General Regulations for Higher Degrees in the Faculty of Engineering and Regulations for Doctoral Training Centres in the Faculty

The content of our courses is reviewed annually to make sure it is up-to-date and relevant. Individual modules are occasionally updated or withdrawn. This is in response to discoveries through our world-leading research; funding changes; professional accreditation requirements; student or employer feedback; outcomes of reviews; and variations in staff or student numbers. In the event of any change the University will consult and inform students in good time and will take reasonable steps to minimise disruption.

REGULATIONS FOR DOCTORAL TRAINING CENTRES IN THE FACULTY OF ENGINEERING

1. The programmes of study within the Faculty shall, subject to any provision in the Regulations for particular programmes of study, extend over:
   (a) one year for both a Master’s Degree and a Postgraduate Diploma for a full-time student, who will complete all components of the programme within the minimum period of study; or
   (b) not less than three consecutive years for a part-time student for a Master’s Degree, who will complete all components of the programme within the three year period; or
   (c) not less than two consecutive years for a part-time student for a Postgraduate Diploma, who will complete all components of the programme within the two year period.

REGULATIONS FOR DOCTORAL TRAINING CENTRES IN THE FACULTY OF ENGINEERING

Regulations are presented in course code order. An alphabetical index of course titles is as follows:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATR80</td>
<td>Machining Science</td>
<td>EngD</td>
</tr>
<tr>
<td>CPER97</td>
<td>Machining Science</td>
<td>EngD</td>
</tr>
<tr>
<td>MECR09</td>
<td>Machining Science</td>
<td>PhD</td>
</tr>
<tr>
<td>MECR91</td>
<td>Machining Science</td>
<td>PhD</td>
</tr>
<tr>
<td>DTNT03</td>
<td>Nuclear Fission</td>
<td>PhD</td>
</tr>
<tr>
<td>MECR92</td>
<td>Resilient Decarbonised Fuel Energy Systems</td>
<td>PhD</td>
</tr>
<tr>
<td>MECR93</td>
<td>Resilient Decarbonised Fuel Energy Systems</td>
<td>EngD</td>
</tr>
<tr>
<td>COMR191</td>
<td>Speech and Language Technologies</td>
<td>PhD</td>
</tr>
<tr>
<td>CIVR103</td>
<td>Water Infrastructure and Resilience (WIRe) (PhD)</td>
<td>PhD FT</td>
</tr>
<tr>
<td>CIVR104</td>
<td>Water Infrastructure and Resilience (WIRe) (PhD)</td>
<td>PhD PT</td>
</tr>
</tbody>
</table>

CIVR103/CIVR104 WATER INFRASTRUCTURE AND RESILIENCE (WIRe) (PhD) (Full-Time/Part Time) (CDT)

(Joint Programme with The University of Cranfield)

For students whose initial registration is in 2019/20.

1. In Year One a student will take 40 credits of CDT-specific training, comprising three technical modules and attendance at the CDT Summer School, each of which comprise 10 credits.

2. In each of Years Two and Three a student will take 10 credits of CDT-specific training, comprising attendance at the annual CDT Summer School.

3. By the end of Year Three a student will accrue an additional 20 credits via completion of two technical modules, each of which comprise 10 credits.

4. In Years One to Four a student will also pursue a programme of research in accordance with the General Regulations for Higher Degrees by Research, and will present a thesis in accordance with those Regulations.

5. In order to proceed to Year Two a student must:
   a) pass not less than 40 credits of CDT-specific training; and
   b) attend and engage with non-credit bearing training and adhere to all standard Sheffield PGR progression rules, as per the Regulations for Higher Degrees by Research.

6. In order to proceed to Year Three a student must:
   a) pass not less than 50 credits of CDT-specific training; and
   b) attend and engage with non-credit bearing training and adhere to all standard Sheffield PGR progression rules, as per the Regulations for Higher Degrees by Research.
7. In order to proceed to Year Four a student must:
   a) pass not less than 80 credits of CDT-specific training; and
   b) attend and engage with non-credit bearing training and adhere to all standard Sheffield PGR progression rules, as per the Regulations for Higher Degrees by Research.

COMR191 SPEECH AND LANGUAGE TECHNOLOGIES (PhD with Integrated PGDip) (Full-Time) (CDT)

For students whose initial registration is in 2019/20.

1. In Year One a student will take
   COM61003 F7 Introduction to Responsible SLT Leadership 15
   COM61004 F7 Introduction to Collaborative Research Practice for SLT 15

   A student will take 45 credits from the following

   COM6012 F7 Scalable Machine Learning 15
   COM6115 F7 Text Processing 15
   COM6502 F7 Speech Processing 15
   COM6509 F7 Machine Learning and Adaptive Intelligence 15
   COM6511 F7 Speech Technology 15
   COM6513 F7 Natural Language Processing 15

   One or more optional modules may be substituted for alternative modules at the discretion of the CDT Director.

2. In Year Two a student will take
   COM61005 F7 SLT Research and Leadership Practice 1: Scientific Foundation 15

3. In Year Three a student will take
   COM61006 F7 SLT Research and Leadership Practice 2: Core Research 15

4. In Year Four a student will take
   COM61007 F7 SLT Research and Leadership Practice 3: Dissemination and Impact 15

5. In Years One to Four a student will also pursue a programme of research in accordance with the General Regulations for Higher Degrees by Research, and will present a thesis in accordance with those Regulations, with the following exceptions:
   a) Confirmation Review, a first attempt of which would normally take place between months 15-18 from a student’s initial date of registration with the CDT. The final decision regarding whether a student may be permitted to pass the Confirmation Review must be taken within 24 months of the student’s initial registration for full-time students; and
   b) minimum period of registration, which in this case will be 3 years.

6. In order to proceed to Year Two a student must:
   a) pass sixty credits in respect of units listed at 1 above; and
   b) adhere to all standard Sheffield PGR progression rules, as per the Regulations for Higher Degrees by Research.

7. In order to proceed to Year Three a student must:
   a) pass COM6962: SLT Research and Leadership Practice 1: Scientific Foundation; and
   b) pass Confirmation Review and adhere to all other standard Sheffield PGR progression rules, as per the Regulations for Higher Degrees by Research.

8. In order to proceed to Year Four a student must:
   a) pass COM6963 SLT Research and Leadership Practice 2: Core Research;
   b) adhere to all standard Sheffield PGR progression rules, as per the Regulations for Higher Degrees by Research.

9. A student who has been awarded sixty credits in respect of units listed at 1 to 4 above and is ineligible for a research award, will be eligible for the award of PGCert in Speech and Language Technologies Leadership (COMT91).

10. A student who has been awarded one hundred and twenty credits in respect of units listed at 1, 2 and 3 above and is ineligible for a research award, will be eligible for the award of PGDip in Speech and Language Technologies Leadership (COMT91).

11. A student who is not eligible for the award of PhD and who has been awarded sixty credits in respect of units listed at 1 above may submit for the award of MPhil with Integrated PGCert in Speech and Language Technologies Leadership (COMR193).

12. A student who is not eligible for the award of PhD and who has been awarded one hundred and twenty credits in respect of units listed at 1, 2 and 3 above may submit for the award of MPhil with Integrated PGDip in Speech and Language Technologies Leadership (COMR193).

DTER03 E-FUTURES (PhD) (Full-Time)
DTET10 PROFESSIONAL SKILLS (PGDip) (Part-Time)

1. In Year One a student will take
   a) FCE6000 F7 Carbon Challenge 5
   FCE6001 F7 Summer School 5
   FCE6003 F7 Introduction to Energy and Professional Skills 60
   FCE610 F7 Personal Effectiveness Skills 10
   b) FCE6004 F7 Mini Project 1 30
   FCE6005 F7 Mini Project 2 30
   FCE6006 F7 Mini Project 3 30

2. In order to proceed to Year Two a student must pass not less than one hundred and sixty credits in respect of units listed at 1(a) and 1(b) above.

3. A student who has been awarded one hundred and twenty credits in respect of units listed at 1(a) (above) and does not proceed to Year Two will be eligible for the award of Postgraduate Diploma in E-futures (DTET01).
4. In Years Two to Four a student will pursue a programme of research in accordance with the General Regulations for Higher Degrees by Research, and will present a thesis in accordance with those Regulations.

5. In Years Two to Four a candidate shall take
   - FCE6007 F7 Skills for Industry 15
   - FCE6009 F7 Skills in Action 10
   - FCE607 F7 Career Skills 5
   - FCE609 F7 Public Engagement Project 10

6. A student will successfully complete the Doctoral Training Centre’s upgrading procedures before progressing to the third year of study.

7. A student who has been awarded one hundred and twenty credits in respect of 1(a) and 5 above will be awarded the Postgraduate Diploma in Professional Skills (DTET10).

MATR50 ADVANCED METALLIC SYSTEMS (Full-Time) (PhD) (DTC)
MATR56 ADVANCED METALLIC SYSTEMS (Full-Time) (EngD) (DTC)

(Joint programme with The University of Manchester)

For students whose registration was in the academic year 2014-15, 2015-16, 2016-17 or 2017-18.

1. In Year One a PhD candidate shall take units listed in 1(a) and (b) below. In Year One an EngD candidate shall take units listed in 1(a) and either (b) or (c) below.

   (a) MAT6292 F7 Structure, Properties and Modelling of Metallic Materials 15
       MAT6511 F7 Phase Transformations in Materials Processing 15
       MAT64571 F7 High Performance Alloys 15
       MAT64601 F7 Materials Performance – Life Cycle Design 15
       MAT6294 F7 Transformative Technologies 10

   (b) MAT6278 F7 Advanced Metals Manufacturing 20
       MAT6299 F7 Mini Research Project and Experimental Skills 30

   (c) MAT6289 F7 Extended Mini Research Project and Experimental Skills 50

*MATS codes denote University of Manchester units

2. In order to proceed to Year Two a PhD candidate must pass one hundred and twenty credits in respect of units listed at 1(a) and (b) above. An EngD candidate must pass one hundred and twenty credits in respect of units listed at 1(a) and either (b) or (c) above.

3. A candidate who has been awarded one hundred and twenty credits as described at 2 above and does not proceed to Year Two:
   (i) shall be eligible for the award of Postgraduate Diploma in Advanced Metallic Systems (MATT104) or
   (ii) may become instead a candidate for the award of MSc Advanced Metallic Systems (MATT121) and in addition to 1 (a) above shall take EITHER 4(a) or 4(b) below:

   a) MAT6278 F7 Advanced Metals Manufacturing 20
      MAT6499 F7 Research Project 90
   b) MAT6599 F7 Research Project 110

4. A candidate who has been awarded sixty credits in respect of 1(a) above and does not proceed to Year 2 shall be eligible for the award of Postgraduate Certificate in Advanced Metallic Systems (MATT123).

5. In Years Two to Four a candidate shall pursue a programme of research in accordance with the General Regulations for Higher Degrees and shall present a thesis in accordance with those Regulations.

6. In Years One to Four a candidate shall take
   a) the Postgraduate Diploma in Personal and Professional Skills (DTMT10).
   b) Units selected from the Advanced Metallic Systems CDT Handbook to the value of a minimum of fifteen credits or an equivalent activity to be approved by the Course Director.
MATR50 ADVANCED METALLIC SYSTEMS (Full-Time) (PhD) (DTC)
MATR56 ADVANCED METALLIC SYSTEMS (Full-Time) (EngD) (DTC)

(Joint programme with The University of Manchester)

For students whose registration was in the academic year 2018-19.

1. In Year One all PhD or EngD candidates shall take the units listed in 1(a).
   In Year One all PhD or EngD candidates with a non-Materials discipline Degree shall take the units listed in 1(b).
   In Year One a PhD or an EngD candidate with a Materials Degree shall take the units listed in 1(c) below.
   In Year One a PhD or an EngD candidate with a Materials Degree shall take one of the units listed in 1(d) below.

   Alternative courses to the same credit value may be substituted at the discretion of the CDT Director.

   (a) MAT6294 F7 Transformative Technologies 15
       MAT6279 F7 Innovative Manufacturing 10
       MAT6299 F7 Mini Research Project and Experimental Skills 30

   (b) MAT6292 F7 Structure, Properties and Modelling of Metallic Materials 15
       MAT6511 F7 Phase Transformations in Materials Processing 15
       MATS64402 F7 Advanced Metals Processing 15
       MATS64502 F7 Superalloys and High Performance Materials 15
       MAT333 F7 Metals 10

   (c) AER4447 F7 Industrial Training Programme 20
       MEC6014 F7 Introduction to MATLAB 5
       MAT6292a F7 Modelling, Heat Transformation and Data Analysis 15
       MATS64662 F7 Research Software Engineering Practice 15

   (d) MATS43102 F7 Advanced Metals Processing 15
       MATS43202 F7 Superalloys and High Performance Materials 15

*MATS codes denote University of Manchester units

2. In order to proceed to Year Two a student will satisfy the requirements of the CDT Academic Progression Committee.

3. A student will successfully complete the Doctoral Training Centre’s upgrading procedures before being upgraded to PhD or EngD status.

4. A candidate who has been awarded one hundred and twenty credits as described at 1 above and does not proceed to Year Two:
   (i) shall be eligible for the award of Postgraduate Diploma in Advanced Metallic Systems (MATT104) or
   (ii) may become instead a candidate for the award of MSc Advanced Metallic Systems (MATT121) and in addition to 1 above shall take:
       MAT6499a F7 Research Project 60

5. A candidate who has been awarded sixty credits in respect of 1 above and does not proceed to Year Two shall be eligible for the award of Postgraduate Certificate in Advanced Metallic Systems (MATT123).

6. In Years Two to Four a candidate shall pursue a programme of research in accordance with the General Regulations for Higher Degrees and shall present a thesis in accordance with those Regulations.

7. In Years One to Four a candidate shall take the Postgraduate Diploma in Personal and Professional Skills (DTMT10).

MATR143 GENERATING RENEWABLE ECONOMIC ENERGY FROM NUCLEAR (GREEN) (PhD with Integrated PGDip in Professional Skills) (Full-Time) (CDT)

(Joint programme with the University of Manchester.)

For students whose initial registration is in 2019/20.

1. In Year One a student will take

   (a) MAT6801 F7 Introduction to the Chemistry and Physics of the Nuclear Fuel Cycle 15
       MAT6802 F7 Materials Science in the Nuclear Fuel Cycle 15
       MAT6804 F7 Environmental Radiochemistry and the Science of Radioactive Waste Disposal 15

   (b) MAT6803 F7 Site Visits, Winter School and Skills Training 15
       MAT61006 F7 Research Skills 1: Foundation Independent Research and Professional Skills 45
       MAT61007 F7 Research Skills 2: Core Independent Research and Professional Skills 45
       FCE6100 F7 Professional Behaviour and Ethical Conduct 0

2. In order to proceed to Year Two a student must pass not less than one hundred and thirty-five credits in respect of units listed at 1 above.

3. A student who does not proceed to Year Two of the PhD may instead be permitted to become a student for the award of MSc Nuclear Science and Engineering (MATT152). In addition they will take:

   MAT6800 F7 Extended Research Project 30

4. A student who does not proceed to Year Two but has been awarded one hundred and twenty credits in respect of units listed at 1 above, including forty-five credits from 1a, will be eligible for the award of PGDip Nuclear Science and Engineering (MATT153). A student who has been awarded one hundred and twenty credits in respect of units listed at 1 above but with fewer than forty-five credits from 1a will be eligible for the award of PGDip Professional Skills (MATT154).

5. In Years Two to Four a student will pursue a programme of research in accordance with the General Regulations for Higher Degrees by Research, and will present a thesis in accordance with those Regulations, with the following exceptions:

   a) Confirmation Review, a first attempt of which would normally take place between months 21-24 from a student’s initial date of registration.
with the CDT. The final decision regarding whether a student may be permitted to pass the Confirmation Review must be taken within 30 months of the student’s initial registration for full-time students; and
b) minimum period of registration, which in this case will be 3 years.

6. In order to proceed to Year Three a student must:
   a) attend and engage with CDT-specific training;
   b) Undertake a first attempt of Confirmation Review and adhere to all other standard Sheffield PGR progression rules, as per the Regulations for Higher Degrees by Research.

7. In order to proceed to Year Four a student must:
   a) attend and engage with CDT-specific training;
   b) Pass Confirmation Review and adhere to all other standard Sheffield PGR progression rules, as per the Regulations for Higher Degrees by Research.

8. A student who is not eligible for the award of PhD, and who has been awarded one hundred and twenty credits in respect of units listed at 1 above may submit for the award of MPhil with Integrated PGDip in Professional Skills (MATR144).

MATR145 ADVANCED METALLIC SYSTEMS (PhD with Integrated PGDip in Personal and Professional Skills) (Full-Time) (CDT)

MATR146 ADVANCED METALLIC SYSTEMS (EngD with Integrated PGDip in Personal and Professional Skills) (Full-Time) (CDT)

(Joint programme with the University of Manchester, University College Dublin and Dublin City University.)

For students whose initial registration is in 2019/20.

MATS codes denote University of Manchester units
COMP codes denote University College Dublin units
MM codes denote Dublin City University units

1a. In Year One a student will take
   COMP47670 F7 Data Science in Python 5
   MAT61001 F7 Advanced Modelling Techniques Part I 5
   MAT61002 F7 Structure and Mechanical Properties 10
   MAT61005 F7 Phase Transformation and Solidification 10

1b. MAT6299 F7 Mini Research Project 30
   MAT6294 F7 Transformative Technologies 10
   MAT61004 F7 The Modern Research Environment 10
   AER4447 F7 Industrial Training Programme 20

1c. 30 credits from the following
   MAT66402 F7 Advanced Metals Processing 15
   MAT66402 F7 High Performance Materials 15
   MAT664662 F7 Research Software Engineering Practice 15
   MM601 F7 CFD with Open Foam 15
   MM600 F7 LabVIEW Data Acquisition, Analysis and Control 15
   MM555 F7 Manufacturing Process Analysis and Tool Design 15
   MM602 F7 Additive Manufacturing 30

2. In Years Two to Four a student will take
   FCE6008 F7 Doctoral Writing Skills 10
   MAT6297 F7 Public Engagement Project 10
   FCE6011 F7 SME Consultancy Project 10
   MAT6291 F7 Standards, Codes and Specifications 5
   MAT6398 F7 Science and Engineering in the Media 5
   FCE6009 F7 Skills in Action 10

Alternative courses to the same credit value may be substituted at the discretion of the CDT Director.

3. In order to proceed to Year Two all students must pass no less than one hundred and fifteen credits in respect of units 1 above, and to include MAT6299.

4. A student who has been awarded sixty credits in respect of units listed at 1 above and does not proceed to Year Two will be eligible for the award of PGCert in Advanced Metallic Systems (MATT150).

5. A student who has been awarded at least one hundred and twenty credits but less than one hundred and eighty credits in respect of units listed at 1 above and is ineligible for a research award, will be eligible for the award of PGDip in Advanced Metallic Systems (MATT149).

6. In Years Two to Four a student will pursue a programme of research in accordance with the General Regulations for Higher Degrees by Research, and will present a thesis in accordance with those Regulations, with the following exceptions:
   a) Confirmation Review, a first attempt of which would normally take place between months 18-21 from a student’s initial date of registration with the CDT. The final decision regarding whether a student may be permitted to pass the Confirmation Review must be taken within 27 months of the student’s initial registration for full-time students; and
   b) minimum period of registration, which in this case will be 3 years for Full Time students.

7. In order to proceed to Year Three a student must:
   a) pass not less than twenty credits in respect of units listed at 2 above.
   b) undertake a first attempt of Confirmation Review and adhere to all other standard Sheffield PGR progression rules, as per the Regulations for Higher Degrees by Research.

8. In order to proceed to Year Four a student must:
   a) attend and engage with CDT-specific training;
   b) pass Confirmation Review and adhere to all standard Sheffield PGR progression rules, as per the Regulations for Higher Degrees by Research.

9. A student who has been awarded one hundred and eighty credits in respect of units listed at 1 and 2 above, who exits the programme early and is ineligible to submit for a research award, will be eligible for the award of MSc in Advanced Metallic Systems (MATT148).

10. A Sheffield PhD student must be awarded one hundred and twenty credits in respect of units listed in 1b and 2 to be eligible for the final award of PhD with Integrated PGDip in Personal and Professional Skills (MATR145). A student who is awarded less than one hundred and twenty credits will be eligible for the final award of PhD Advanced Metallic Systems (MATR148).
DTNT03 NUCLEAR FISSION (PhD) (Full-Time)

(Joint programme with the University of Manchester)

1. In Year One a student will take
   MAT6801 F7 Introduction to the Chemistry and Physics of the Nuclear Fuel Cycle 15
   MAT6802 F7 Materials Science in the Nuclear Fuel Cycle 15
   MAT6803 F7 Site Visits, Winter School and Skills Training 15
   MAT6804 F7 Environmental Radiochemistry and the Science of Radioactive Waste Disposal 15
   MAT6805 F7 DTC Project Rotation 1 45
   MAT6806 F7 DTC Project Rotation 2 45

2. In order to proceed to Year Two a student must pass not less than one hundred and thirty-five credits in respect of units listed at 1 above.

3. A student who has been awarded not less than one hundred and thirty-five credits in respect of units listed at 1 above and does not proceed to Year Two may become instead a student for the award of MSc(Res) Nuclear Fission (DTNT02) and in addition will take
   MAT6800 F7 Extended Research Project 30

4. A student who has been awarded one hundred and twenty credits in respect of units listed at 1 above and does not proceed to Year Two will be eligible for the award of Postgraduate Diploma in Nuclear Fission (DTNT01).

5. In Years Two to Four a student will pursue a programme of research in accordance with the General Regulations for Higher Degrees by Research, and will present a thesis in accordance with those Regulations.

6. A student will not be permitted to complete either a Postgraduate Diploma in Professional Management and Leadership Skills or forty-five credits of the Doctoral Development Programme.

CPER05 ENERGY STORAGE AND ITS APPLICATIONS (PhD) (Full-Time)
CIVR100 ENERGY STORAGE AND ITS APPLICATIONS (PhD) (Full-Time)
EEER100 ENERGY STORAGE AND ITS APPLICATIONS (PhD) (Full-Time)
MATR100 ENERGY STORAGE AND ITS APPLICATIONS (PhD) (Full-Time)

(Joint programme with the University of Southampton)

For students whose registration was in the academic year 2014-15

1. In Year One a student will take
   CPE604 F7 An Introduction to Energy and the Environment 15
   CPE610 F7 Energy Storage CDT Mini-Project 15
   CPE612 F7 Applied Energy Storage 30
   CPE650 F7 Research project (Sheffield) 60
   FEET6019 F7 Energy Storage Applications 30
   PSY6081 F7 The Social Science of Energy Storage 15
   SES6604 F7 Introduction to Energy Technologies, Environment and Sustainability 15

2. Delivered during the second, third and fourth year
   CPE613 F7 Skills in Action 15
   CPE614 Public Engagement 5
   CPE615 Researcher Development 30
   FCE6007 Skills for Industry 15
   FCE610 Personal Effectiveness Skills 10
   FEET6018 Personal & Professional Skills 15
   MEC6314 Innovation Management 10
   MEC6414 Technology Strategy and Business Planning 10
   MEC6428 Professional Responsibility of Engineers 10

3. In order to proceed to Year Two a student must pass not less than one hundred and fifty credits in respect of units listed at 1 above.

4. A student who has been awarded one hundred and eighty credits in respect of units listed at 1 above will be eligible for the MSc in Energy Storage and its Applications (CPET35).

5. A student who has been awarded one hundred and twenty credits in respect of units listed at 1 above will be eligible for the Postgraduate Diploma in Energy Storage and its applications (CPET36).

6. In the event of failure in CPE650 Research project (Sheffield) at the first attempt any resubmission is subject to the approval of the Board of Examiners.

7. A student who has been awarded one hundred and twenty credits in respect of units listed at 1 above will be eligible for the Postgraduate Diploma in Professional and Personal Skills.

8. A student who has been awarded sixty credits in respect of units listed at 1 above will be eligible for the MPhil in Integrated PGDip in Advanced Metallic Systems (MATR149).

9. In Years Two to Four a student will pursue a programme of research in accordance with the General Regulations for Higher Degrees by Research, and will present a thesis in accordance with those Regulations.

For students whose registration was in the academic year 2015-16, 2016-17 or 2017-18

1. In Year One a student will take
   CPE604 F7 Global Energy Systems 15
2. Delivered during the second, third and fourth year

   CPE613  F7  Skills in Action  15
   CPE614  Public Engagement  5
   CPE615  Research Development  20
   FCE6007  Skills for Industry  30
   FCE610  Personal Effectiveness Skills  10
   MEC6314  Innovation Management  10
   MEC6414  Technology Strategy and Business Planning  10
   MEC6428  Professional Responsibility of Engineers  10
   PSY6081  Social Science of Energy Storage  30

3. In order to proceed to Year Two a student must pass not less than one hundred and fifty credits in respect of units listed at 1 above.

4. A student who has been awarded one hundred and eighty credits in respect of units listed at 1 above will be eligible for the MSc in Energy Storage and its Applications (CPET35).

5. A student who has been awarded one hundred and twenty credits in respect of units listed at 1 above will be eligible for the Postgraduate Diploma in Energy Storage and its applications (CPET36).

6. In the event of failure in CPE650 Research project (Sheffield) at the first attempt any resubmission is subject to the approval of the Board of Examiners.

7. A student who has been awarded one hundred and twenty credits in respect of units listed at 2(a) and 2(b) above will be eligible for the Postgraduate Diploma in Integrated Tribology (PhD) (Full-Time).

8. A student who has been awarded sixty credits in respect of units listed at 2(a) above will be eligible for the Postgraduate Certificate in Personal and Professional Skills.

9. In Years Two to Four a student will pursue a programme of research in accordance with the General Regulations for Higher Degrees by Research, and will present a thesis in accordance with those Regulations.

### For students whose registration is in the academic year 2018-19

1. In Year One a student will take

   (a) CPE604  F7  Global Energy Systems  15
   (b) CPE610  F7  Energy Storage CDT Mini-Project  15
   (c) CPE612  F7  Fundamentals of Energy Storage  30
   (d) CPE650  F7  Energy Storage CDT Summer Research Project (Sheffield)  60
   (e) FEE6019  F7  Energy Storage Applications  30
   (f) PSY6018  F7  The Social Science of Energy Storage  15
   (g) SESG6041  F7  Introduction to Energy Technologies, Environment and Sustainability  15

   *SESG and FEEG codes denote University of Southampton units.

2. In Years Two to Four a student can take

   (a) CPE613  F7  Skills in Action  15
   (b) FCE610  Personal Effectiveness Skills  10
   (c) FEE6018  Personal & Professional Skills  15
   (d) MEC6314  Innovation Management  10
   (e) MEC6414  Technology Strategy and Business Planning  10
   (f) MEC6428  Professional Responsibility of Engineers  10
   (g) FCE607  Career Skills  5

   (b) A student can take either
   (c) or

   (c) A student can take either

   (d) CPE614  Public Engagement  5
   (e) or
   (f) Public Engagement  15
   (g) CPE635  CDT Researcher Development  15
   (h) or
   (i) CPE615  CDT Researcher Development  30

3. In order to proceed to Year Two a student must pass not less than one hundred and fifty credits in respect of units listed at 1 above.

4. A student who has been awarded one hundred and eighty credits in respect of units listed at 1 above will be eligible for the MSc in Energy Storage and its Applications (CPET35).

5. A student who has been awarded one hundred and twenty credits in respect of units listed at 1 above will be eligible for the Postgraduate Diploma in Energy Storage and its applications (CPET36).

6. In the event of failure in CPE650 Research project (Sheffield) at the first attempt any resubmission is subject to the approval of the Board of Examiners.

7. A student who has been awarded one hundred and twenty credits in respect of units listed at 2(a) and 2(b) above, students may be eligible for the Postgraduate Diploma in Personal and Professional Skills.

8. A student who has been awarded sixty credits in respect of units listed at 2(a) above will be eligible for the Postgraduate Certificate in Personal and Professional Skills.

9. In Years Two to Four a student will pursue a programme of research in accordance with the General Regulations for Higher Degrees by Research, and will present a thesis in accordance with those Regulations.

### MECR07 INTEGRATED TRIBOLOGY (PhD) (Full-Time)

(Joint programme with the University of Leeds)

1. In Year One a student registered at The University of Sheffield will take

   (a) MEC6907  F7  Tribology Masterclass  0
   (b) MEC6908  F7  Professional Skills  30
   (c) MEC6905  F7  Mini Project - Group  30
   (d) MEC6906  F7  Mini Project – Individual  30

   (b) plus twenty credits from (i)

   (i) MAT3430  F6  Materials for Biological Devices  10
   (ii) MEC4603  F7  Reciprocating Engines  10
   (iii) MEC8429  F7  Mechanical Engineering of Railways  10
   (iv) MEC4400  F7  Advanced Finite Element Modelling  10

   (ii) plus ten credits from (ii)

   (ii) MAT373  F6  Surface degradation and protection  10
   (iii) MAT6336  F7  Surfaces and Coatings  10

   (ii) at (b) above, students may substitute other units with permission of the Programme Manager.

3. A student who has been awarded one hundred and twenty credits in respect of units listed at (1) (a) and (b) above and who does not complete the requirements of the Degree of PhD will be eligible for the Postgraduate Diploma in Integrated Tribology (MEC).

4. Before proceeding to Year Two a student will complete MEC6908 Professional Skills.

5. In order to proceed to Year Two a student will satisfy the requirements of the CDT Academic Progression Committee.

6. A student will successfully complete the Doctoral Training Centre’s upgrading procedures before being upgraded to PhD status.
7. In Years Two to Four a student will pursue a programme of research in accordance with the General Regulations for Higher Degrees by Research, and will present a thesis in accordance with those Regulations.

MECR80 INDUSTRIAL DOCTORATE IN MACHINING SCIENCE (Full Time) (EngD)

ACSR80 INDUSTRIAL DOCTORATE IN MACHINING SCIENCE (Full Time) (EngD)

MATR80 INDUSTRIAL DOCTORATE IN MACHINING SCIENCE (Full Time) (EngD)

CPERXX INDUSTRIAL DOCTORATE IN MACHINING SCIENCE (Full Time) (EngD)

MECR09 MACHINING SCIENCE (Full Time) (PhD)

MECR91 MACHINING SCIENCE (Full Time) (PhD)

MECT07 DIPLOMA IN MACHINING SCIENCE (PG Dip) (Part-Time)

1. In Year One a student will take

(a) MAT61004 F7 Modern Research Environment 10
MEC81001 F7 IDC Personal and Professional Skills Development 10
MGT6256 F7 Managing Complex Projects and Risk Management 20
(b) units to the value of thirty credits from the following
ACS329 F6 Robotics 15
MAT6333 F7 Aerospace Metals 15
MAT6444 F7 Advanced Materials Manufacturing Part 1 15
MEC6405 F7 Experimental Stress Analysis 15
MEC6411 F7 Tribology of Machine Elements 15
MEC6415 F7 Condition Monitoring 15
MEC6440 F7 Advanced Finite Element Modelling 15
MEC6444 F7 Additive Manufacturing – Principles and Applications 1 15
MEC6445 F7 Additive Manufacturing – Principles and Applications 2 15
MEC6452 F7 Advanced Topics in Machining 15
(c) MEC6901 F7 IDC Machining Science Mini-Project 1 30
MEC6902 F7 IDC Machining Science Mini-Project 2 30
MEC6903 F7 IDC Machining Science Mini-Project 3 30
Other units may be substituted for those listed in 1(b) at the discretion of the Academic Director of the IDC.

2. In order to proceed to Year Two a student must pass one hundred and sixty credits in respect of units listed at 1(a), (b), and (c) above.

3. A student who has been awarded seventy credits in respect of 1(a), (b), and (c) above and does not proceed to Year Two, may instead become a student for the award of Postgraduate Diploma in Machining Science (MECT07 PG Dip) and in addition to 1(a), (b) and (c) above will take MEC6904 F7 IDC Machining Science Research 50

4. In Years Two to Four a student will pursue a programme of research in accordance with the General Regulations for Higher Degrees and will present a thesis in accordance with those Regulations.

5. In Years Two to Four a student will undertake further academic and professional skills related modules and activities appropriate to their studies, and also present at the AMRC Technical Fellows or IDC Student Conference.

6. A student will successfully complete the Industrial Doctorate Centre’s confirmation procedures before progressing to the third year of study.

MECR92 RESILIENT DECARBONISED FUEL ENERGY SYSTEMS (Full Time or Part Time) (PhD) (CDT)

MECR93 RESILIENT DECARBONISED FUEL ENERGY SYSTEMS (Full Time or Part Time) (EngD) (CDT)

(Joint Programme with The University of Cranfield)

For students whose initial registration is in 2019/20.

1. In Year One a student will take

a) H84PGC F7 Power Generation and Carbon Capture and Storage (Nottingham) 10
L34118 F7 Energy Systems and Policy (Nottingham/Cardiff) 20
H141MP F7 Industrial Mini Project (Uni of registration) 10
MPP163 F7 Industrial Case Studies (Nottingham) 10
H84RP3 F7 Research Project Portfolio: Part 1 (Uni of registration) 10
H84CPE F7 Communication & Public Engagement Skills for Energy Researchers (Nottingham) 10
F84CSS F7 Winter School (rotating) 0
H14RPS F7 Research and Professional Skills (Nottingham) 10
H84LCP F7 Low Carbon Processes (Nottingham) 10

b) units to the value of thirty credits selected from available technical or skills-based Masters modules delivered by CDT partner institutions.

2. In Year Two a student will take

ENT721 F7 Risk and Hazard Management in the Energy Sector and engage with CDT training and development activities, as determined by the CDT management board.

3. A student who has been awarded sixty credits in respect of units listed at 1 and 2 above and who is ineligible for a research award, will be eligible for the award of Postgraduate Certificate in Decarbonised Fuel Energy Systems (MECT62).

4. A student who has been awarded one hundred and twenty credits in respect of units listed at 1 and 2 above and who is ineligible for a research award, will be eligible for the award of Postgraduate Diploma in Decarbonised Fuel Energy Systems (MECT61).

5. A student who does not proceed to Year 3 may instead be
permitted to become a student for the award of MSc in Decarbonised Fuel Energy Systems (MECT60) and in addition will take

F7 Extended Research Portfolio 50

6. In Years Two to Four a student will pursue a programme of research in accordance with the General Regulations for Higher Degrees by Research, and will present a thesis in accordance with those Regulations, with the following exceptions:

a) Confirmation Review, a first attempt of which would normally take place between months 15-18 from a student’s initial date of registration with the CDT. The final decision regarding whether a student may be permitted to pass the Confirmation Review must be taken within 24 months of the student’s initial registration for full-time students; and

b) minimum period of registration, which in this case will be 3 years for a Full Time student and 6 years for a Part Time student.

7. In order to proceed to Year Three a student must undertake a first attempt of Confirmation Review and adhere to all other standard Sheffield PGR progression rules, as per the Regulations for Higher Degrees by Research.

8. In order to proceed to Year Four a student must pass Confirmation Review and adhere to all standard Sheffield PGR progression rules, as per the Regulations for Higher Degrees by Research.

GENERAL REGULATIONS FOR PHD WITH INTEGRATED STUDIES IN THE FACULTY OF ENGINEERING

1. The following programmes of study and research are specified for the purposes of Regulation 3 within the Regulations for the Degree of PhD with Integrated Studies, as outlined in the General Regulations for Higher Degrees by Research:

ACST90 ADVANCED CONTROL AND SYSTEMS ENGINEERING (MSc)
(For initial registration of a candidate for the Degree of PhD with Integrated Studies in Control and Systems Engineering only)

CIVT90 ENVIRONMENTAL MANAGEMENT OF URBAN LAND AND WATER (MSc(Eng))
(For initial registration of a student for the Degree of PhD with Integrated Studies only)

CIVT91 EARTHQUAKE AND CIVIL ENGINEERING DYNAMICS (MSc)
(For initial registration of a student for the Degree of PhD with Integrated Studies only)

CIVT95 CONCRETE ENGINEERING (MSc)
(For initial registration of a student for the Degree of PhD with Integrated Studies only)

CIVT96 STEEL CONSTRUCTION (MSc)
(For initial registration of a student for the Degree of PhD with Integrated Studies only)

CIVT97 STRUCTURAL ENGINEERING (MSc)
(For initial registration of a student for the Degree of PhD with Integrated Studies only)

COMT90 ADVANCED COMPUTER SCIENCE (MSc)
(For initial registration of a student of the Degree of PhD with Integrated Studies in Computer Science only)

CPET90 ENVIRONMENTAL AND ENERGY ENGINEERING (MSc(Eng))
(For initial registration of a student for the Degree of PhD with Integrated Studies only)

MATT91 ADVANCED METALLURGY (MMet)
(For initial registration of a student for the Degree of PhD with Integrated Studies only)

MATT92 AEROSPACE MATERIALS (MSc (Eng))
(For initial registration of a student for the Degree of PhD with Integrated Studies in Advanced Materials Science only)

MATT93 CERAMIC SCIENCE AND ENGINEERING (MSc (Eng))
(For initial registration of a student for the Degree of PhD with Integrated Studies only)

MATT94 POLYMER AND POLYMER COMPOSITE SCIENCE AND ENGINEERING (MSc (Eng))
(For initial registration of a student for the Degree of PhD with Integrated Studies only)

MATT95 WASTE IMMOBILISATION (MSc (Eng))
(For initial registration of a student for the Degree of PhD with Integrated Studies in Waste Immobilisation only)

MATT144 ADVANCED MATERIALS MANUFACTURING (MSc (Eng))
(For initial registration of a student for the Degree of PhD with Integrated Studies in Advanced Materials Manufacturing only)

MATT145 MATERIALS SCIENCE AND ENGINEERING (MSc (Eng))
(For initial registration of a student for the Degree of PhD with Integrated Studies in Materials Science and Engineering only)

MATT146 BIOMATERIALS AND REGENERATIVE MEDICINE (MSc (Eng))
(For initial registration of a student for the Degree of PhD with Integrated Studies in Biomaterials and Regenerative Medicine only)

MATT147 NANOMATERIALS AND MATERIALS SCIENCE (MSc (Eng))
(For initial registration of a student for the Degree of PhD with Integrated Studies in Nanomaterials and Materials Science only)