Advance Centre
Professional Education
for Digital Transformation

Learning
Without
Limits

Provided by

University College Dublin
Ireland's Global University
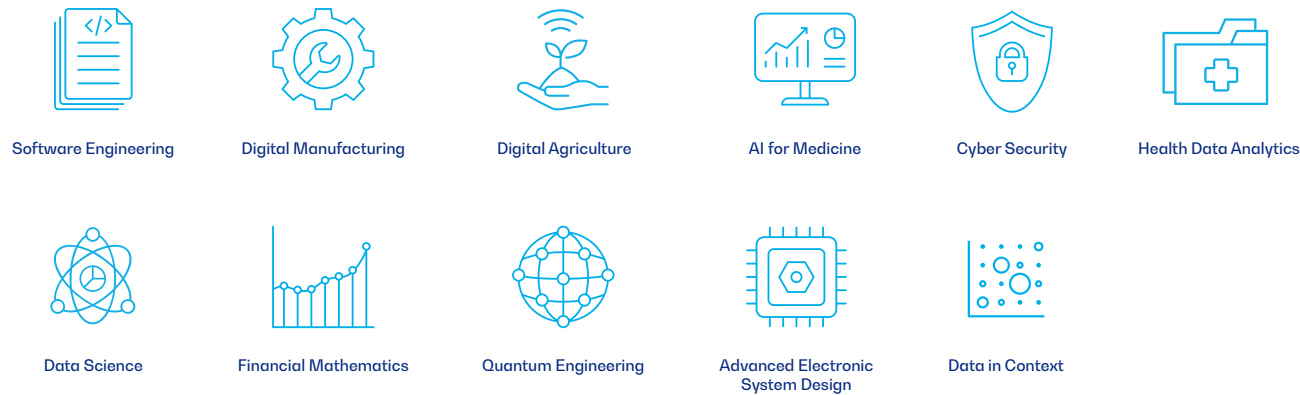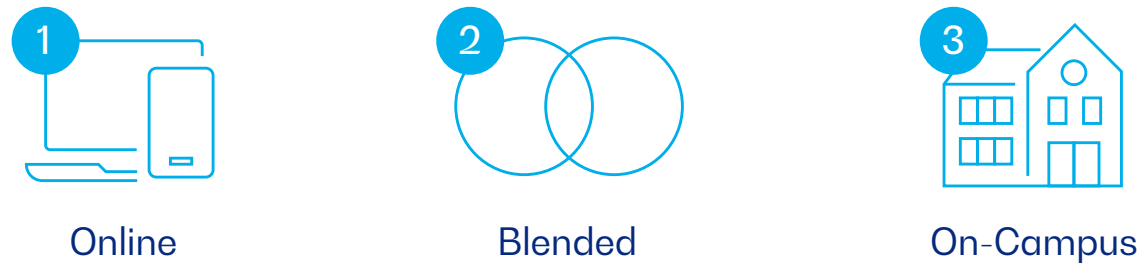
Atlantic
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OLLSCOIL TEICNEOLAÍOCHTA
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Course Themes

Software Engineering

Digital Manufacturing

Digital Agriculture

AI for Medicine

Cyber Security

Health Data Analytics

Data Science

Financial Mathematics

Quantum Engineering

Advanced Electronic System Design

Data in Context

Study options available

1 Online

2 Blended

3 On-Campus

Accredited programmes

| LEVEL 6 | Higher certificate | Advanced certificate |

| LEVEL 7 | Ordinary Bachelor Degree |

| LEVEL 8 | Honours Bachelor Degree | Higher Diploma |

| LEVEL 9 | Masters Degree | Post Graduate Diploma |

| LEVEL 10 | Doctoral Degree | Higher Doctorate |

Our aim

The Advance Centre brings together academic experts and industry leaders from across the high-tech sector with the common goal of delivering a portfolio of modules and courses addressing Irish industry's future skills needs in the digital arena.

A key goal of the Centre is to support upskilling professional learners seeking flexible study options alongside fulltime students.

For upskilling professional learners, the Centre provides flexible, high quality, industry relevant, accredited courses (QQI Levels 6-9) delivered by the top STEM colleges in Ireland working in association with key industry and enterprise partners, thus providing exceptional learning and career opportunities to meet the needs of the future world of work.

Ways to study:

· Modular Study

· Part-time Degrees

· Full-time Degrees

Advance modular study

Advance Modular Study is for you if you:

are in full-time employment and want to study part-time

have a primary degree

want to upskill on a specific topic

don't want to commit to a part-time degree programme

want to see if part-time study works for you with a view to starting a part time degree course in future years

want to learn from experts in the field

want a pathway to a part-time degree programme

want the recognition of completing a European Credit Transfer and accumulating (ECTS) on a creditbearing module

As an Advance Centre Learner on UCD modules, you are a fully registered UCD student, with a student card, and access to all of the facilities and supports available to other students. ADVANCE Modular Study allows participants to take individual modules from the Centre's catalogue according to their learning needs and availability.

Most modules are online so that you can fit study around your work and life. Previous completed modules may be used as recognition of prior learning towards Advance degree programmes.

Modules are taught and validated by UCD, ATU Sligo & TU Dublin. Modules range from National Framework of Qualifications (NFQ) levels 6-9.

Modules

How does it work?

Most modules require a 2.2 degree in a related discipline or equivalent professional experience. 5-credit modules are typically 1 trimester (15 weeks) in duration and involve 125 hours of student work in the case of study-forcredit.

How are modules assessed?

Typically assessment is a mix of continuous assessment in the form of assignments and class tests or examinations. For more information, click on the module name in the catalogue to view the Module Details.

What modules are available?

You can browse the full catalogue of pilot modules available on the Advance centre website at: **advancecentre.ie**

How are modules delivered?

Most modules are provided online meaning that all lectures and tutorials are provided remotely via the Internet. Some modules with the laboratory components are blended, typically meaning that the labs are in-person on-campus while the lectures and tutorials are online.

How much are the fees?

The fees for 5-credit and 10-credit UCD modules are €875 and €1750, respectively. The fees for 5-credit (level 6-7) ATU Sligo modules are €550.
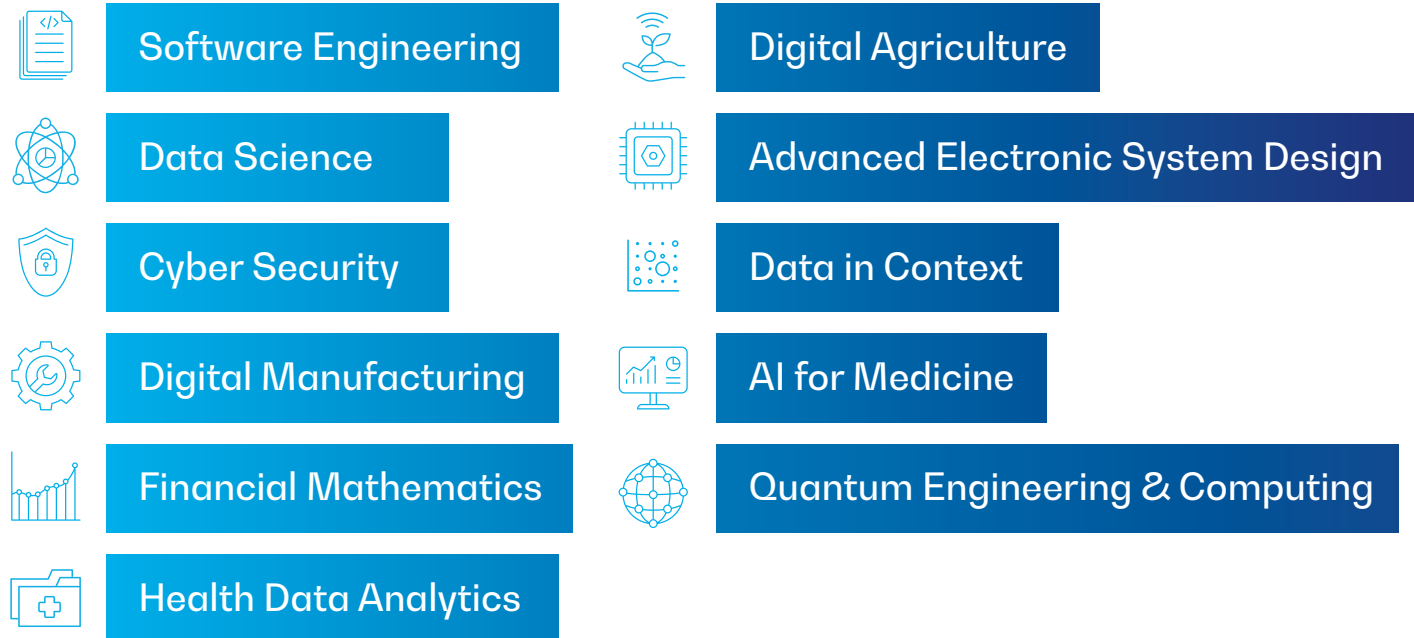
How can I book?

Prospective participants should apply by clicking on the "Apply" link in the catalogue.

For further information contact info@advancecentre.ie

Our courses

Software Engineering		Digital Agriculture	
Data Science		Advanced Electronic System Design	
Cyber Security		Data in Context	
Digital Manufacturing		AI for Medicine	
Financial Mathematics		Quantum Engineering & Computing	
Health Data Analytics			

Corporate education

Advance Corporate Education engages with companies to develop integrated Continuing Development Programmes (CPD) that recognise in-company training and Advance Centre study.

Advance Corporate Education is for you if you:

- want to integrate Advance Centre modules or courses with your company's CPD programme.

- want the Advance Centre to develop tailored modules or educational programmes for you company.

- want to recognise in-company training and project work as part of an accredited Advance Centre programme.

Please email us at
info@advancecentre.ie or visit
www.advancecentre.ie/corporateeducation

Available Digital Transformation Courses

Explore our ⟶ available courses

Advance
Centre
Professional Education
for Digital Transformation

Advanced Electronic System Design

Title	Code	HEI	NFQ	Delivery	Next Start
Wireless Systems	EEEN40050	UCD	9	Blended	Sep 22
Advanced Signal Processing	EEEN40130	UCD	9	Blended	Sep 22
RF Electronics	EEEN40150	UCD	9	Blended	Sep 22
Power Electronics Technology	EEEN40310	UCD	9	Blended	Sep 22
Analogue Integrated Circuits	EEEN40570	UCD	9	Blended	Sep 22
Optimisation Techniques	EEEN40580	UCD	9	Blended	Sep 22
Digital RF	EEEN40610	UCD	9	Blended	Sep 22
Optoelectronics	EEEN40640	UCD	9	Blended	Sep 22
Applied Quantum Mechanics	PHYC40020	UCD	9	Online	Sep 22
Data Science in Python (MD)	COMP47670	UCD	9	Blended	Sep 22
Structured Digital Design and Simulation 1	SDDS H6000	TU Dublin	9	Blended	Sep 22
EMC and Transmission Modelling	TBC	TU Dublin	9	Blended	Sep 22
Machine Learning using Python	TBC	TU Dublin	9	Blended	Sep 22
Digital Communications	EEEN40060	UCD	9	Blended	Jan 23
Power System Design	EEEN40090	UCD	9	Blended	Jan 23
Applications of Power Electronic	EEEN40120	UCD	9	Blended	Jan 23
Digital & Embedded Systems	EEEN40280	UCD	9	Blended	Jan 23
Mixed-Signal Integrated Circuits	EEEN40600	UCD	9	Blended	Jan 23
Optical Engineering	EEEN40630	UCD	9	Blended	Jan 23

Artificial Intelligence for Medicine

Title	Code	HEI	NFQ	Delivery	Next Start
High Throughput technologies	MDCS42220	UCD	9	Blended	Sep 22
Biological Princpl & Cellular Org	ANAT40040	UCD	9	Blended	Sep 22
Professional Skills & Career Development	MDCS42210	UCD	9	Blended	Sep 22
Medical Research Design, Regulations & Ethics	MDCS42240	UCD	9	Blended	Sep 22
Data Programming with R	STAT40620	UCD	9	On Campus	Sep 22
Data Programming with R (online)	STAT40730	UCD	9	Online	Sep 22
Data Prog with Python	STAT40800	UCD	9	Online	Sep 22
Clinical Information and Decision Support	PHPS41040	UCD	9	On Campus	Sep 22
Intro to Genetic Epidemiology	PHPS40880	UCD	9	Online	Sep 22
Med Research design, regs, eth	MDCS42240	UCD	9	Blended	Sep 22
Prof. Skills & Career Develop.	MDSA40280	UCD	9	Blended	Sep 22
Python for the Life Sciences	MEIN40310	UCD	9	Blended	Sep 22
Medical Records	MEIN40050	UCD	9	Blended	Sep 22
Life Science Machine Learning Aut	MEIN40370	UCD	9	Blended	Sep 22
Data Mining For Life Sciences Aut	MEIN40380	UCD	9	Blended	Sep 22
High Throughput technologies	PATH40080	UCD	9	Blended	Jan 23
Statistics for Human Genomics	PHPS40870	UCD	9	Online	Jan 23
Intro to Genetic Epidemiology	PHPS40880	UCD	9	Online	Jan 23
Statistical Machine Learning (online)	STAT40750	UCD	9	Online	Jan 23
Data Mining for Life Sciences	MEIN40290	UCD	UCD	Blended	Jan 23
Life Sciences Machine Learning	MEIN40300	UCD	UCD	Blended	Jan 23

Artificial Intelligence for Medicine (continued)

Title	Code	HEI	NFQ	Delivery	Next Start
Precision Oncology	PATH40060	UCD	UCD	Blended	Jan 23
Precision Medicine in Infectious disease	PHPS41100	UCD	UCD	On Campus	Jan 23
Interoperability, Standards, Introduction to XML	MEIN40090	UCD	UCD	Blended	Jan 23

Data Science

Title	Code	HEI	NFQ	Delivery	Next Start
Intro Data Analytics	STAT40720	UCD	9	Online	Sep 22
Data Prog with R	STAT40730	UCD	9	Online	Sep 22
Data Prog with Python	STAT40800	UCD	9	Online	Sep 22
Predictive Analytics I	STAT40790	UCD	9	Online	Sep 22
Monte Carlo	STAT40820	UCD	9	Online	Sep 22
Time Series	STAT40860	UCD	9	Online	Sep 22
Machine Learning	COMP09012	ATU Sligo	9	Online	Sep 22
Applied Linear Algebra	MATH09003	ATU Sligo	9	Online	Sep 22
Data Analytics and Visualisation	COMP09014	ATU Sligo	9	Online	Sep 22
Statistical Machine Learning (online)	STAT40750	UCD	9	Online	Jan 23
Bayesian Analysis (online)	STAT40850	UCD	9	Online	Jan 23
Multivariate Analysis (online)	STAT40740	UCD	9	Online	Jan 23
Machine Learning and AI	STAT40970	UCD	9	Online	Jan 23
Inference for Data Analytics (online)	STAT30280	UCD	9	Online	Jan 23
Adv Pred Analytics (online)	STAT40770	UCD	9	Online	Jan 23
Applied Statistics and Probability	MATH09004	ATU Sligo	9	Online	Jan 23
Prog for Big Data	COMP09014	ATU Sligo	9	Online	Jan 23
Introductory Programming for Data Science (sem 1)	COMP09016	ATU Sligo	9	Online	Jan 23

Digital Agriculture

Title	Code	HEI	NFQ	Delivery	Next Start
Hyperspectral Imaging	BSEN40500	UCD	9	Blended	Sep 22
Precision agriculture	BSEN30210	UCD	8	Blended	Jan 23
Precision livestock management	BSEN40510	UCD	9	Blended	Jan 23
Sensors and sensing systems	BSEN30520	UCD	8	Blended	Jan 23
Optical Sensing Technology	BSEN40520	UCD	9	Blended	Jan 23
Numerical methods for agriculture	BSEN30530	UCD	8	Blended	Jan 23
Statistical Machine Learning (online)	STAT40750	UCD	9	Online	Jan 23
Inference for Data Analytics (online)	STAT30280	UCD	9	Online	Jan 23
Introduction to Animal Science	ANSC10010	UCD	9	Blended	Jan 23
Introduction to Crop Science	CPSC10010	UCD	9	Blended	Jan 23
Principles of Crop Science	CPSC20030	UCD	9	Blended	Jan 23
Fundamentals of Arable Crop Production	CPSC20020	UCD	9	Blended	Jan 23
Climate, Carbon and Soil	AESC30230	UCD	9	Blended	Jan 23
Soil Resources	AESC40250	UCD	9	Blended	Jan 23
Root & Alternative Crop Production	CPSC30030	UCD	9	Blended	Jan 23

Digital Manufacturing

Title	Code	HEI	NFQ	Delivery	Next Start
Introduction to Mfg Simulation & Robotics	MEEN41070	UCD	9	Blended	Sep 22
Supply Chain Design & Analysis	MEEN40790	UCD	9	On Campus	Sep 22
Engineering Operations Management	MEEN40260	UCD	9	Blended	Sep 22
Systems Analysis & Improvement	MEEN41120	UCD	9	On Campus	Sep 22
Decision Analysis	MEEN40360	UCD	9	Blended	Sep 22
Human Resource Management	HRM40100	UCD	9	Blended	Sep 22
Marketing for Engineering Managers	MEEN40830	UCD	9	Blended	Sep 22
Six Sigma 1 - Intro to Lean Sigma Quality	QLTY07030	ATU Sligo	9	Online	Sep 22
Quality Management Systems	QLTY07024	ATU Sligo	9	Online	Sep 22
Mathematics and Statistics	MATH07017	ATU Sligo	9	Online	Sep 22
Control Systems 301	MECT07024	ATU Sligo	9	Online	Sep 22
Supervisory Control and Data Acquisition	MECT07029	ATU Sligo	9	Online	Sep 22
Programming Communications and Interfacing	MECT06018	ATU Sligo	9	Online	Sep 22
Instrumentation 1	MECT06013	ATU Sligo	9	Online	Sep 22
Pneumatic / Electro-Pneumatic and Hydraulic Systems	MECT06017	ATU Sligo	9	Online	Jan 23
Electronics for Sensors/Cyber Physical Systems	EEEN3xxxx	UCD	9	Online	Jan 23
Operations Management	MEEN41100	UCD	9	On Campus	Jan 23
Quality Mgt	MEEN40270	UCD	9	Blended	Jan 23
Six Sigma Quality Management	MEEN50020	UCD	9	Blended	Jan 23
Engineering Project Management	MEEN40310	UCD	9	Blended	Jan 23
Business System Design	MEEN40300	UCD	9	On Campus	Jan 23
Engineering Cost Analysis	MEEN40730	UCD	9	Blended	Jan 23
Online Technical Communications	MEEN40820	UCD	9	Online	Jan 23
Behaviour, Leadership & Change	BMGT44260	UCD	9	Blended	Jan 23
Managing Negotiations	MEEN40950	UCD	9	On Campus	Jan 23
Corporate Intrapreneurship - Creating Growth Strategies	MEEN40940	UCD	9	On Campus	Jan 23
Operations Strategy	MEEN40280	UCD	9	On-Campus	Jan 23
Six Sigma 1 - Intro to Lean Sigma Quality	QLTY07030	ATU Sligo	7	Online	Jan 23
Six Sigma 2 - Statistical Control	QLTY07022	ATU Sligo	7	Online	Jan 23
People Management in Practice	HRM07018	ATU Sligo	7	Online	Jan 23
Production Management	MGMT07040	ATU Sligo	7	Online	Jan 23
Six Sigma 3 - Project	PROJ07024	ATU Sligo	7	Online	Jan 23
Applied Statistical Improvement	QLTY07023	ATU Sligo	7	Online	Jan 23
Automation Programming	MECT06023	ATU Sligo	6	Online	Jan 23
Instrumentation 2	MECT06012	ATU Sligo	6	Online	Jan 23

Financial Mathematics

Title	Code	HEI	NFQ	Delivery	Next Start
Measure Theory & Integration	MATH40790	UCD	9	Online	Sep 22
PDE for Financial Mathematics	ACM 30120	UCD	8	Online	Sep 22
Stochastic Calculus	MATH40780	UCD	9	Online	Jan 23

The information contained in this booklet is accurate at the time of print and may be subject to change.
Please refer to our website **www.advancecentre.ie** for the most up to date course information.

Health Data Analytics

Title	Code	HEI	NFQ	Delivery	Next Start
Information Governance in Health	PHPS41050	UCD	9	Blended	Jan 23
Systems Implementation in Health	PHPS41070	UCD	9	Blended	Jan 23
Patient Reported Outcomes	PHPS41160	UCD	9	Online	Sep 22
Medical Devices and Connectivity	PHPS41060	UCD	9	Online	Sep 22
Corporate Systems in Health	TBC	UCD	9	Online	Sep 22
Introduction to Knowledge Synthesis, Systematic Reviews & Meta-analysis	PHPS40980	UCD	9	Online	Sep 22
Software skills for health data analytics	TBC	UCD	9	Online	Sep 22
Introduction to Biostatistics	PHPS41150	UCD	9	Online	Sep 22
Biostatistics II	PHPS40460	UCD	9	Online	Jan 23
Introduction to Genetic Epidemiology	PHPS40880	UCD	9	Online	Jan 23
Clinical Trials	PHPS40970	UCD	9	Online	Jan 23
Health Technology Assessment	PHPS41120	UCD	9	Online	Jan 23
Systematic Reviews and Meta-analysis	PHPS40990	UCD	9	Online	Jan 23

Software Engineering

Title	Code	HEI	NFQ	Delivery	Next Start
High Performance Computing	COMP40730	UCD	9	Online	Sep 22
Comparative Software Eng Process Frameworks	MIS40850	UCD	9	Online	Sep 22
Agent-Oriented Software	COMP40040	UCD	9	Online	Jan 23
Knowledge-based Techniques for Industrial Systems	COMP40080	UCD	9	Online	Jan 23

Degree Programmes

The Advance centre also offers the opportunity for students to progress to a full degree award if they wish via a range of degree programmes (subject to meeting eligibility criteria).

An Advance degree is for you if you wish to study for an accredited Level 7, 8 or 9 qualification, and want the flexibility of accessing a certificate, diploma or Masters qualification to become an expert in your field.

For further information on application, fees, start dates and assessment, please email us at **info@advancecentre.ie** or visit **advancecentre.ie/parttime.html** or **www.advancecentre.ie/courses/**

Title	Code	HEI	NFQ	Delivery	Next Start
BSc in Manufacturing Management	SG_EMANM_J07	ATU Sligo	7	Online	Sep 22
BSc in Quality	SG_SQUAL_J07	ATU Sligo	7	Online	Sep 22
BSc (Hons) in Quality Management and Technology	SG_EQLTY_K08	ATU Sligo	8	Online	Sep 22
MSc in Quality	SG_EQLTY_M09	ATU Sligo	9	Online	Sep 22
Professional Diploma in Electronic Design	T362	UCD	9	Blended	Sep 22
Professional Diploma in Electronic Design	T360	UCD	9	Blended	Jan 23
MSc Advanced Software Engineering	T347	UCD	9	Online	Sep 22
ME Management	T169	UCD	9	Blended	Sep 22
MSc Data Analytics	F084	UCD	9	Online	Sep 22
MSc Artificial Intelligence for Medicine & Medical Research	X929	UCD	9	On Campus	Sep 22
Professional Diploma in Operational Excellence	T365	UCD	9	Blended	Sep 22
Professional Diploma in Operational Excellence	T366	UCD	9	Blended	Jan 23
MSc Digital Agriculture (full-time/part-time)	T363/364	UCD	9	Blended	Jan 23

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