

Advanced Metallic Systems Centre for Doctoral Training Structured Doctoral Pathway 2020 – 2021

Structured Doctoral Pathway 2020-2021

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 is committed to provide 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 a taught technical programme with an industrially prescribed doctoral project and professional skills training. All students undertake a Postgraduate Diploma in Personal and Professional Skills part time during the PhD which will be awarded by University of Sheffield upon completion of 48 ECTS in soft skills modules. The Diploma includes courses in research- related skills such as scientific writing and presentation, project management and creativity and interpersonal skills. Technical training is provided in the first year which focuses on developing core materials knowledge, modelling techniques, and advanced manufacturing technologies. The research starts with a mini project and initial training in experimental skills leading into the doctoral research carried out in year's two to four.

For AMSCDT Diploma in Personal and Professional Skills, the student must pass 48 ECTS (pass mark is 50%) from technical and soft skills modules. This is awarded by University of Sheffield.

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 semester one. The remaining 5 credits will be attained through a compulsory COMP47670 Data Analytics (5 ECTS) module delivered and assessed by UCD.

First-year students are also required to take the Online Research Integrity Training module during year one of their studies

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Technical Modules (30 ECTS)

YEAR 1 Semester 1

Compulsory

University of Sheffield

- MAT61005 Phase Transformations & Solidification (4 ECTS) Online
- MAT61002 Structure & Mechanical Properties (4 ECTS) Online
- MAT61001 Advanced Modelling Techniques (2 ECTS) Online

University College Dublin

- COMP47670 Data Analytics (5 ECTS) Online

Discipline Specific

YEAR 1 Semester 2 (Choose 2 of 4)

Dublin City University

- MM601 Numerical methods for CFD with OpenFOAM (7.5 ECTS) Online
- MM600 Labview Data Acquisition, Analysis and Control (7.5 ECTS)
- MM555 Manufacturing Process Analysis and Tool Design (7.5 ECTS) Online
- MM602 Additive Manufacturing (7.5 ECTS) Online

Transferable Skills University of Sheffield (48 ECTS)

Postgraduate Diploma in Personal and Professional Skills - Awarded by UOS

University of Sheffield

Year 1

- MAT6299 Mini Research Project (12 ECTS)
- MAT6294 Transformative Technologies (4 ECTS)
- MAT61004 The Modern Research Environment (4 ECTS) Online
- AER4447 Industrial Training Programme (8 ECTS) Online

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)

Year 2-4

- FCE608 Doctoral Communication Skills (4 ECTS)

First-year students are also required to take the Online Research Integrity Training module during **year one** of their studies