



# MSc in Software Solutions Architecture Primarily (ONLINE)

## Building the Future...one byte at a time

**An exciting part-time programme to give current and potential Software Architects the skills, theory and recognition they need to develop in their role. For the first time candidates can gain a full Masters of Science degree in this specialist area through a mixed learning process with an emphasis on practical application in the workplace.**

### Why this programme?

Software architects need to be technical experts, but they also need a sound sense of business and technical strategy and be good leaders, listeners and planners. Crucially they need to be able to communicate the architecture to multiple stakeholders, and be effective influencers to ensure the ongoing success of the architecture.

The evolution of this critical role has been rapid and only recently has attention been paid to setting standards and devising relevant education and training programmes to build the various skills needed to adequately fill the role.

Most software architects grow or develop into their role with no formal standards, certification or training in the practice of software architecture. They are usually highly skilled, competent and high performers but many express a need for recognition of their role in the form of an accredited academic qualification with opportunities for developing and expanding their skill sets and creating the prospect for long-term progression along their career path. Equally companies are keen to retain these highly skilled employees and develop an Architecture capability pipeline as well as preparing new or prospective software engineers to be successful in an Architect's role.

## What is the Aim?

The part-time programme which started in 2016 gives current and potential software architects the skills, theory and recognition they need to develop in their role. Candidates can gain a full Masters of Science degree in this specialist area through a blended learning process with an emphasis on practical application in the workplace.

Graduates of the programme develop knowledge, skills and attributes around human dynamics, business, technology and strategy, IT Architecture, IT Quality Attributes and Environments which will support them in roles as IT Architects. The programme also equips them to carry out applied research in topics at the cutting edge in this field.

## Programme Partners

Technology Ireland ICT Skillnet analysed these challenges and its Steering Group developed a programme concept based on the outputs of a workshop session in with representatives from four member companies, Cisco, IBM, Ericsson and Fidelity. This led to a public tendering process out of which a consortium comprising the Irish Computer Society (ICS), Institute of Technology Tallaght (ITT) and the International Association of Software Architects (IASA) was appointed to deliver the new MSc in Applied IT Architecture.

*"This programme is an ideal solution to the growing demand by companies to retain these highly skilled employees and develop an Architecture capability pipeline,"* said Technology Ireland Director Paul Sweetman. *"It will also enable them to prepare new or prospective software engineers to be successful in an Architect's role."*

Barry Feeney, Head of Computing, TUD (Tallaght Campus), said:

*"We believe this course can be a major contributor to keeping Irish IT Architects at the forefront of global computing. Most current software architects have grown into their role with no formal certification or academic qualification in the practice of software architecture."*

Jim Friars, CEO of the Irish Computer Society says:

*"We are very proud to partner with Technology Ireland ICT Skillnet and TUD (Tallaght Campus) this programme fits right in with what we are doing in trying to professionalise the IT Industry and to provide Continuing Professional Development programmes to support progressive professions like Software Architecture. These people design the systems that run our health/ public service*

*administration, our online shopping, our social media platforms and our online banking, it is incredibly important that they are properly qualified. Through our partners in Iasa Ireland we believe we can support IT architects throughout their careers and this course is the first step to formalising that knowledge."*



## A Participants' Experience

Rory Cawley has completed the first year of the course and says it has already helped him bring new skills to his job as Principal Implementation Consultant with Qualtrics a hypergrowth startup company. Rory is also a Dad so he has few free gaps in his schedule and was concerned that doing this new part-time Masters might prove challenging. He says that he *"found that the programme was a carefully curated set of courses that were both complementary and challenging. I found the online live lectures to be convenient and the continuous assessment to be a lifesaver since it avoided having to submit a slew of coursework at the end. I can remember thinking lots of times that some of the assignments were 'impossible' but the great support allowed me to cross that chasm of understanding. I'm glad to say I've gotten my schedule to adapt to the demands of the MSc and I'm excited to be bringing new skills to my job. I'd recommend this masters to anyone looking to get to the next stage in their software career."*



## Programme Outline

The programme has seven modules with a major research project as follows:

**Module 1** – IT Architecture Design

**Module 5** – IT Architecture Quality Attributes

**Module 2** – IT Environment

**Module 6** – IT Architecture in Practice

**Module 3** - Business Technology Strategy

**Module 7** – Research Methods

**Module 4** – Human Skills for the IT Architect

YEAR 1	Semester 1	Human Dynamics 10 Credits	IT Arch. Design 10 Credits	Quality Attributes 10 Credits
	Semester 2	Business & Tech. Strategy 10 Credits	IT Environment incl Dev/Ops Aspects 10 Credits	
YEAR 2	Semester 3	Architecture in Practice 10 Credits	Research Methods 5 Credits	
	Semester 4	Research Project 25 Credits		

The **Research Project** component, to be conducted in-company and addressing a relevant real-world problem or issue, will be formulated as a Research Question, then executed as a Project, with the outcome written up as a Dissertation of c. 15,000 words. The Project will need to demonstrate a full engagement with the program content and with relevant academic sources so that the outcome is a valid piece of Research appropriate to a Masters (NFQ Level 9) qualification. ITT and in-company members will guide and supervise the Project and the Research Methods Module is designed to prepare and develop the participant's ability to complete this element.

## Innovative Learning Strategies

The programme will start with a 3 day workshop which will involve all participants being physically present. This is seen as important to facilitate networking, experience sharing and group learning.

There is a strong awareness of the constraints on architects' time, particularly time spent off-site. It is expected that lectures will be delivered one evening per week in term time and every 3-4 weeks there may be a requirement to hold lectures twice in that week. There will also be a requirement to attend one on-campus day at the end of each semester.

Lectures will be streamed live from ITT and will be available for download and offline viewing. The award structure will place greater emphasis on continuous assessment, practical and project work rather than on formal examinations. In fact there are only 2 modules that carry an actual exam.

The course uses role plays to illuminate architecture best practice by posing specific design problems derived from case studies and conducting group based workshops to address them. The examination of spectacular Architecture successes and failures and the sharing of experiences through presentation and case study by the participants themselves is very much part of the process. There will be an equal emphasis in assessment between achieving grades in continuous assessments/assignments as well as in examinations.

## Cross Certification

Because of the involvement of the International Association of Software Architects (IASA) in the delivery of the programme the prospect of allowing participants to qualify for some or all of the IASA Certification in Software Architecture (CITA) certifications at Foundation (CITA/F), Associate (CITA/A) and Professional (CITA/P) levels is being actively explored.



## Participant Eligibility

Prospective participants must either (a) be serving in the role of software architect, or (b) be aspiring to move into such a role. All participants must be resident in the Republic of Ireland and have substantial experience of IT software and systems development and implementation in team and technical leading roles. They must also have current competence to interact with development teams at a deep technical (i.e. specification and coding) level.

Applicants should have a primary degree (Level 8) in Computer Science or a cognate/science discipline. Those who do not meet this requirement will be considered on their merits if they can show a particular interest or aptitude for this area of work or if they have significant industry experience and training which shows evidence that their education and work experience is sufficient to meet the education needs of the programme and recruitment policies of the College.

## How to Apply

Applicants should submit their CV directly to Technology Ireland ICT Skillnet at [info@ictskillnet.ie](mailto:info@ictskillnet.ie). Participants will be required to complete registration details both for Technology Ireland ICT Skillnet and for Technological University Dublin (Tallaght Campus). Participants will become registered students of TUD (Tallaght Campus) and be awarded free membership of IASA.

## Further information

For further information on this programme please visit our website [www.ictskillnet.ie](http://www.ictskillnet.ie)

## Fees

Successful candidates may be eligible for the part funded fees per annum, provided they are working in private or commercial semi state organisations registered in the Republic of Ireland.

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