple collaborating applications. At this system level, software architects focus on issues such as reliability, interoperability and integration.

Software architecture is also concerned with the significant elements of the software system from the structure and design of the code to deployment of that code to the live environment. At this layer, a software architect will focus on security, reliability, authentication, performance etc. Across these pillars, software architects make architectural decisions that shape a system and design decisions to ensure his/her vision is realised.

Software Architecture & Design (MSc)

The programme will provide students with the principles and concepts involved in the analysis and design of large software systems. The programme was developed with significant input from industry's leading experts.

The programme is focused on developing a holistic view, seeing the bigger picture to understand how a software system works as a whole. This approach helps to differentiate software development and software architecture, it also helps to understand how one can progress from a software developer role to a software architect role.

Programme Structure

The programme places significant emphasis on student learning by doing. It adopts a practical, hands-on, approach to learning, where all modules are fully assessed using continuous assessment methods. There are no formal end of semester written examinations and this ensures that you will learn by doing from the first module to the last.

This 60-credit part-time online programme is delivered exclusively online over 24 months. Each semester has a number of mandatory modules and a choice of electives as outlined below.

Semester 1 (Autumn - Year 1)	Type	Credits
Software Architecture & Design	Mandatory	5
Software Agility	Mandatory	5
Programming Language Design	Elective 1	5
Cloud Automation & Orchestration	Elective 2	5

Semester 2 (Spring - Year 1)	Type	Credits
Scalable Microservices	Mandatory	5
Research Practice & Ethics	Mandatory	5
Source Code Analysis	Elective 1	5
Programming Language Design	Elective 2	5

Semester 3 (Autumn - Year 2)	Type	Credits
Big Data Processing	Mandatory	5
Natural Language Processing	Elective 1	5
Decision Analytics	Elective 2	5

Semester 4 (Spring - Year 2)	Type	Credits
Research Project	Mandatory	20

Graduates may also wish to continue to PhD level in this exciting field of study.
Detailed module descriptors can be viewed at https://cs.cit.ie/sad-schedule.
You can apply for the programme online at https://cs.cit.ie/sad.
Recognition of Prior Learning information is available at https://www.cit.ie/rpl.