

Centre for Doctoral Training in Advanced Metallic Systems

Overview

The Centre for Doctoral Training in Advanced Metallic Systems (AMSCDT) is a joint venture between Dublin City University, University College Dublin, University of Sheffield, and University of Manchester. AMSCDT provides high quality training to the next generation of globally competitive doctoral level graduates with the knowledge, skillset, and mindset to lead the future Ireland advanced manufacturing industry. All of our students have an industrial sponsor. It is an opportunity for the students to drive a research project tailored to real world technical challenges, with access to world-class research facilities and expertise. The AMSCDT PhD programme is different to a standard doctoral programme, combining taught technical units with an industrially prescribed doctoral project and professional skills training.

The first part of the training programme is designed to support the conversion of graduates from STEM into materials science and metallurgy, developing core materials knowledge in simulation and modelling techniques and advanced manufacturing technologies, in the first 9 months. Our comprehensive Personal and Professional Skills training programme over the 4-year programme accelerates students' research, leadership, and employability skills, and is led by the University of Sheffield. At 48 ECTS the training programme includes scientific writing and presentations, project management, Equality Diversity and Inclusion, Responsible Research and Innovation, Outreach/Media, Standards, Codes and Specifications, interpersonal and networking skills. By delivering training to the cohort our students have a wider awareness of the metals sector, evidenced by our alumni destinations, with >96% of our graduates securing a senior role in metallurgy in industry or academia.

Selection and Registration

Dublin City University Students following the structured pathway must attain a minimum of 20 credits in accordance with the university structured PhD Requirements. Students should complete two modules of the four modules offered in Year One, of Semester One. The remaining 5 credits will be attained through a compulsory COMP47670 Data Analytics (5 ECTS) module delivered and assessed by UCD. Students should register for their approved GTE modules during the online registration process.

Progression

The Structured Pathway work plan for each student should be discussed and agreed in the first instance with the Supervisor and progress (including confirmation of completion of the Online Research Integrity Training Module and other modules) recorded on the annual PGR2 form.

Induction and Training

First-year students are also required to take the Online Research Integrity Training module during year one of their studies and are expected to attend orientation sessions, the GSO - and library-run programmes and other relevant induction sessions at the time of initial registration.

Research students are also encouraged to take advantage of additional training opportunities offered by the Graduate Studies Office as appropriate throughout their period of study.

Structured Doctoral Pathway 2022-23

Core Discipline Specific Modules

(30 ECTS)

YEAR 1 Semester 1
(all units compulsory)

University of Sheffield

MAT61005 Phase Transformations & Solidification (4 ECTS)

MAT61002 Structure & Mechanical Properties (4 ECTS)

MAT61001 Advanced Modelling Techniques (2 ECTS)

University College Dublin

COMP47670 Data Analytics (5 ECTS) Online

YEAR 1 Semester 2
(Choose 2 of 5)

Dublin City University

MM532 Computational Thermo-Fluid (7.5 ECTS)

MM600 Labview Data Acquisition, Analysis and Control (10 ECTS)

MM555 Manufacturing Process Analysis and Tool Design (7.5 ECTS)

MM602 Additive Manufacturing (7.5 ECTS)

MM603 (NEW) Data Analysis for Advanced Manufacturing (5 ECTS)

Core Transferable Skills Modules

(48 ECTS)

(all units compulsory)

University of Sheffield

Year 1

MAT6299 Mini Research Project (12 ECTS)

MAT6294 Transformative Technologies (4 ECTS)

MAT61004 Modern Research Environment (4 ECTS)

AER4447 Industrial Training Programme (8 ECTS)

Year 2

MAT6297 Public Engagement Project (4 ECTS)

FCE6009 Skills in Action (4 ECTS)

Year 3

MAT6011 SME Consultancy Project (4 ECTS)

MAT6291 Standards, Codes & Specifications (2 ECTS)

Year 4

MAT6398 Science and Engineering in the Media (2 ECTS)

Years 2, 3 & 4

FCE608 Doctoral Communication Skills (4 ECTS)

Non-accredited Training, Workshops and Masterclasses

- Graduate Studies Office Orientation Programme
- First-year students are also required to take the Online Research Integrity Training module during **year one** of their studies.