



University  
of Glasgow

**Calendar 2010-11**

## **COLLEGE OF SCIENCE & ENGINEERING**

**HEAD OF COLLEGE:** Professor John Chapman

**Dean of Graduate Studies:** Professor Jon Cooper

**Dean of Learning & Teaching:** Professor David Fearn

### **DATES OF SEMESTERS**

*Semester 1:* 20th September 2010 - 17th December 2010

*Christmas Vacation:* 20th December 2010 - 7th January 2011

*Semester 2:* 10th January 2011 - 27th May 2011

*Spring Vacation:* 28th March 2011 - 15th April 2011

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## SUMMARY OF AWARDS MADE IN THE COLLEGE OF SCIENCE & ENGINEERING

The University awards the following degrees in the College of Science & Engineering. These degrees may be awarded jointly with other institutions where the Senate has approved an agreement to this effect. Where such an agreement exists, the degree titles of the partner institution may be used for the award of joint degrees with the University of Glasgow.

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## GENERIC UNDERGRADUATE REGULATIONS

The Generic Undergraduate Regulations are governed by Resolution No. 582 of the University Court which came into effect on 1 September 2008 with the following provisions:

1. All undergraduate degrees of the University of Glasgow except those listed in §20 of the section entitled 'Regulations' below may be governed by common regulations (the Generic Undergraduate Regulations) and by supplementary regulations specific to each degree.
2. The Senate may make such Generic Undergraduate Regulations, which are subject to the approval of the University Court - these are stated in §1 - §19 of the section entitled 'Regulations' below.

### REGULATIONS

#### 1. Introductory and Definitions

These regulations must be read together with each degree's supplementary regulations and each degree programme's programme specification. The definitions set out in the [Glossary of Terms](#) apply to these regulations.

#### 2. Scope of Regulations

These regulations apply to all undergraduate degrees offered by the University of Glasgow other than those listed in §20.

#### 3. Duration of Study

A candidate for a degree shall, subject to §4, normally attend the University of Glasgow either full-time or part-time for at least the number of academic sessions indicated as a minimum in the table below. The candidate must normally complete his or her studies for the award of a degree within the number of sessions indicated as a maximum in the degree's supplementary regulations.

Type of degree	Minimum duration of study (academic sessions)	
	Full-time	Part-time
Ordinary/designated degree <sup>1</sup>	3	4
Honours degree	4	5
MA Honours language degree	5	7
Integrated Masters degree <sup>2</sup>	5	6
BVMS, MBChB, BDS	5	N/A

#### 4. Recognition of Prior Learning

- 4.1 Credit may be awarded towards the completion of a degree programme for courses or examinations satisfactorily completed while following another programme at the University of Glasgow or at another institution or, where indicated in the degree's supplementary regulations, for other examinations satisfactorily completed. Such credit may permit a candidate entry to the second or subsequent year of the degree programme. The maximum limit for the award of such credit is, other than in exceptional circumstances and with the approval of the Clerk of Senate, 50% of the credits associated with the degree programme. Candidates must normally attend courses offered by the University of Glasgow during their final year of study.
- 4.2 Although appropriate prior learning may be recognised for the award of credit, all such credit is ungraded for the purposes of the University except that credit obtained in earlier study at the University of Glasgow may be graded.
- 4.3 Graded credit may be awarded for study undertaken at an institution other than the University of Glasgow where this is done while registered for a degree programme at the University of Glasgow.

#### 5. Recognition of Prior Experiential Learning

Where indicated in the degree's supplementary regulations, a candidate may be awarded credit for prior experiential learning. The procedure for approval of such credit is set out in the University's [APL policy](#).

#### 6. Composition of Degree Programmes

- 6.1 Each degree programme shall be composed of courses, each of which is characterised by the academic level at which it is set and the number of credits which it conveys. The course level will be expressed as 1, 2, 3, H or M, these corresponding to levels 7 to 11 in the Scottish Credit and Qualifications Framework. Each course shall

<sup>1</sup> The minimum duration of study for the ordinary degrees of Bachelor of Technical Education and MA Religious & Philosophical Education with Secondary Teaching Qualification is four academic sessions.

<sup>2</sup> In a minority of cases the minimum duration of study for an Integrated Masters degree is four academic sessions.

convey either 10, 15, 20, 30, 40, or 60 credits, or exceptionally a different number of credits where approved by the College.

6.2 In each academic session a full-time candidate will normally take courses conveying a total of 120 credits.

6.3 The structure of a degree programme, including the compulsory and optional courses of which it is composed, is shown in the degree's supplementary regulations and the programme specification.

## 7. Pre-requisites, Co-requisites and Excluded Combinations

7.1 Each course may have pre-requisite and/or co-requisite course(s). To be admitted to a course:

(i) The candidate must normally have attained a grade D or better in each pre-requisite course. If the course follows a pre-requisite course in the same academic session, however, it shall be sufficient for the candidate to have attended the pre-requisite course.

(ii) The candidate must either have attended, or be concurrently attending, each co-requisite course.

7.2 Where a candidate's curriculum includes courses which form an excluded combination, credits from only one of these courses may be counted towards the requirements for award of a degree or other qualification.

## 8. Approval of Curriculum

The curriculum of each candidate must be approved at the start of each session by the candidate's Adviser of Studies. Once approved, the curriculum may not be altered except with the approval of an Adviser of Studies.<sup>3</sup>

## 9. Assessment

Assessment and re-assessment are governed by the Code of Assessment which is contained in the Fees and General Information for Students section of the *University Calendar*.

## 10. Progress

10.1 The progress of candidates shall be reviewed annually.

10.2 In the case of an Honours programme, and subject to further requirements contained in the degree's supplementary regulations, a full-time candidate who has achieved an average of at least grade D3 across all third year courses contributing to the programme will be permitted to progress from Junior Honours to Senior Honours<sup>4</sup>.

10.3 In the case of an Integrated Masters programme, and subject to further requirements contained in the degree's supplementary regulations, a full-time candidate who has achieved an average of at least grade C3 across all third year courses contributing to the programme will be permitted to progress to year 4; and a full-time candidate who has achieved an average of at least grade C3 across all fourth year courses contributing to the programme will be permitted to progress to year 5.

10.4 The requirements for a full-time candidate to progress, other than those covered in §10.2 and §10.3 above, are set out in the degree's supplementary regulations.

10.5 For a part-time candidate, the minimum achievement required to progress will be determined for and communicated to the candidate at the start of each session by the Chief Adviser for the degree on which the candidate is enrolled. A candidate who fails to meet this progress requirement must apply for re-admission to the Chief Adviser.

## 11. Administration of Progress

11.1 Decisions on progress shall be taken by the College Progress Committee or a sub-committee thereof. The committee shall have the power to exclude a candidate or to impose conditions regarding a candidate's future progress.

11.2 The College shall publish to all candidates the arrangements for identifying any candidate who does not comply with progress requirements. The College shall notify such candidates of the date of the meeting of the committee and the procedures to permit a candidate to make representations at or prior to the committee meeting.

11.3 Appeal against decisions of the College Progress Committee may be made following the Codes of Procedure set out in the Fees and General Information for Students section of the *University Calendar*.

## 12. Award of a Certificate in Higher Education

12.1 A candidate who has completed courses totalling at least 120 credits with a grade point average of at least 8.5 shall be eligible to receive a Certificate of Higher Education, unless the candidate proceeds immediately to a diploma or degree programme. This does not preclude the use in subsequent completion of a degree programme of credit counted towards the award of a Certificate of Higher Education.

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<sup>3</sup> Where a candidate is in the third or subsequent year of an Honours or Integrated Masters programme, the approval of the Adviser extends to Honours/Masters status and not to individual courses.

<sup>4</sup> Alternative requirements may be set for candidates undertaking their third year of study in another Higher Education Institution as part of a Study Abroad programme. Such requirements will be set by the Chief Adviser of Studies.

12.2 The Certificate of Higher Education shall be awarded with Merit where the grade point average is at least 12, and with Distinction where the grade point average is at least 14.

12.3 Where the candidate has accumulated more than 120 credits, the credit counted in the calculation of the grade point average shall be reduced to 120 credits by discarding all or part of the credit for certain of the courses in such a way as to maximise the grade point average while meeting all other requirements of the regulations.

### **13. Award of a Diploma of Higher Education**

13.1 A candidate who has completed courses totalling at least 240 credits, of which at least 80 credits are for courses at level 2 or above, with a grade point average of at least 8.5, shall be eligible to receive a Diploma of Higher Education, unless the candidate proceeds immediately to a degree programme. This does not preclude the use in subsequent completion of a degree programme of credit counted towards the award of a Diploma of Higher Education.

13.2 The Diploma of Higher Education shall be awarded with Merit where the grade point average is at least 12, and with Distinction where the grade point average is at least 14.

13.3 Where the candidate has accumulated more than 240 credits, the credit counted in the calculation of the grade point average shall be reduced to 240 credits by discarding all or part of the credit for certain of the courses in such a way as to maximise the grade point average while meeting all other requirements of the regulations.

### **14. Award of an Ordinary/Designated Degree**

14.1 Subject to further requirements contained in the degree's supplementary regulations, the candidate, to be eligible for the award of an ordinary/designated degree, must have obtained at least 360 credits and achieved an overall grade point average of 10. Within these 360 credits:

- a) at least 120 must be at level 2 or higher, **and**
- b) at least 280 must be at grade D or better including at least 60 at level 3 or higher.

14.2 Subject to further requirements contained in the degree's supplementary regulations, the ordinary/designated degree shall be awarded with Merit where the grade point average is at least 12, and with Distinction where the grade point average is at least 14.

14.3 Where the candidate has accumulated more than 360 credits, the credit counted in the calculation of the grade point average shall be reduced to 360 credits by discarding all or part of the credit for certain of the courses in such a way as to maximise the grade point average while meeting all other requirements of the regulations.

14.4 The ordinary/designated degree may be awarded to candidates on Honours programmes who fail to meet the requirements of the Honours degree, including any progress requirements, provided that the requirements of 14.1 above are met. The supplementary regulations for a degree programme shall specify any provision for candidates who have been assessed at level H to be reassessed at level 3.

### **15. Entry to an Honours or Integrated Masters Degree Programme**

15.1 In order to obtain entry to an Honours or Integrated Masters degree programme at the end of the second year of full-time study<sup>5</sup>, a candidate must:

- (a) achieve 240 credits at levels 1 and 2 with a GPA of at least 10; at least 140 of these credits must be derived from the list of recognised courses for the degree; and
- (b) achieve a grade D or better in 200 credits; and
- (c) achieve a minimum of 40 credits at level 2 at a GPA of 12 in the subject of the Honours programme<sup>6</sup> at the first attempt: and
- (d) meet any further requirements set out in the degree's supplementary regulations; and
- (e) meet any additional requirements set by the School or Schools in which the candidate is applying for entry to the Honours or Integrated Masters programme.

15.2 In order to obtain entry to an Integrated Masters degree programme, a candidate must normally, in addition to meeting the requirements in 15.1 above:

- (a) meet the requirements set out in the degree's supplementary regulations; and
- (b) meet any additional requirements set by the School or Schools in which the candidate is applying for entry to the Honours or Integrated Masters programme.

15.3 Exceptionally, a candidate who does not meet all of the requirements in either 15.1 or 15.2 above may be offered admission to Honours, or an Integrated Masters programme, if the Head of School (or his or her nominee) judges that in other respects the candidate's previous performance offers a reasonable prospect of the candidate reaching the minimum standard required for the award to which admission is granted.

<sup>5</sup> This regulation only applies to degree programmes which select for entry to Honours at the end of second year.

<sup>6</sup> For entry to a Joint Honours degree, this requirement applies to each Joint Honours Subject.

15.4 The College and School will provide all candidates with written information on the specific level of performance required to obtain entry to each Honours and Integrated Masters degree programme in the School. This information will be made available to candidates at the start of the session preceding that in which Honours study normally commences.

15.5 Admission to an Honours or Integrated Masters degree programme does not guarantee admission to a particular course. A candidate must apply for admission to a particular course in accordance with the instructions issued by the School. Admission to a particular course cannot be guaranteed even for a candidate who satisfies the minimum admission requirements. Where there are more applicants for a particular course than there are places available, selection of candidates will be based on criteria published in course documentation and/or School web pages.

#### **16. Award of an Honours Degree**

16.1 To be eligible for the award of an Honours degree, the candidate must have obtained at least 480 credits, including at least 120 at level H, achieved a grade D3<sup>7</sup> or better for a piece of independent work worth at least 20 credits, and complied with the other requirements set out in the degree's supplementary regulations.

16.2 A scheme of assessment may permit a candidate for Honours in a single subject to be assessed in not more than 25% of the total assessment for Honours from the scheme of assessment in one other subject.

16.3 Courses at level 3 or above which form a candidate's Honours programme must be counted towards the calculation of the candidate's Honours classification unless other provision is justified by good cause circumstances affecting the candidate.

This regulation applies where level 3 course registration continues:

(a) on the date on which the first summative assessment for that course is to be submitted; or

(b) on such other date as may be specified in the course document for that course.

#### **17. Award of an Integrated Masters Degree**

17.1 To be eligible for the award of an Integrated Masters degree, the candidate must have obtained at least 600 credits, including at least 120 credits at level M, achieved a grade D3<sup>7</sup> or better for a piece of independent work worth at least 20 credits, and complied with the other requirements set out in the degree's supplementary regulations.

17.2 Courses at level 3 or above which form a candidate's Integrated Masters programme must be counted towards the calculation of the candidate's Honours classification unless other provision is justified by good cause circumstances affecting the candidate.

This regulation applies where level 3 course registration continues:

(a) on the date on which the first summative assessment for that course is to be submitted; or

(b) on such other date as may be specified in the course document for that course.

#### **18. Award of an MBChB, BVMS or BDS Degree**

Eligibility for the award of an MBChB, BVMS or BDS degree is defined in the degree's supplementary regulations.

#### **19. Award of Certificates for Graduates Studying at Undergraduate Level**

A graduate of the University of Glasgow, or of another institution of tertiary education recognised for this purpose by the Senate, may be permitted by a School in consultation with the College Head of Student & Academic Administration to enrol in a course, complete the assessment elements of the course, and receive certification of the outcome of the assessment.

#### **20. Degree Programmes not Subject to these Regulations**

##### ***College of Medical, Veterinary & Life Sciences***

Degree of Bachelor of Science in Dental Science

Degree of Bachelor of Science in Medical Science

Degree of Bachelor of Science in Veterinary Science

##### ***All University of Glasgow degrees offered at the following institutions:***

Christie's Education, London

Free Church of Scotland College

Glasgow School of Art

Scottish Agricultural College

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<sup>7</sup> Any penalty imposed for the late submission of the piece of independent work will be ignored when determining whether this requirement has been met.

## SUPPLEMENTARY UNDERGRADUATE REGULATIONS

### DEGREES OF MASTER OF ENGINEERING<sup>8</sup>, BACHELOR OF ENGINEERING AND BACHELOR OF SCIENCE IN ENGINEERING

#### RESOLUTION

The Degrees of Master of Engineering, Bachelor of Engineering, and Bachelor of Science in Engineering are governed by Resolutions of the University Court which came into effect on 1 September 2008. The provisions of Resolution No. 582 supporting the Generic Undergraduate Regulations are set out above; the provisions of Resolution No. 596 are as follows:

1. The Degrees of Master of Engineering (MEng) and Bachelor of Engineering (BEng) may be awarded by the Senate of the University of Glasgow in the College of Science & Engineering (the College) as Degrees with Honours in such designations as may be prescribed by Regulations. The Degree of Bachelor of Science in Engineering (BSc (Eng)) may be awarded by the Senate of the University in the College as a Degree with Honours and as an Ordinary Degree, each in such designations as may be prescribed by Regulations.
2. The award of the Degree shall be governed by Resolution No. 582 - "Generic Regulations for the award of Degrees gained by the successful completion of Undergraduate Programmes", which came into effect on and from 1 September 2008 together with such Supplementary Regulations as are contained in this Resolution No. 596 - "Degrees of Bachelor of Engineering, Bachelor of Science in Engineering, and Master of Engineering". The Supplementary Regulations are set out in the Schedule of Regulations attached to this Resolution.
3. The early exit awards of Diploma of Higher Education in Engineering Studies (DipHE(Engineering Studies)) and Certificate of Higher Education in Engineering Studies (CertHE(Engineering Studies)) are also included in the Regulations.

#### REGULATIONS

##### 1. Recognition of Prior Learning

- 1.1 Assessed prior experiential learning cannot be counted on these degrees.
- 1.2 Non-university examinations can permit entry with advanced standing. Such examinations give entry with advanced standing as follows: GCE Advanced level or SQA Advanced Higher in subjects and with grades as detailed in the University of Glasgow prospectus;
- 1.3 (a) A candidate already registered on a programme at the University may not be admitted to the MEng programme later than the start of year 4.  
(b) A candidate from an institution other than the University of Glasgow may not be admitted to the BEng or MEng programmes later than the start of year 3 except in accordance with the terms of an articulation agreement.  
(c) A candidate who enters with advanced standing may be required to attend and perform satisfactorily in special courses held prior to the commencement of the session.

##### 2. Maximum Period of Study

There is no set maximum period of study. Candidates may continue their studies provided that they comply with the progress regulations set out at §3 below.

##### 3. Progress

- 3.1 Generic Undergraduate Regulations §10 and §11 apply with the following additional requirements:
  - (a) A candidate who fails to satisfy the requirements for progress on the degree for which they are registered as detailed in §3.2 - §3.4 below will have their performance reviewed in terms of the progress regulations for lower level degrees; and may, in the light of this review, be transferred from one programme to another (e.g. MEng to BEng).
  - (b) At any stage, a candidate who fails to meet the progress regulations will be considered for the early exit awards of Diploma of Higher Education and Certificate of Higher Education.
  - (c) Pre-requisite regulations, as detailed in the appropriate Undergraduate Student Handbook, may also prevent progress.

##### 3.2 BSc Ordinary

The minimum requirements for progress to a succeeding year of study are as follows:

After one session:	the candidate must have obtained at least 80 credits, of which at least 60 must be at grade D or better and achieved a grade point average of at least 9.
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<sup>8</sup> For the purposes of these regulations, a candidate admitted to a 4 year accelerated MEng programme will be considered as a direct entrant to year 2.



After two sessions: the candidate must have obtained at least 160 credits of which at least 120 must be at grade D or better and achieved a grade point average of at least 9.

After three sessions: the candidate must be in a position to complete the requirements for the award of a BSc ordinary degree in one further session of full-time study

### 3.3 **BEng or BSc Honours**

The minimum requirements for progress to a succeeding year of the curriculum are satisfaction of the requirements set out in §3.2 with the following additional requirements:

- (a) achievement of an average of at least D3 across all courses; and
- (b) achievement of grade E3 or better in all courses.

### 3.4 **MEng**

In addition to meeting the requirements set out in §3.3, a candidate must achieve an average of at least C2 across all courses in order to progress to the next year of the curriculum.

A candidate who fails to meet the progress requirement at the end of year 4 will be required to complete any missing components of the corresponding BEng or BSc Honours programme and will then be considered for the degree of BEng or BSc Honours in the normal way.

A candidate who fails to complete the curriculum of year 5, or whose overall performance falls below the standard required for the MEng degree, will be required to complete any missing components of the corresponding BEng or BSc Honours programme and will then be considered for the degree of BEng or BSc Honours in the normal way.

Any candidate who is transferred to a BEng or BSc Honours programme must complete any missing components within one further session of study.

- 3.5 A candidate failing to achieve the requirements stated in §3.3 or §3.4 may be permitted one opportunity to improve the assessment result in accordance with §16.7 - §16.8 of the Code of Assessment contained in the Fees and General Information for Students section of the *University Calendar*

## 4. **Courses Available to Candidates**

The available courses are detailed in the appropriate Undergraduate Student Handbook.

## 5. **Programme Requirements for the Award of the Degrees**

Generic Undergraduate Regulations §16 and §17 apply with the following additional requirements set out below in §5.1 - §5.4.

### 5.1 **MEng, BEng and BSc Honours**

To be eligible for any BEng or MEng degree, a candidate must obtain a grade D3 or better in the final year project.

For MEng, BEng and BSc, the final Honours classification will be based only on the results from the **first attempt** at courses in year 3 and above.

Other programme requirements are detailed in the appropriate programme specification.

### 5.2 **BSc Ordinary**

Compulsory courses for each subject and any other special requirements for BSc Ordinary degree are specified in the appropriate programme specification.

Ordinary candidates may be eligible to enrol for level H and M courses, but there will be no opportunity for reassessment in these courses during the same session as the first assessment.

A candidate for the BSc ordinary degree may graduate with a **Specialisation in Engineering Management** if he or she has:

- (a) completed a graduating curriculum under the foregoing regulations;
- (b) included in the graduating curriculum an approved minimum of 80 credits, all completed with grade D or better, from a list of Selected Subjects available in the appropriate programme specification.

### 5.3 **Diploma of Higher Education (Engineering Studies)**

A candidate may be awarded the Diploma in Higher Education (Engineering Studies) where at least 120 of the credits contributing to the award correspond to courses in Engineering subjects.

### 5.4 **Certificate of Higher Education (Engineering Studies)**

A candidate may be awarded the Certificate of Higher Education (Engineering Studies) where at least 60 of the credits contributing to the award correspond to courses in Engineering subjects.

## 6. List of Degree Programmes

Full details of the curriculum for each Degree Programme are provided in the appropriate Undergraduate Student Handbook and must be read in conjunction with this *University Calendar*.

UG Student Handbook	Programme	MEng	Accelerated MEng	MEng European	BEng	BSc Hons	BSc Ord <sup>5</sup>
Aerospace Engineering	Aeronautical Engineering	✓			✓		✓
	Aerospace Systems	✓			✓		✓
	Avionics	✓			✓		✓
Civil Engineering	Civil Engineering	✓			✓		✓
	Civil Engineering with Architecture	✓			✓		✓
Electronics & Electrical Engineering	Electronics & Electrical Engineering	✓	✓	✓	✓		✓
	Audio & Video Engineering	✓	✓	✓	✓		✓
	Microcomputer Systems Engineering	✓		✓	✓		✓
	Electrical Power Engineering	✓	✓	✓	✓		✓
	Electronics with Music			✓	✓		✓
	Electronic & Software Engineering	✓		✓	✓		✓
	Electronic Engineering & Physics			✓	✓		✓
Mechanical Engineering	Mechanical Engineering	✓	✓		✓	✓	✓
	Mechanical Engineering (European Curriculum)	✓	✓		✓	✓	✓
	Mechanical Engineering with Aeronautics	✓	✓		✓	✓	✓
	Mechanical Design Engineering	✓	✓		✓	✓	✓
	Biomedical Engineering	✓			✓		✓

<sup>5</sup> BSc Ordinary is also offered with specialisation with Engineering Management. See §5.2.

## DEGREES OF BACHELOR OF SCIENCE AND MASTER IN SCIENCE

### RESOLUTION

The Degrees of Bachelor of Science and Master in Science are governed by Resolutions of the University Court which came into effect on 1 September 2008. The provisions of Resolution No. 582 supporting the Generic Undergraduate Regulations are set out above; the provisions of Resolution No. 605 are as follows:

1. The Degrees of Bachelor of Science (BSc) and Master in Science (MSci) may be awarded by the Senate of the University of Glasgow in the Colleges of Medical, Veterinary & Life Sciences, and Science & Engineering, as Degrees in such designations as may be prescribed by Regulations.
2. The award of the Degrees shall be governed by Resolution No. 582 - "Generic Regulations for the award of Degrees gained by the successful completion of Undergraduate Programmes", which came into effect on and from 1 September 2008 together with such Supplementary Regulations as are contained in this Resolution No. 605 - "Degree of Bachelor of Science and Master in Science". The Supplementary Regulations are set out in the Schedule of Regulations attached to this Resolution.
3. The Degree of Bachelor of Science may be offered as a Degree in a designated subject or as a Degree with Honours in a principal subject; the Degree of Master in Science may be offered as a Degree in a principal subject or as a Degree in a principal subject with Work Placement. The early exit awards of Diploma of Higher Education (General Science) and Certificate of Higher Education (General Science) shall be governed by the Generic Undergraduate Regulations.

### REGULATIONS

#### 1. Recognition of Prior Learning

A candidate may qualify for exemption from level 1 courses up to a maximum of 120 credits by obtaining passes in appropriate subjects at specified grades in approved school examinations at SCQF level 7, under such conditions as the Senate may prescribe in each case. Such credit shall be awarded by the Principal Adviser of Studies.

#### 2. Maximum Period of Study

The maximum period of study is normally as follows:

For the award of a BSc designated degree - 5 sessions

For the award of a BSc Honours degree - 6 sessions

For the award of an MSci degree - 7 sessions

#### 3. Progress

The requirements referred to in Generic Undergraduate Regulations §10.1 and §15.2 are listed below:

##### 3.1 Annual Review of Progress

Generic Undergraduate Regulations §10 and §11 apply with the following additional requirements:

The minimum requirements for progress to a succeeding year of study for a full-time student are as follows:

After one session: The candidate must have obtained at least 80 credits, of which at least 60 must be at grade D or better, and achieved a grade point average of at least 9.

After two sessions: The candidate must have obtained at least 160 credits of which at least 120 must be at grade D or better and achieved a grade point average of at least 9.

After three sessions: The candidate must have obtained:  
240 credits with a minimum grade point average of 10;  
160 credits at grade D or better;  
60 credits at level 2 or above.

##### 3.2 BSc in a Designated Subject

###### a) Admission Requirements

The following general requirements shall apply for admission to all level 3 courses:

- i) The candidate must have completed qualifying courses totalling at least 240 credits, with a grade point average of 10, unless admitted directly to level 3;
- ii) The candidate must have completed qualifying courses totalling at least 120 credits in Science subjects.

##### 3.3 BSc Honours Programme

###### a) Admission Requirements

Generic Undergraduate Regulation §15.1 shall apply with the following additional requirement.

- i) The candidate must have completed an additional 20 credits at level 2, bringing the total requirement for level 2 credits to 60.

b) *Progression Requirements*

Generic Undergraduate Regulation §10.2 shall apply.

A candidate who has completed the third year of an MSci programme may, at the discretion of the Head(s) of School(s) concerned, be admitted to the fourth year of a BSc Honours programme in the same subject(s).

### 3.4 MSci Programme

a) *Admission Requirements*

The following general requirements shall apply for admission to the third year of an MSci programme:

- i) The candidate must have completed qualifying courses totalling at least 240 credits, with a grade point average of at least 12;
- ii) The candidate must have completed qualifying courses totalling at least 140 credits in Science with a grade point average of at least 12;
- iii) The candidate must have completed qualifying courses totalling at least 60 credits at level 2 or above in Science with a grade point average of at least 14.

b) *Progression Requirements*

Generic Undergraduate Regulation §10.3 shall apply.

### 3.5 Admission to Qualifying Courses

Subject to the approval of the Science Taught Programmes Committee, admission to any qualifying course may be restricted if the number of candidates wishing to enrol exceeds the number of places available. Where there are more applicants for a particular course than there are places available, selection of candidates shall be based on criteria published in the Programme or Course Handbook.

### 3.6 Appeals Against Non-Admission to Courses

A candidate who has been refused admission or re-admission to a course under the provisions of §3.5 above may appeal in writing to the Principal Adviser of Studies, citing any special circumstances bearing on his or her case.

### 3.7 Transfers from Part-time to Full-time Study

A part-time candidate may apply to the Principal Adviser of Studies for transfer to full-time study. In considering such an application, the Principal Adviser shall take into account the candidate's progress so far.

## 4. Science Courses

Science subjects, and courses in these subjects, shall be as defined below. In addition, candidates may take courses in non-Science subjects, subject to the provisions of §3.2 - §3.4 above.

Recognised Science qualifying courses are currently as follows:

- 4.1 Courses contributing to the awards of BSc designated, BSc honours and MSci offered by the Schools of Chemistry, Computing Science, Geographical & Earth Sciences, Life Sciences, Mathematics & Statistics, Physics & Astronomy and Psychology.
- 4.2 Other courses contributing to the awards of BSc designated, BSc honours and MSci offered by the School of Humanities in Archaeology, the School of Engineering in Electronics & Electrical Engineering and the School of Medicine in Immunology, Nutrition, and Sports Medicine.
- 4.3 For the purposes of the Intercolated Degree of BSc combined with the Degree of MB ChB, BDS, or BVMS, the courses constituting the first two or three sessions, depending on the curriculum of the MB ChB, BDS, or BVMS are recognised as Science qualifying courses. Recognition of these courses will be subject to review in the event of substantial changes in the MB ChB, BDS, or BVMS curriculum.

### 4.4 Standard Curricula

Each full-time candidate shall enrol for courses totalling not less than 100 credits in each session and normally no more than 120 credits. In exceptional cases, a candidate may take up to 150 credits in each session. Each part-time candidate shall enrol for courses totalling a maximum of 100 credits in each session.

## 5. Programme Requirements for the Award of the Degree

### 5.1 Degree of Bachelor of Science in a Designated Subject

In addition to meeting the requirements of Generic Undergraduate Regulation §14, the candidate must satisfy the following:

- a) The 360 credits required must include:
  - (i) at least 200 credits in Science; and

- (ii) at least 120 credits at level 2 or above in Science, with a grade point average of at least 9, and with at least 60 of these credits at grade D or better.
- b) Where the Designated Subject is a single subject, the credits in (a) above must include courses in that subject at level 3 or 3H or 3M, totalling at least 80 credits with a grade point average of at least 10.
- c) Where the Designated Subject is a combination of two subjects, the credits in (a) above must include courses at level 3 or H or M totalling at least 40 credits with a grade point average of at least 10 in each of these subjects separately.
- d) Any special requirements of the Designated Subject specified by the School and approved by the Colleges of Medical, Veterinary & Life Sciences, and Science & Engineering.

The Degree of BSc in a Designated Subject shall be awarded with merit if the candidate has a grade point average of at least 12, or with distinction if the candidate has a grade point average of at least 14, both overall and in the Designated Subject (or Subjects in a combined degree) at level 3. To meet this requirement, the best 80 credits at level 3 may be used in the case of a Designated Degree in a single subject and the best 40 credits from each contributing subject in the case of a combined Designated Degree.

On the recommendation of the Head of School, the Degree of BSc in a designated subject may be awarded 'with Work Placement' to a candidate who has successfully completed the work placement year of an MSci Degree and is qualified for the award of a BSc designated degree as set out above.

### **5.2 Degree of Bachelor of Science (BSc) with Honours and Degree of Master in Science**

Each candidate must meet the requirements of Generic Undergraduate Regulations §16 and §17. Additionally, the Principal Subject for the Degree of BSc with Honours or the Degree of MSci shall be, as shown in Appendix 1 below, either:

- a) one of the single subjects shown as such in List 1(a) ('Single Honours'); or,
- b) one of the combinations of subjects shown as such in List 1(b) ('Combined Honours')

as approved by the Colleges and the Senate.

The calculation of the final BSc honours classification is normally based on a contribution of 50% from final year courses and 50% from third year courses where these courses are of equal credit rating. Exceptions to this are noted below with the third and final year percentage contributions given in brackets.

Archaeology (40:60), Chemistry, including Chemistry with Medicinal Chemistry and Chemistry with Forensic Studies (25:75), Computing Science including Software Engineering (40:60), Environmental Chemistry (30:70), Geographical & Earth Sciences (40:60), Life Sciences (0:100), Mathematics (40:60), Psychology (40:60).

The calculation of the final classification for the MSci award is normally based on weightings from years 3, 4 and 5 within the range 10:20:70 and 20:30:50. Exceptions to this are noted below.

Astronomy, Physics and Statistics are equally weighted across years 3, 4 and 5; Life Sciences (0:20:80), Mathematics (24:36:40).

### **5.3 MSci Exit Point**

A candidate who fails to complete the final year of a 5 year MSci programme may be awarded a BSc Honours Degree subject to the candidate's satisfying published School conditions for such an award, consistent with Generic Undergraduate Regulation §16. Such provision shall not be available to a candidate pursuing the MSci degrees with work or European placement.

#### **5.4.1 Diploma of Higher Education (General Science)**

Generic Undergraduate Regulation §12 shall apply with the following additional requirements.

A candidate may be awarded the Diploma in Higher Education (General Science) where at least 140 of the credits contributing to the award are in Science courses as defined in §4.1 and §4.2 above.

#### **5.4.2 Certificate of Higher Education (General Science)**

Generic Undergraduate Regulation §13 shall apply with the following additional requirements.

A candidate may be awarded the Certificate of Higher Education (General Science) where at least 80 of the credits are in Science courses as defined in §4.1 and §4.2 above.

## **6. Other Information on Awards**

### **6.1 Study for the awards of BSc and MSci (listed in Appendix 1) at the University of Glasgow**

Normally, the Principal Subject in the curriculum for the Degree of BSc with Honours or the Degree of MSci shall be the candidate's sole subject of study during the session immediately preceding his or her final examination, except by prior agreement of the Schools concerned. The study of the Principal Subject shall extend over not less than two sessions of full-time study; and where the Principal Subject itself is not studied over at least three sessions, the study of the Principal Subject shall be preceded by the study of appropriate cognate subjects.

A candidate who is exempted from courses on the basis of studies undertaken elsewhere (as described in Generic Undergraduate Regulation §4) shall attend courses in the University of Glasgow for at least one

session for the Degree of BSc in a designated subject, or for at least two sessions for the Degree of BSc with Honours or the Degree of MSci. Each candidate for the Degree of BSc with Honours or the Degree of MSci must attend the University of Glasgow during the final year of his or her curriculum, except where that final year is an approved work placement year, and may be required by the Head of School concerned to attend the University of Glasgow during the final two years of his or her curriculum.

## Appendix 1

### List 1(a) Single Degree Subjects

<i>Subject</i>	<i>BSc Designated Subject</i>	<i>BSc (Hons) Principal Subject</i>	<i>MSci Principal Subject</i>
Anatomy	✓	✓	✓
Animal Biology	✓		
Applied Mathematics	✓	✓	✓
Archaeological Studies	✓		
Archaeology		✓	
Biochemistry	✓	✓	✓
Biomedical Sciences	✓	✓	✓
Biomolecular Sciences	✓		
Biotechnology	✓	✓	✓
Chemical Physics	✓	✓	✓
Chemistry	✓	✓	✓
Chemistry with Forensic Studies	✓	✓	✓
Chemistry with Medicinal Chemistry	✓	✓	✓
Computing Science	✓	✓	✓
Earth Science	✓	✓	
Electronic & Software Engineering	✓	✓	
Environmental Biogeochemistry	✓	✓	
Environmental Chemistry	✓	✓	✓
Environmental Chemistry and Geography	✓	✓	
Genetics	✓	✓	✓
Geography	✓	✓	
Geography, Chemistry and the Environment	✓		
Human Biology	✓		
Immunology	✓	✓	✓
Infection Biology	✓		
Marine and Freshwater Biology	✓	✓	✓
Mathematical Sciences	✓	✓	
Mathematical & Statistical Studies	✓		
Mathematics	✓	✓	✓
Medical Biochemistry	✓	✓	✓
Microbiology	✓	✓	✓
Mobile Software Engineering	✓	✓	
Molecular & Cellular Biology	✓	✓	✓
Neuroscience	✓	✓	✓
Parasitology	✓	✓	✓
Pharmacology	✓	✓	✓
Physics	✓	✓	✓
Physics with Astrophysics	✓	✓	✓
Physiology	✓	✓	✓
Physiology & Sports Science	✓	✓	✓
Physiology, Sports Science & Nutrition		✓	✓
Plant Science	✓	✓	✓
Psychological Studies	✓		
Psychology		✓	
Pure Mathematics	✓	✓	✓
Software Engineering	✓	✓	✓
Sports Medicine		✓	✓
Sports Science	✓		
Statistics	✓	✓	✓
Theoretical Physics		✓	✓
Virology	✓	✓	✓
Zoology	✓	✓	✓

**List 1(b) Combined Degree Subjects**

<i>Subject Combination</i>	<i>BSc Designated Subject</i>	<i>BSc (Hons) Principal Subject</i>	<i>MSci Principal Subject</i>
Accounting <i>and</i> Statistics	✓	✓	
Accounting <i>and</i> Applied Mathematics	✓	✓	
Accounting <i>and</i> Mathematics	✓	✓	
Accounting <i>and</i> Pure Mathematics	✓	✓	
Applied Mathematics <i>and</i> Astronomy	✓	✓	✓
Applied Mathematics <i>and</i> Business and Management		✓	
Applied Mathematics <i>and</i> Chemistry	✓	✓	✓
Applied Mathematics <i>and</i> Computing Science	✓	✓	✓
Applied Mathematics <i>and</i> Economics		✓	
Applied Mathematics <i>and</i> Geography	✓	✓	
Applied Mathematics <i>and</i> Philosophy		✓	
Applied Mathematics <i>and</i> Physics	✓	✓	✓
Applied Mathematics <i>and</i> Psychology	✓	✓	
Applied Mathematics <i>and</i> Statistics	✓	✓	✓
Archaeology <i>and</i> Earth Science	✓	✓	
Archaeology <i>and</i> Geography	✓	✓	
Astronomy <i>and</i> Mathematics	✓	✓	✓
Astronomy <i>and</i> Physics	✓	✓	✓
Biology <i>and</i> Chemistry	✓		
Chemistry <i>and</i> Mathematics	✓	✓	✓
Computing Science <i>and</i> Business and Management		✓	
Computing Science <i>and</i> Business Economics		✓	
Computing Science <i>and</i> Economics		✓	
Computing Science <i>and</i> Geography	✓	✓	
Computing Science <i>and</i> Mathematics	✓	✓	✓
Computing Science <i>and</i> Physics	✓	✓	✓
Computing Science <i>and</i> Physiology	✓	✓	
Computing Science <i>and</i> Psychology		✓	
Computing Science <i>and</i> Statistics	✓	✓	
Finance <i>and</i> Statistics	✓	✓	
Finance <i>and</i> Applied Mathematics	✓	✓	
Finance <i>and</i> Mathematics	✓	✓	
Finance <i>and</i> Pure Mathematics	✓	✓	
Geography <i>and</i> Mathematics	✓	✓	
Geography <i>and</i> Statistics	✓	✓	
Mathematics <i>and</i> Business and Management		✓	
Mathematics <i>and</i> Economics		✓	
Mathematics <i>and</i> Philosophy		✓	
Mathematics <i>and</i> Physics	✓	✓	✓
Mathematics <i>and</i> Psychology		✓	
Mathematics <i>and</i> Statistics	✓	✓	✓
Physiology <i>and</i> Psychology		✓	
Psychological <i>and</i> Statistical Studies	✓		
Psychology <i>and</i> Statistics		✓	
Pure Mathematics <i>and</i> Business and Management	✓	✓	
Pure Mathematics <i>and</i> Economics	✓	✓	
Pure Mathematics <i>and</i> Philosophy	✓	✓	
Pure Mathematics <i>and</i> Physics	✓	✓	
Pure Mathematics <i>and</i> Psychology	✓	✓	
Pure Mathematics <i>and</i> Statistics	✓	✓	
Statistics <i>and</i> Business and Management		✓	
Statistics <i>and</i> Economics		✓	✓

## RESEARCH STUDENTS

Ordinance 350 (General No 12), which came into force in October 1961, governs the admission of Research Students and the appointment of Research Fellows. The following are the provisions of that Ordinance relevant to the admission of Research Students:

- II. The Senate, with the approval of the University Court, shall have power to make regulations under which any person who has given satisfactory evidence of his or her fitness to engage in special study or research may be admitted to the University as a Research Student.
- IV. Research Students shall have access to and the use of the University laboratories, libraries and museums, subject to the provisions of any Ordinances and under such other conditions as the University Court, after consultation with the Senate, may determine.

## REGULATIONS

The following are the Regulations made under Section II above:

1. Applications for admission to the status of Research Student must be made to the relevant College Graduate School in accordance with published procedures.
2. Each application for admission will be referred to the appropriate College Graduate School for evaluation. Applications will be assessed by at least one member of the School or Research Institute within which the proposed line of study or research falls. The College Graduate School shall accept no applicant who has not satisfied them by examination or otherwise: (a) that his or her proposed line of study or research is a fit and proper one, and that he or she is qualified to prosecute it; (b) that he or she is of good character; and (c) that he or she proposes to prosecute his or her studies or research during a period to be approved by the Senate.
3. Subject to the regulations of the Senate, the College or the Committee shall provide for the supervision of the work of each applicant admitted by the Senate to the status of Research Student, and shall report to the College Graduate School at least once a year as to his or her progress and conduct. The College may suspend or exclude from any course any Research Student whose conduct or progress is unsatisfactory.
4. Every Research Student must register each year, paying the ordinary Registration Fee.
5. A Research Student may be required at the discretion of the Head of the School or Research Institute concerned to report his or her attendance to the supervisor of his or her research, or to the Clerk of Senate, at least once a week in term-time, except during periods when, with the permission of the *Senate*, he or she is prosecuting special study or research elsewhere than in the University or in a College affiliated thereto.
6. A Research Student may be required by his or her supervisor(s) to attend classes in the University related to his or her research topic, and may also be required by his or her supervisor(s) to perform the class exercises and take class examinations; but he or she shall not be eligible for prizes in classes so attended and his or her attendance shall not qualify for graduation.
7. All papers arising out of work done in a School or Research Institute shall be submitted before publication to the Dean of Graduate Studies, and in all such papers, when they are published, a due recognition of the University shall be inserted.

## GENERIC REGULATIONS FOR POSTGRADUATE CERTIFICATES AND DIPLOMAS – COLLEGE OF SCIENCE & ENGINEERING

A student admitted onto a programme leading to an award must follow the instructions issued on behalf of the relevant School and be aware of the content of the Programme Document (often referred to as the Programme or 'Course' Handbook) which will contain further details on the Programme including, in some cases, further requirements associated with the award.

### 1. Application of Regulations

- 1.1 These regulations apply without modification to the awards listed in §9 below.
- 1.2 These regulations apply also to the awards listed in §10 below subject to alternative requirements described in the relevant Programme Document. The requirements for these awards may vary only in respect of duration of study (§3), requirements for the award (§7) to reflect the requirements of professional or statutory bodies, or progress to a Masters degree (§8).

### 2. Admission

Before being considered for admission to study for an award to which these Regulations apply, a candidate must normally have obtained a degree or equivalent.



### 3. Duration of Study

The minimum period of study for the award of a Certificate or Diploma is one semester and one academic session respectively. The maximum period for full-time study is 12 calendar months of registered study. The maximum period within which all students must complete the programme is four years from the date of initial registration.

### 4. Programme Components

4.1 In order to qualify for an award in respect of the programmes specified in §9 - §10 below, a candidate must complete minimum credits<sup>10</sup> as follows:

- (a) For the award of a Postgraduate Diploma: 120 credits of taught courses.
- (b) For the award of a Postgraduate Certificate: 60 credits of taught courses.

4.2 The taught courses will normally be undertaken during the academic session (September - June) and are specified in the relevant Programme Document.

### 5. Minimum Requirement for the Award of Credits

Credits for courses contributing to a candidate's curriculum shall be awarded subject to the fulfilment of required conditions. The minimum requirements for the award of credits are set out in the Code of Assessment at §16.40 - §16.44 of the chapter *University Fees and General Information for Students* in the *University Calendar*.

### 6. Assessment

6.1 Regulations for assessment are, insofar as not modified by these regulations, governed by the Code of Assessment which is contained in the *University Fees and General Information for Students* chapter of the *University Calendar*.

6.2 Courses for which the candidate has registered must be counted towards the calculation of the candidate's average aggregation score for the purposes of regulations 7, 9 and 10 unless other provision is justified by good cause circumstances affecting the candidate.

This regulation applies where course registration continues:

- (a) on the date on which the first summative assessment for that course is to be submitted; or
- (b) on such other date as may be specified in the course document for that course.

### 7. Requirements for the award of a Postgraduate Diploma or Postgraduate Certificate and Rules for Award of Distinction and Merit

7.1 The requirement for the award of a Postgraduate Diploma is an average aggregation score of 9 (equivalent to D3) or above in 120 credits, with not less than 80 of these credits at Grade D or above.

7.2 The requirement for the award of a Postgraduate Certificate is an average aggregation score of 9 (equivalent to D3) or above in 60 credits, with not less than 40 of these credits at Grade D or above.

7.3 A candidate who has achieved an average aggregation score of 15 (equivalent to B3) at the first sitting will be eligible for the award with Merit. Where the average overall aggregation score falls within the range 14.1 and 14.9 the Board of Examiners shall have discretion to make the award with Merit.

7.4 A candidate who has achieved an average aggregation score of 18 (equivalent to A5) at the first sitting will be eligible for the award with Distinction. Where the average overall aggregation score falls within the range 17.1 to 17.9 the Board of Examiners shall have the discretion to make the award with Distinction.

### 8. Progress to a Masters Degree

A candidate may be permitted to progress to study for a masters degree if a masters programme in the same subject is available and only if the candidate has obtained an average aggregation score of 12 (equivalent to C3) in the taught courses described in §4 with at least 75% of these credits at grade D or above and all credits at grade F or above. The Programme Document may specify a course or courses in respect of which a specific grade is a minimum requirement of progression.

### 9. Awards to which these Regulations Apply

The only awards in the College of Science & Engineering for session 2010-11 are given in §10 below.

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<sup>10</sup> In compliance with the Scottish Credit and Qualification Framework a minimum component of the total credit must be gained from **Masters level** courses (Level M/SCQF Level 11) as follows: 90 credits for a Postgraduate Diploma, 40 credits for a Postgraduate Certificate.

**10. Awards which Include Variations to Clauses 3, 7 and 8 above**

The following awards are governed substantially by the above regulations. The requirements for these awards may vary in respect of duration of study (§3), requirements for the award (§7), or progress to a Masters degree (§8) and such variation will be described in the Programme Document.

**College of Science & Engineering**

Certificate in Brain Imaging Methods  
 Certificate in Computing Science  
 Certificate in Geoinformation Technology  
 Certificate in Geospatial & Mapping Sciences  
 Certificate in Human Geography  
 Certificate in Information Technology  
 Diploma in Applied Population and Statistical Mapping  
 Diploma in Brain Imaging Methods  
 Diploma in Computing Science  
 Diploma in Computing Science (Research)  
 Diploma in Geoinformation Technology & Cartography  
 Diploma in Geospatial & Mapping Sciences  
 Diploma in Human Geography  
 Diploma in Information Retrieval Systems  
 Diploma in Information Security  
 Diploma in Information Technology  
 Diploma in Landscape Monitoring & Mapping  
 Diploma in Mathematics  
 Diploma in Mobile & Ubiquitous Systems  
 Diploma in Software Engineering

**GENERIC REGULATIONS FOR MASTERS DEGREES****GENERIC REGULATIONS FOR TAUGHT MASTERS DEGREES – COLLEGE OF SCIENCE & ENGINEERING****RESOLUTION**

The Masters degrees listed in §11 and §12 below are governed by Resolution No. 552 of the University Court which came into effect on 1 October 2005 with provision that:

1. The Masters Degrees listed in clauses 11 and 12 of the section entitled 'Regulations' below may be awarded by the University of Glasgow in the Faculties with which these Degrees are identified in these Regulations. Degrees listed in these clauses under the title 'Scottish Agricultural College' may be awarded by the University on the recommendation of that College.
2. The Senate may make Regulations, which are subject to the approval of the University Court, governing the award of these degrees - these are stated in clauses 1 to 10 of the section entitled 'Regulations'.
3. The awards of Postgraduate Diploma and Postgraduate Certificate are also included in the Regulations.

**REGULATIONS**

A student admitted onto a programme leading to an award must follow the instructions issued on behalf of the relevant School and be aware of the content of the Programme Document (often referred to as the Programme or 'Course' Handbook) which will contain further details on the Programme including, in some cases, further requirements associated with the award.

**1. Application of Regulations**

- 1.1 These regulations apply without modification to the degrees listed in §11 below.
- 1.2 These regulations apply also to the degrees listed in §12 below subject to alternative requirements described in the relevant Programme Document. The requirements for these degrees may vary only in respect of duration of study (§3) or progress (§7) to reflect the requirements of professional or statutory bodies.

**2. Admission**

Before being considered for admission to study for an award to which these Regulations apply, a candidate must normally have obtained a degree or equivalent.

### 3. Duration of Study

The minimum period of study for the award of a Masters degree is 12 calendar months. The maximum period for full-time study is 24 calendar months of registered study. The maximum period within which all students must complete the programme is five years from the date of initial registration.

### 4. Programme Components

4.1 In order to qualify for an award in respect of the programmes specified in §11 and §12, a candidate must complete minimum credits<sup>11</sup> as follows:

- (i) For the award of a Masters degree: 180 credits, which includes both taught courses and a 60 credit (or more) dissertation or other substantial independent work.
- (ii) For the award of a Postgraduate Diploma: 120 credits of taught courses.
- (iii) For the award of a Postgraduate Certificate: 60 credits of taught courses.

4.2 The taught courses will normally be undertaken during the academic session (September – June) and are specified in the relevant Programme Document. The length and nature of the dissertation or other substantial independent work is as specified in the relevant Programme Document.

### 5. Minimum Requirement for the Award of Credits

Credits for courses contributing to a candidate's curriculum shall be awarded subject to the fulfilment of required conditions. The minimum requirements for the award of credits are set out in the Code of Assessment at §16.40 – §16.44 of the chapter *University Fees and General Information for Students* in the *University Calendar*.

### 6. Assessment

6.1 Regulations for assessment are, insofar as not modified by these regulations, governed by the Code of Assessment which is contained in the *University Fees and General Information for Students* chapter of the *University Calendar*.

6.2 Courses for which the candidate has registered must be counted towards the calculation of the candidate's average aggregation score for the purposes of regulations 7, 9 and 10 unless other provision is justified by good cause circumstances affecting the candidate.

This regulation applies where course registration continues:

- (a) on the date on which the first summative assessment for that course is to be submitted; or
- (b) on such other date as may be specified in the course document for that course.

### 7. Candidates for a Masters Degree: Progress

7.1 A candidate will be permitted to progress to preparation of the dissertation, or other substantial independent work required by the degree, only if he or she has obtained an average aggregation score of 12 (equivalent to C3) or above in the taught courses described in Regulation 4 with at least 75% of the credits at Grade D3 or better and all credits at Grade F or above.<sup>12</sup> The Programme Document may specify a course or courses in respect of which a specific grade is a minimum requirement of progression. Exceptionally, a candidate may be permitted to progress to the dissertation or other substantial independent work where it is judged<sup>13</sup> that the candidate's performance offers a reasonable prospect of that candidate's reaching the standard required for the award of the Masters degree following reassessment.

7.2 A candidate who has commenced study midway through an academic session will be permitted to progress to preparation of the dissertation, or other substantial independent work, only if he or she has obtained an average aggregation score of 12 (equivalent to C3) or above in the taught courses assessed by the end of the session in which study was commenced, with at least 75% of the credits at Grade D3 or better and all credits at Grade F or above. The Programme Document may specify a course or courses in respect of which a specific grade is a minimum requirement of progression. Exceptionally, a candidate may be permitted to progress to the dissertation or other substantial independent work where it is judged<sup>13</sup> that the candidate's performance offers a reasonable prospect of that candidate's reaching the standard required for the award of the Masters degree following reassessment.

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<sup>11</sup> In compliance with the Scottish Credit and Qualification Framework a minimum component of the total credit must be gained from **Masters level** courses (Level M/SCQF Level 11) as follows: 150 credits for a Masters Degree, 90 credits for a Postgraduate Diploma, 40 credits for a Postgraduate Certificate.

<sup>12</sup> Average grades are determined with reference to the schedule of grades and aggregation scores contained in the University's Code of Assessment. The average is calculated as the arithmetic mean of individual course scores, adjusted to reflect relative weights attributed to the scores being combined. These weights will correspond to the weights (if any) published in programme documentation but otherwise will be determined by the distribution of course credits within the programme.

<sup>13</sup> This judgment is normally made by the Board of Examiners or in cases where there is no scheduled meeting, the Convener of the Board of Examiners.

**8. Reassessment of the Dissertation**

Reassessment of the dissertation or other substantial independent work will be permitted on one occasion only, under such conditions as the Examiners may prescribe in each particular case. Normally, resubmission should be no later than 3 months after the date of the meeting of the Board of Examiners. There is no automatic entitlement to repeat any previous practical work associated with the dissertation or substantial independent work or to undertake further practical work.

**9. Requirements for the award of a Masters degree and rules for award of distinction and merit**

9.1 A candidate will be eligible for the award of the degree on obtaining an average aggregation score of 12 (equivalent to C3) or above in the taught courses described in Regulation 4, with at least 75% of these credits at Grade D3 or better, and all credits at Grade F or above, and obtaining a grade D or better in the dissertation or other substantial independent work.

9.2 A candidate who has achieved at the first attempt an average aggregation score of 15 (equivalent to B3) or above for the taught courses and Grade B3 or above for the dissertation or other substantial independent work will be eligible for the award with Merit. Where the average aggregation score for the taught courses falls within the range 14.1 and 14.9 the Board of Examiners shall have discretion to make the award with Merit. No discretion can be applied in relation to the grade required for the dissertation or other substantial independent work.

9.3 A candidate who has achieved at the first attempt an average aggregation score of 18 (equivalent to A5) or above for the taught courses and Grade A5 or above for the dissertation or other substantial independent work will be eligible for the award with Distinction. Where the average aggregation score for the taught courses falls within the range 17.1 to 17.9 the Board of Examiners shall have the discretion to make the award with Distinction. No discretion can be applied in relation to the grade required for the dissertation or other substantial independent work.

**10. Requirements for the award of a Postgraduate Diploma or Postgraduate Certificate and rules for award of distinction and merit**

10.1 The requirement for the award of a Postgraduate Diploma is an average aggregation score of 9 (equivalent to D3) in 120 credits, with not less than 80 of these credits at Grade D or above.

10.2 The requirement for the award of a Postgraduate Certificate is an average aggregation score of 9 (equivalent to D3) in 60 credits, with not less than 40 of these credits at Grade D or above.

10.3 These awards may be granted with Merit or Distinction according to the criteria specified in §9.2 and §9.3 above.

**11. Degrees<sup>14</sup> to which these regulations apply**

The following degrees are governed by the above regulations:

***College of Science & Engineering***

Master of Research (MRes) Computing Science  
 Master of Research (MRes) Human Geography  
 Master of Research (MRes) Information Retrieval Systems  
 Master of Research (MRes) Information Security  
 Master of Research (MRes) Mobile and Ubiquitous Systems  
 Master of Research (MRes) Software Engineering  
 Master of Science (MSc) Aeronautical Engineering  
 Master of Science (MSc) Aerospace Engineering and Management  
 Master of Science (MSc) Aerospace Systems  
 Master of Science (MSc) Applied Mathematics  
 Master of Science (MSc) Applied Population and Statistical Mapping  
 Master of Science (MSc) Astrophysics  
 Master of Science (MSc) Brain Imaging Methods  
 Master of Science (MSc) Chemical Engineering and Management  
 Master of Science (MSc) Chemistry  
 Master of Science (MSc) Chemistry with Medicinal Chemistry  
 Master of Science (MSc) Civil Engineering and Management  
 Master of Science (MSc) Computer Systems Engineering  
 Master of Science (MSc) Computing Science  
 Master of Science (MSc) Electronics & Electrical Engineering  
 Master of Science (MSc) Electronics & Electrical Engineering and Management  
 Master of Science (MSc) Electronics Design

<sup>14</sup> Each of these degree programmes also offer awards of Postgraduate Diploma and Postgraduate Certificate with the same title (see Regulation 10 above).

Master of Science (MSc) Geoinformation Technology & Cartography  
 Master of Science (MSc) Geospatial & Mapping Sciences  
 Master of Science (MSc) Global Water Sustainability<sup>15</sup>  
 Master of Science (MSc) Information Retrieval Systems  
 Master of Science (MSc) Information Security  
 Master of Science (MSc) Information Technology  
 Master of Science (MSc) Landscape Monitoring & Mapping  
 Master of Science (MSc) Mathematics  
 Master of Science (MSc) Mechanical Engineering  
 Master of Science (MSc) Mechanical Engineering and Management  
 Master of Science (MSc) Mechanical Engineering with Desalination  
 Master of Science (MSc) Mobile and Ubiquitous Systems  
 Master of Science (MSc) Physics: Advanced Materials  
 Master of Science (MSc) Physics: Energy and Environment  
 Master of Science (MSc) Physics: Global Security  
 Master of Science (MSc) Physics: Life Sciences  
 Master of Science (MSc) Research Methods of Psychological Science  
 Master of Science (MSc) Signal Processing, Electronic and Computational Techniques for Researching and Understanding Music  
 Master of Science (MSc) Software Engineering  
 Master of Science (MSc) Space Mission Analysis & Design  
 Master of Science (MSc) Structural Engineering & Mechanics<sup>16</sup>  
 Master of Science (MSc) Telecommunication Electronics  
 Master of Science (MSc) Theoretical Physics

## 12. Degrees<sup>17</sup> which include Variations to Regulations 3 and 7 above

None recognised by Senate for session 2010-11.

## DEGREE OF MASTER OF RESEARCH

### RESOLUTION

The Degree of Master of Research is governed by Resolution No. 625 of the University Court which is currently in draft form with provision that:

1. The Degree of Master of Research (MRes) may be awarded by the University of Glasgow in the Colleges of Arts, Medical, Veterinary & Life Sciences and Science & Engineering.
2. The Senate may make regulations, which are subject to the approval of the University Court, governing the award of the Degree – these are set out in the section entitled ‘Regulations’ below.
3. The examiners for the Degree shall be such Professors and Lecturers in the University of Glasgow and, if appropriate, a full-time member of staff of a recognised institution as the Senate shall designate, together with such External Examiners as the University Court, on the recommendation of the Senate, shall appoint.
4. The early exit awards of Postgraduate Diploma of Research and Postgraduate Certificate are included in the Regulations.

### Regulations

1. Before being admitted to study qualifying for the Degree of Master of Research, every candidate must satisfy the following conditions, namely:
  - (a) (i) he or she must have obtained a Degree in a University or College recognised for this purpose by the University Court on the recommendation of the Senate, or
  - (ii) he or she must have obtained such other qualifications as may be recognised for this purpose by the University Court on the recommendation of the Senate; and

<sup>15</sup> Subject to completion and approval by Senate of a Memorandum of Agreement; courses to be run jointly with the University of Strathclyde

<sup>16</sup> Subject to completion and approval by Senate of a Memorandum of Agreement; courses to be run jointly with the University of Edinburgh.

<sup>17</sup> Each of these degree programmes also offers awards of Postgraduate Diploma and Postgraduate Certificate with the same title (see Regulation 10 above).

- (b) he or she must have fulfilled such other entrance requirements as may be specified for a particular course of study / research;
  - (c) he or she must have satisfied the Senate of his or her fitness to undertake advanced research/study.
2. Candidates may be permitted to pursue a course of prescribed study / research on either a full-time or a part-time basis. The minimum period of study / research for each candidate shall be determined by the appropriate College at the time of his or her admission, according to his or her qualifications and other relevant factors and shall normally be
    - (a) for full-time candidates, either twelve months or two academic years of full-time study / research;
    - (b) for part-time candidates, either two or three academic years of part time study/research.
  3. The Senate may for special reasons permit a candidate, whether full-time or part-time, to prosecute part of his or her studies elsewhere, in another institution recognised for the purpose by the University Court on the recommendation of the Senate.
  4. The College concerned shall designate for each candidate a supervisor who shall report at least once in the year to the College on the progress of the Candidate.
  5. Each candidate shall present himself or herself for written examination and shall submit written reports or other work, as prescribed in each syllabus. He or she may also be required to take an oral or practical examination or both. Performance in work assessed during the course may be taken into account in determining the award of the Degree.
  6. The examiners may recommend the Degree be awarded with Merit or Distinction.
  7. A candidate who fails to satisfy the examiners for the Degree may be permitted by the examiners to present himself or herself for re-examination, on one occasion only and normally not later than two years from the date of his or her first (final) examination, in the whole of the examination, or in a specific component of the examination, as the examiners may determine in each case; and in such cases the examiners shall prescribe whether the candidate shall be required to re-attend the whole course or specific parts of the course, or whether he or she may be permitted to present himself or herself for re-examination without further attendance on the course. An examination may be made up of components such as examination papers, submitted essays, dissertations, laboratory reports, project reports and field reports.
  8. The examiners shall have discretion to recommend the award of a Postgraduate Diploma of Research in the appropriate subject area to a student who has gained a minimum of 120 credits.
  9. Details of the grading scheme, the requirements for the award of the Degree, the Postgraduate Diploma and the Postgraduate Certificate, and the criteria for the award of Merit and Distinction are contained in the programme documentation.
  10.
    - (a) A list of institutions, approved by the relevant College Committee, where candidates may undertake external research projects, is held by the College Graduate Schools and by Research & Enterprise.
    - (b) On the recommendation of the College concerned, and of the Senate, the University Court may recognise, in the case of individual candidates, other appropriate institutions for the purpose of §3 of these Regulations, where satisfactory arrangements can be made for the supervision of the candidate.
    - (c) A full-time member of staff of a recognised institution may be nominated to Senate either as a supervisor or as an internal examiner or a member of an examination committee. In such cases, a member of staff from an appropriate subject area in the University shall be appointed in addition.

#### **Schedule A**

1. Subjects in which the MRes may be offered are listed below.

#### **College of Science & Engineering**

Nanoscience and Nanotechnology

### **DEGREE OF MASTER OF SCIENCE**

#### **RESOLUTION**

The Degree of Master of Science (MSc) is governed by Resolution No 558 of the University Court which came into effect on 1 October 2006 with provision that:

1. The Degree of Master of Science (MSc) may be awarded by the University of Glasgow in each of its Colleges; the Degrees of Master of Science (Adult & Continuing Education), Master of Science (Adult & Continuing Education (Teaching Adults)), Master of Science (Adult & Continuing Education (Community Development)) and Master of Science (Inter-professional Science Education and Communication) in the College of Social Sciences, the Degree of Master of Science (Medical Science) and the Degree of Master of Science (Veterinary Science) in the College of Medical, Veterinary & Life Sciences.

2. The Degree of Master of Science may also be awarded on the recommendation of the Scottish Agricultural College.
3. The Degree of Master of Science or the Degree of Master of Science (Inter-professional Science Education and Communication), or the Degree of Master of Science (Medical Science) or the Degree of Master of Science (Veterinary Science) may be conferred (a) as an Honorary degree upon persons who have done work deserving of such recognition in any School in the Colleges of Medical, Veterinary & Life Sciences and Science & Engineering, (b) *iure officii* upon any person holding office in the University who is not already a graduate of the University.
4. The Senate may make regulations, which are subject to the approval of the University Court, governing the award of these Degrees – these are set out in the section entitled 'Regulations' below.

## REGULATIONS

1. Candidates for the Degree may either undertake, subject to the decision of the College concerned, one of the following programmes:
    - (a) research in accordance with the requirements of Schedule A below;
    - (b) a prescribed course of study in accordance with the requirements of Schedule B below;
    - (c) a programme of work-based learning in accordance with the requirements of Schedule C below.Research or study in respect of (a) or (b) shall be prosecuted in the University of Glasgow or in another institution recognised for the purpose by the University Court on the recommendation of the Senate, except as provided under Clause 4 below.
  2. Before being admitted to study qualifying for the Degree of Master of Science, every candidate must satisfy the following conditions, namely:
    - (a) (i) he or she must have obtained a Degree in a University or College recognised for this purpose by the University Court on the recommendation of the Senate, or a Degree awarded by the Council for National Academic Awards; *or*
      - (ii) he or she must have obtained a diploma or certificate recognised as equivalent to a Degree for this purpose by the University Court on the recommendation of the Senate; *or*
      - (iii) in exceptional circumstances, he or she must have obtained such other qualification(s) as may be recognised for this purpose by the University Court on the recommendation of the Senate; *and*
    - (b) he or she must have fulfilled such other entrance requirements as may be specified for a particular programme of research, study or work-based learning; *and*
    - (c) he or she must have satisfied the Senate of his or her fitness to undertake advanced study.
  3. (a) Candidates may be permitted to pursue a course of prescribed study or research on either a full-time or a part-time basis. Full-time candidates must devote the major part of the day to their studies; provided that candidates shall be subject to the same provisions regarding minimum periods of study as full-time candidates if they have pursued their studies while holding appointment as a member of the teaching staff of the University of Glasgow, or as a Research Assistant or Research Fellow of the University of Glasgow paid through the Finance Office or directly by a grant-awarding body approved by the University Court.
  - (b) The minimum period of study for each candidate shall be determined by the appropriate College at the time of his or her admission, according to his or her qualifications and other relevant factors, and shall normally be:
    - (i) for full-time candidates, either twelve months or two academic years of full-time study;
    - (ii) for part-time candidates, either two or three academic years of part-time study.
  - (c) To qualify for the shorter minimum periods of study specified in (b) above, candidates should normally possess a Degree with Honours of the First or Second Class of an approved University, or a qualification deemed equivalent by the College concerned.
  - (d) Where the longer minimum period of study has been initially prescribed but the candidate has made sufficient progress, the Senate may subsequently reduce the total period of study to not less than twelve months of full-time study or two academic years of part-time study as appropriate.
4. The Senate may for special reasons permit a candidate, whether full-time or part-time, to prosecute part of his or her studies elsewhere, provided that normally at least half of the candidate's total period of study is prosecuted in the University of Glasgow or in a recognised Institution.
5. The College concerned shall designate for each candidate a supervisor who shall report at least once a year to the College Graduate School on the progress of the candidate.

**Schedule A: Master of Science by Research**

1. Research Students within the meaning of Ordinance 350 (General No 12) may be candidates for the Degree of Master of Science, or Master of Science (Medical Science) or Master of Science (Veterinary Science) in any appropriate area of study in the Faculties of Medicine, Science, Education, Engineering or Veterinary Medicine.
2. On completion of the prescribed period of research, each candidate shall present a thesis embodying the results of his work. The thesis must be in English. The thesis may be either a record of original research, or a critical review of existing knowledge. In either case, either a written or an oral examination, or both, may be required, and candidates shall be notified of such requirements through their supervisors.
3. In no case shall the thesis required from a candidate be submitted before the completion of twelve months from the date of his admission as a research student. Except by special permission of the Senate, a thesis may not be presented after the lapse of 12 months from the date on which the candidate ceases to be a registered student.
4. Application for examination for the Degree of MSc, or the Degree of MSc (Medical Science) or the Degree of MSc (Veterinary Science), must be submitted in accordance with the procedures of the appropriate College, details of which may be obtained from the College Graduate School on request.
5. A Committee of Examiners shall be appointed to examine the thesis of each candidate. The Committee shall consist of one or more members appointed by the Senate, together with one or more external examiners appointed by the University Court on the recommendation of the Senate. The Examiners shall conduct such oral and written examinations as they may desire or as the Senate may prescribe in each case, but in no case shall the examination of the thesis constitute less than half of the final assessment.
6. A candidate must submit two bound printed or typewritten copies of his or her thesis. The thesis must include a summary (250-1,000 words), which must be accompanied by a declaration by the candidate that it has been composed by himself or herself. The candidate must also state the extent to which he or she has availed himself or herself of the work of others, and must further state which portions of the thesis, if any, he or she claims as original. The submitted copies of the thesis may be soft-bound but otherwise should generally conform to the British Standards Institution's *Recommendations for the Presentation of Theses and Dissertations* (BS4821:1990) which is available for consultation in the University Library or from the College Graduate School.
7. If the Examiners consider that the thesis, portfolio, or project work has not achieved the standard required for the award of the Degree, the candidate may be permitted to revise the theses, portfolio or project and resubmit it, on one occasion only, under such conditions as the Examiners may prescribe in each particular case. Normally, resubmission should be no later than 6 months after the date of the meeting of the Board of Examiners.
8. If approved for the degree, one bound copy of the thesis and one electronic copy shall be deposited with the University Library. The bound copy should normally be produced to the standard defined in BS4821:1990, and the electronic copy must conform to University Library specifications published at <http://theses.gla.ac.uk/gettingstarted/format.html>. It is the University's normal practice to make the bound copy available for consultation in the Library, and to permit computer download of the electronic copy through its repository service, Enlighten. Such access may, however, be restricted under provisions of the Freedom of Information (Scotland) Act 2002 or the Environmental Information (Scotland) Regulations 2004.

**Schedule B: Master of Science by Prescribed Courses**

1. The Senate may, on the recommendation of the College concerned, institute courses of study for the Degree of Master of Science, or Master of Science (Inter-professional Science Education and Communication) or Master of Science (Medical Science) or Master of Science (Veterinary Science) or Master of Science (Adult & Continuing Education) or (Economics) or (Economics Finance) or (Organisational Development Practice) or (Managerial Research) or (Research Methods of Psychological Science) in any appropriate subject in the Faculties of Medicine, Information & Mathematical Sciences, Physical Sciences, Education, Engineering, Veterinary Medicine or Law, Business & Social Sciences. Such courses may be made available on a full-time basis or on a part-time basis or both, as shall be specified in the approved programme specification for each degree.
2. Degree programme specifications, and any amendments thereto, shall be submitted by the College concerned to the Senate for its approval. Each programme specification shall include a requirement for a dissertation, which shall consist of a critical review of existing knowledge and/or the report of a project in the field of study, and shall account for at least one-quarter of the weight of the final examination. The general nature and length of the dissertation, and the weight attached to it, shall be indicated in each course syllabus. Two typewritten copies of the dissertation shall be submitted, which shall remain in the possession of the University. The dissertation must be in English.
3. The College and subjects in which, governed by these regulations, the Degree may be awarded are listed below. MSc Degree Programmes governed by the generic regulations for taught masters degrees are published separately, see contents list above.

**College of Medical, Veterinary & Life Sciences**

- Fixed & Removable Prosthodontics
- Fixed & Removable Prosthodontics *with Dental Education*
- Fixed & Oral & Maxillofacial Surgery
- Fixed & Oral & Maxillofacial Surgery with Dental Education



Veterinary Science

**College of Science & Engineering**

- See entry for MSc in System Level Integration

4. Candidates for the Degree will normally be admitted only from the beginning of the academical year.
5. The examiners for the Degree shall be such Professors and Lecturers in the University of Glasgow as the Senate shall designate, including the Professor or Lecturer in charge of the School or subject concerned, together with such external examiners as the University Court, on the recommendation of the Senate, shall appoint.
6. Each candidate shall present himself or herself for written examination, and shall also submit a dissertation, as prescribed in each syllabus. He or she may also be required to take an oral or practical examination or both. Performance in work assessed during the course may be taken into account in determining the award of the Degree.
7. A candidate who fails to satisfy the examiners for the degree may be permitted by the examiners to present himself or herself for re-examination, on one occasion only and normally not later than two years from the date of his or her first (final) examination, in the whole of the examination, or in a specific component of the examination, as the examiners may determine in each case; and in such cases the examiners shall prescribe whether the candidate shall be required to re-attend the whole course or specific parts of the course, or whether he or she may be permitted to present himself or herself for re-examination without further attendance on the course. An examination may be made up of components such as examination papers, submitted essays, dissertations, laboratory reports, project reports and field reports.
8. If the College permits the awards of Merit and/or Distinction to be made for any of its Master of Science Degrees, the requirements for the award of Merit and/or Distinction will be contained in the course documentation.

**Schedule C: Master of Science by Work-based Learning: General Regulations**

1. The Senate may, on the recommendation of the College concerned, approve a programme of work-based learning for the Degree of Master of Science set out as a personal Learning Programme Agreement between the candidate, and the sponsoring organisation and the University of Glasgow acting in collaboration.
2. The Learning Programme shall be undertaken primarily at the candidate's place of work and shall provide for regular supervision of the candidate throughout the duration of the Programme, provided always that the Senate shall have power in exceptional cases to permit the candidate to pursue elements of the Programme at locations other than the candidate's place of work or the University of Glasgow.
3. The duration of the Learning Programme for the Degree of Master of Science shall be not less than two academic years, provided always that the Senate shall have power in exceptional cases to reduce the period by up to six months.
4. The outcomes of the Learning Programme shall normally be assessed by means of a written report spanning the constituent elements of the Programme and an oral examination. Two typewritten copies of the report shall be submitted, which shall remain in the possession of the University. The report must be in English.
5. Assessment shall be conducted in terms of current regulations.
6. The Senate may, on the recommendation of the College concerned, approve additional requirements specific to a particular programme of work-based learning.

**Schedule D: General Provisions**

1. (a) The following institutions are recognised for the purpose of Section 2 of the Resolution:

Animal Diseases Research Association, Moredun Research Institute  
 Beatson Institute for Cancer Research  
 Central Public Health Laboratory, Colindale  
 Department of Clinical Physics and Bioengineering of the West of Scotland Health Boards  
 Deutsches Elektronen Synchrotron Laboratory (DESY) Hamburg  
 Dunstaffnage Marine Laboratory  
 European Molecular Biology Laboratory, Heidelberg  
 European Nuclear Research Centre (CERN), Geneva  
 Fisheries Research Services Marine Laboratory, Aberdeen  
 Fisheries Research Services Freshwater Laboratory, Pitlochry  
 Glasgow and West of Scotland Blood Transfusion Service  
 Glaxo SmithKline, Stevenage  
 Institute for Animal Health  
 National Institute for Biological Standards and Control  
 Natural History Museum, London  
 NERC Centre for Ecology and Hydrology Laboratories

Papworth Hospital  
 Royal Botanic Garden, Edinburgh  
 Scottish Agricultural College  
 Scottish Crops Research Institute, Invergowrie  
 Scottish Universities Environmental Research Centre  
 Specialist Virology Laboratory, Gartnavel General Hospital  
 Universities Marine Biological Station, Millport  
 Veterinary Research Laboratories, Stormont

- (b) On the recommendation of the College concerned, and of the Senate, the University Court may recognise, in the case of individual candidates, other appropriate institutions for the purpose of Section 2 of the Resolution, where satisfactory arrangements can be made for the supervision of the candidate.
- (c) A full-time member of staff of a recognised institution may be nominated to Senate *either* as a supervisor *or* as an internal examiner or a member of a Special Committee. In such cases, a member of staff from an appropriate subject area in the University shall be appointed also.

## NON GENERIC MASTERS REGULATIONS

### DEGREE OF MASTER OF SCIENCE IN ENVIRONMENTAL SCIENCE

The degree of Master of Science in Environmental Science is offered by the University of Glasgow and the University of Strathclyde and awards are made in the name of both Universities. Its regulations are drawn up consequent upon the Memorandum of Co-operation between the University of Glasgow and the University of Strathclyde. Students shall be deemed to be students of both Universities and shall observe the respective Ordinances, Resolutions, rules and regulations of both Universities.

Copies of the regulations may be obtained from the College Graduate School, and are those promulgated by the University of Strathclyde.

### DEGREE OF MASTER OF SCIENCE IN GEOTECHNICS

The degree of Master of Science in Geotechnics is offered by the University of Glasgow and the University of Strathclyde and awards are made in the name of both Universities. Its regulations are drawn up consequent upon the Memorandum of Co-operation between the University of Glasgow and the University of Strathclyde. Students shall be deemed to be students of both Universities and shall observe the respective Ordinances, Resolutions, rules and regulations of both Universities.

Copies of the regulations may be obtained from the College Graduate School, and are those promulgated by the University of Strathclyde.

### DEGREE OF MASTER OF SCIENCE IN SHIP AND OFFSHORE STRUCTURES

The degree of Master of Science in Ship and Offshore Structures is offered by the University of Glasgow and the University of Strathclyde and awards are made in the name of both Universities. Its regulations are drawn up consequent upon the Memorandum of Co-operation between the University of Glasgow and the University of Strathclyde. Students shall be deemed to be students of both Universities and shall observe the respective Ordinances, Resolutions, rules and regulations of both Universities.

Copies of the regulations may be obtained from the College Graduate School, and are those promulgated by the University of Strathclyde.

### DEGREE OF MASTER OF SCIENCE IN MARINE TECHNOLOGY

These programmes are offered by the Universities of Glasgow, Heriot-Watt, Newcastle upon Tyne, Strathclyde, Southampton and University College London. Awards will be made by the individual partner institutions (see Schedule B).

#### 1. General Regulations

- (i) A Student registered for an award within the Programme will be subject to the provisions of the Rules, Regulations, Ordinances and Statutes of the Partner Institution with which he or she is registered.

- (ii) A Student registered for an individual module or for a module offered within the Programme by a Partner Institution(s) [other than, the institution with which he/she is registered for an award] will be subject to the provisions of the Rules, Regulations, Ordinances and Statutes of the Partner Institution(s).

## 2. Aims and Titles of the Awards

- (i) *Aim:* The programme will provide the marine industry within the UK with an MTP which will enable graduates working in industry to gain the necessary skills training in advanced technologies, management, business and IT. With this training they will be able to provide the necessary leadership and vision to maintain and enhance our 'World Class' status in this industry. The training will be relevant to current problems and functions of the marine sector and will be designed to enhance the industry's knowledge base and improve competitiveness. This will provide students with advanced technical and managerial techniques that can be applied in the marine industry and enable them to take on major responsibilities early in their careers.
- (ii) *Titles:* The Institutions have come together to deliver a joint Programme, however the awards will be in the name of individual institutions. Three awards will be available, the Degree of Master of Science, the Postgraduate Diploma, and the Postgraduate Certificate.<sup>18</sup> Not all the Partners Institutions will offer the Postgraduate Diploma or Postgraduate Certificate<sup>18</sup>, or offer the MSc with Distinction. [See Schedule B]

## 3. Admission

- (i) *Entry Qualification:* An applicant holding an Honours degree [normally 2(2)] or above of a United Kingdom Institution, or a Degree of any other Institution approved for this purpose, or an equivalent recognised award in an appropriate engineering or scientific discipline, may be admitted to a Programme of study leading to the award of the Degree of Master of Science, Postgraduate Diploma, or Postgraduate<sup>18</sup> or may undertake individual Modules. The Partner Institutions may admit an applicant who is not a graduate provided that the applicant holds professional or other qualifications deemed equivalent for this purpose.
- (ii) *Acceptance Process:* An applicant will only be admitted to a Programme of study leading to the Degree of Master of Science, Postgraduate Diploma, or Postgraduate Certificate<sup>18</sup>, or to take individual Modules, after he / she has first been accepted by the Director of Studies, in accordance with the normal postgraduate admissions procedures of the Institution with which the applicant wishes to register. The admission of an applicant may be subject to additional conditions specified by the Programme Director.
- (iii) *Language Requirement:* An applicant whose first language is not English, will be required to satisfy the Programme Director of an ability to understand and communicate, in both written and spoken English, which is adequate for the purpose of pursuing the course of study. Either before or after the application for admission to the Programme, the Course Director may require the applicant to attend a Programme of instruction and reach a satisfactory standard in the English Language.
- (iv) *Registration:* An applicant for the Degree of Master of Science, Postgraduate Diploma, Postgraduate Certificate<sup>18</sup>, or individual Modules, must be admitted to the Programme at the start of the period of study and shall undertake to comply with the Charter, Statutes, Ordinances, Regulations and Rules of the Institution(s) holding his/her registration, and the Institution(s) where he/she will undertake individual modules.
- an applicant wishing to register for the award of the Degree of Master of Science, will normally register with the institution where his/her Project will be supervised.
  - registration for the Postgraduate Diploma or Postgraduate Certificate<sup>11</sup> may be held at the local Partner Institution or at an institution offering the intended award [See Schedule B].

An applicant will normally not be allowed to commence a period of study if fees are outstanding.

Upon registration and annual renewal, when appropriate, the applicant will be deemed to be a "Student", undertaking the postgraduate Programme in Marine Technology.

- (v) *Deferred Registration:* If an applicant wishes to defer making a choice of Project and hence the supervising institution, then it will be necessary to temporarily register, either with the local Partner Institution or the Co-ordinating Institution [University of Newcastle]. Upon subsequently making a choice of Project, and with academic guidance, the Student's registration will then be transferred to the institution supervising that Project. Such registration will normally be permitted only if the Student has completed less than one third of the Programme of study, based upon academic credits. In other exceptional cases, conditional upon approval by the Programme Director, registration may also be transferred.
- (vi) *Retrospective Registration.* As it is permitted to undertake individual taught modules and to receive academic credits, without registering for a postgraduate award, Students may retrospectively register for a postgraduate award and receive retrospective recognition of credits already obtained within this Programme. Such registration will normally be permitted only if the Student has completed less than one third of the Programme of study, based upon academic credits.
- (vii) *Postgraduate Diploma/Postgraduate Certificate<sup>18</sup>.* A Student studying for the Degree of Master of Science shall be deemed also to be qualified for study for the Postgraduate Diploma or Postgraduate Certificate<sup>18</sup>, if the latter is

<sup>18</sup> Not offered by the University of Glasgow - see Schedule B

offered by the institution at which the Student is registered. A Student for a Postgraduate Diploma shall be deemed also to be qualified for study for a Postgraduate Certificate<sup>19</sup>, if this is offered by the Institution at which the Student is registered [See Schedule B].

#### 4. Structure of the Programme and Study Requirements

- (i) *Overall Structure of the Programme:* See Schedule A for the structure of the awards available.
- (ii) *Awards and Associated Learning Outcome:* The taught components [modules] each carry the same academic credit and have a similar balance of quantitative and qualitative material, thus the choice for Students lies in the breadth of study and whether to include a Project (compulsory for the MSc/Postgraduate Diploma), to provide experience in Project management.

Details of the Awards are given in Schedule A. In addition, Individual Taught Modules are available for Students wishing to study a specific topic.

- (iii) *Study Requirements: Master of Science:* Each Student for the award of the Degree of Master of Science is required to undertake a total of 180 credits. 100 credits are selected with academic guidance, from lists to be provided on an annual basis. Students are further required to undertake an 80 credit Project, usually in an industrial institution approved for this purpose. The Project title must be approved by the institution at which the Student is registered. An academic [Project] supervisor from the academic staff at the institution that will supervise the Project, will be appointed by that institution (normally that institution holding the Student's registration) upon receiving a recommendation from the Board of Examiners that the Students progress warrants commencement of the Project. An industrial advisor will normally be appointed from the industrial institution where the Project is to be carried out. A Dissertation describing the Project and the results of the Project will also be required.
- (iv) *Study Requirements: Postgraduate Diploma:* Each Student for the award of Postgraduate Diploma is required to undertake 120 credits, selected with academic guidance, from lists to be provided on an annual basis. A compulsory module is in the form of a "Mini Project" [a 40 credit Project with Dissertation, which is only available to Postgraduate Diploma Students], undertaken in an institution approved for the purpose. A Dissertation describing the Mini-Project and the results of this Project will be required. The Mini-Project title must be approved by the institution at which the Student is registered. The Academic Supervisor will normally be a member of the academic staff in the institution supervising the Mini-Project. An industrial advisor may be appointed from the industrial institution where the Project is being carried out, when deemed to be appropriate by the supervising institution.
- (v) *Study Requirements: Postgraduate Certificate<sup>19</sup>* Each student for the award of Postgraduate Certificate<sup>19</sup> is required to undertake 60 credits, selected with academic guidance, from lists to be provided on an annual basis.
- (vi) *Period of Module Study:* Each taught module will consist of 100 notional study hours of which one week is in residence at the institution that is the module provider. Reading and coursework will be prescribed for the non-residential part of the module.
- (vii) *Assessment and Penalties:* Components of the course work of each taught module will be assessed and Students will normally be required to undertake a supervised written examination or an extensive written report upon completion of the study period for each taught module. The written examinations will be held at a place and time to be published before the start of each taught module. Assessment of the MSc Project will be based upon the written MSc Dissertation and normally a 'viva voce' examination of the Student. Coursework will not normally be accepted after the scheduled submission date. Examinations will be conducted in accordance with the regulations of the institution that is responsible for the delivery of the module or the supervision of the Project.
- (viii) *Module Rate:* Students will normally be required to undertake a minimum of two taught modules per year. Students will be required to undertake the Marine Foundation and Core modules at an early stage of their studies.

#### 5. Progression: Taught Modules

- (i) *Assessment:* A Student's understanding of the subject matter and his/her attainment of the learning outcomes for each module, will be assessed from problem solving assignments, a supervised examination and/or an extensive written report.

External examiners will be nominated by the Board of Studies to act as moderators.

- (ii) *Conditions for Passing a Module:* A Student' will be required to achieve an overall weighted average of 50% in each module and also a minimum of 50% in the Project, to be eligible for a postgraduate award. No module may count towards more than one of the postgraduate awards [Degree, Postgraduate Diploma or Postgraduate Certificate<sup>19</sup>].
- (iii) *Retaking an Examination:* A Student's failing to achieve 50% in a module may be permitted by the Board of Examiners, to present himself/herself, for re-examination on one occasion only, normally at the next available occasion and normally not later than two years from the date of the first examination. The Student will be required to achieve a minimum of 50% at the second sitting. Students who fail to achieve 50% at the second sitting, will be deemed to have failed the module and a re-take or replacement module will not be allowed.

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<sup>19</sup> Not offered by the University of Glasgow - see Schedule B

- (iv) *Duration of Study:* The study time and credits required for each award are as follows:

Master of Science: 1800 notional hours: 180 credits at level M

Postgraduate Diploma: 1200 notional hours: 120 credits at level M

Postgraduate Certificate<sup>20</sup>: 600 notional hours: 60 credits at level M

For the Degree of Master of Science, the normal minimum time is 24 months with a maximum time of 60 months, for completion from the initial registration. For the Postgraduate Diploma, the normal minimum time is 24 months and a maximum of 60 months, and for the Postgraduate Certificate<sup>20</sup> the normal minimum time is 12 months and a maximum of 36 months.

For the Degree of Master of Science it is required that all modules shall be satisfactorily completed within the 60 month period from initial registration, although the Board of Studies may grant Students permission for late submission of their MSc Dissertation, provided permission is sought prior to 60 months from initial registration. The allowed extension will be specific to the individual Student's circumstances. Normally only one extension will be allowed.

Upon the recommendation of the Director of Studies at the institution holding the Student's registration, the Board of Studies may extend the maximum period of registration, specified above for a given award, by not more than one year at a time.

- (v) *Distinction:* Students who obtain an average mark of 70% or more, and who are awarded a Dissertation mark of at least 70%, will be eligible for the award of the Degree of Master of Science with Distinction.

No Distinction will be awarded to a Student for the Postgraduate Diploma or Postgraduate Certificate<sup>20</sup>.

## 6. Progression: Project and Dissertation

- (i) *Dissertation Submission:* The Dissertation or Mini-Dissertation may be submitted only after successful completion of the requisite number of taught modules [Sections 3.3, 3.4 and 4.2].

- (ii) *MSc Dissertation:* A Dissertation submitted for the Degree of Master of Science is required to contain a review of relevant material, a description of work undertaken and a detailed discussion of the results and conclusions. A Student must indicate by means of explicit references the citation of the work of others, or work by the Student, which is not part of his/her submission for the Degree. Work submitted for another Degree may not comprise part of the submission for the Degree of Master of Science.

Copies of the Dissertation must be submitted in sewn or hard-bound plain cloth, or in an approved alternative permanent binding, unless the regulations of the institution at which the Student is registered permits the submission in temporary covers, in which case after approval by that institution, copies must be bound in a form which is consistent with the regulations of the institution. Three copies must be submitted for examination to the institution not earlier than one month and normally not later than nine months after the successful completion of the final taught module. Students must provide notice of the intention to submit a Dissertation, together with a declaration that the Dissertation has been composed by the Student himself/herself, not less than one month before the date of submission.

The Dissertation will normally have a length not exceeding 80 pages [single sided, 1.5 line spacing and font size 11 - exact details to be included in the handbook] plus annexes. The Project carries 80 credits at level M with 800 notional hours of study time.

- (iii) *Mini-Dissertation:* A Mini-Dissertation submitted for the Postgraduate Diploma [see Section 3.4] is required to contain either a literature survey with a critical assessment of the technical material, or a report of an experimental Project carried out by the Student, containing details of the work undertaken, the results obtained and detailed conclusions.

Copies of the Mini-Dissertation must be submitted in an approved binding, unless the regulations of the institution at which the Student is registered permits the submission in temporary covers, in which case after approval by that institution, copies must be bound in a form which is consistent with the regulations of the institution. Three copies must be submitted for examination to the institution not earlier than one month and normally not later than nine months after the successful completion of the final taught module. Students must provide notice of the intention to submit a Mini-Dissertation not less than one month before the date of submission.

The Mini-Dissertation will normally be of a length of 40 pages [single sided, 1.5 line spacing and font size 11 - exact details to be included in the handbook] plus annexes. The Mini-Project carries 40 credits at level M with 400 notional hours of study time.

- (iv) *Oral Examination:* A candidate submitting for the Degree of Master of Science will normally be required to attend for an oral examination after submission of the Dissertation, which will normally be held within three months of the submission date. This will be carried out by two Dissertation Examiners and will be arranged by the Director of Studies in that institution.

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<sup>20</sup> Not offered by the University of Glasgow - see Schedule B

## 7. Attendance

- (i) *Attendance and Submission of Work:* Attendance at all lectures, classes, laboratory sessions and tutorial periods, is normally compulsory for all Students undertaking a taught module, irrespective of whether they are undertaking a postgraduate course of study or a single taught module. Submission of all coursework will normally be mandatory. Students not meeting these conditions will not be permitted to sit the appropriate written examination.
- (ii) *Absence:* Students unable to attend the residential component of a module will be required to do so at a later date, or will be required to undertake another module, with the agreement of the Director of Studies at the institution where the Student is registered. If a Student is unable to attend a particular full day within the residential component of a module, for reasons of ill health or other good cause, then a medical certificate, or alternative equivalent evidence, will be required. Students missing sessions or lectures of a module should provide written evidence to the Director of Studies. Its acceptance will be at the discretion of the Board of Examiners.
- (iii) *Withdrawal:* The Programme of study shall normally be continuously pursued although a Student may, with the permission of the Board of Studies, withdraw temporarily from the Programme of study. The period of interruption will normally not exceed one year. The time to complete the Programme of study will normally be extended by the duration of the period of interruption.

A Student who wishes to withdraw permanently before the normal completion of the course shall give notice in writing to his/her Director of Studies, who shall inform the Registry or Student Office of the Institution where the Student is registered, and the Programme Director who will be responsible for informing the Board of Studies and reporting the matter to the Board of Examiners.

## 8. Examination Boards, Procedures and Awards

- (i) *Board of Examiners:* The Board of Examiners shall operate as detailed in the Memorandum of Agreement. The minutes of the meetings of the Board of Examiners will be circulated to the Academic Secretaries, or equivalents, in the member Academic Institutions. The Directors of Studies will be required to bring to the meetings all assessed assignments and examination work for all of the Students, at all levels of attainment.
- (ii) *External Examiners:* The External Examiners may be appointed from industry or institutions that are not members of the consortium. External examiners will normally be appointed for three years in the first instance with a limited extension beyond three years being considered on an annual basis. Substitutes will not normally be allowed.

External Examiners will receive all draft examination question papers and, where appropriate, titles of Dissertations. They will be given the examination scripts plus coursework and to read the Dissertations. The annual reports of the External Examiners will be sent by the Programme Director to the various Institution authorities.

- (iii) *Conditions for Award:* Students will qualify for a postgraduate award on the basis of academic credits achieved by successful completion of taught modules and/or a Project, as detailed in Section 5
  - taught modules each carry 10 credits
  - the MSc Project Module carries 80 credits
  - the Postgraduate Diploma Mini-Project Module carries 40 credits.

The pass mark in all cases is 50% which must be achieved for each taught module and the Project.

*MSc* - accumulation of 180 credits entitles a Student to the award of the MSc.

*Postgraduate Diploma* - accumulation of 120 credits entitles a Student to the award of a Postgraduate Diploma.

*Postgraduate Certificate*<sup>21</sup> - accumulation of 60 credits entitles a Student to the award of a Postgraduate Certificate.<sup>21</sup>

*Individual Module* - Students who successfully undertake an individual taught module will receive a 'Transcript' from the institution where the module was undertaken.

*Distinction* - A student who shows outstanding performance and who obtains a taught module average mark of 70% or more, and who is awarded a Dissertation mark of 70% or above, will be eligible for the award of the degree of MSc with Distinction. No Distinction will be awarded for the Postgraduate Diploma or Postgraduate Certificate.<sup>21</sup>

- (iv) *Dissertation: Master of Science:* For Students seeking the award of the Degree of Master of Science the Dissertations will be examined by a member of academic staff, as well as the supervisor(s) of the Student, in the institution where the Student is registered. The examiners must recommend one of the following:
  - that the Dissertation is of a sufficiently high standard to merit the award of the Degree of Master of Science with Distinction. This will only be possible if the earlier work of the Student merits such a classification.
  - that the Dissertation is of sufficiently high standard to merit the award of the Degree of Master of Science.

<sup>21</sup> Not offered by the University of Glasgow - see Schedule B

- that subject to minor changes, where the re-typing and re-binding satisfies Section 5.2, the Student be awarded the Degree of Master of Science. The corrected Dissertation must be submitted within the period of six calendar months immediately following the date of recommendation. The revision should satisfy the examiners that the required standard has been met.
  - that the Student be required to resubmit a substantially revised Dissertation within the period of twelve calendar months, immediately following the date of the recommendation. The revision should satisfy the examiners that the required standard has been met.
  - that the Dissertation does not meet the requirement for the award of the Degree of Master of Science. In this case the Board of Studies may decide that achievement in the course work is equivalent to a satisfactory performance in a 40 credit project and therefore a Postgraduate Diploma can be awarded.
- (v) *Dissertation. Postgraduate Diploma:* For Students seeking the award of the Postgraduate Diploma, the Dissertations will be examined by a member of academic staff, as well as the supervisor(s) of the Student, in the institution where the Student is registered. The examiners must recommend one of the following:
- that the Mini-Dissertation is of sufficiently high standard to merit the award of Postgraduate Diploma.
  - that subject to minor changes, where re-typing and re-binding satisfies Clause 5.3, that the Student be awarded the Postgraduate Diploma. The revised Mini-Dissertation must be submitted within the period of six calendar months immediately following the date of the recommendation. The revision should satisfy the examiners that the required standard has been met
  - that the Student be required to re-submit a substantially revised Mini-Dissertation within the period of twelve calendar months immediately following the date of the recommendation. The revision should satisfy the examiners that the required standard has been met.
  - that the Mini-Dissertation does not meet the requirement for the award of Postgraduate Diploma, but achievement in the course work merits the award of a Postgraduate Certificate.<sup>22</sup>
- (vi) *Recommendation for an Award:* The Board of Examiners will make the final recommendation. The Degree of Master of Science, Postgraduate Diploma or Postgraduate Certificate<sup>22</sup> will be awarded in accordance with the procedures of the institution at which the Student is registered. No Student shall be entitled to an award unless all fees and any other monies due to the institution have been paid and any rightful property of the institution returned. The names of those who receive awards will be published in a manner appropriate to the awarding institution.
- (vii) *Individual Modules:* Students who undertake modules will be sent a “transcript” for each completed module, giving their provisional mark. This transcript will identify the module and the Institution awarding the credits at Level M. Following the Board of Examiners meeting, the student’s final mark will be issued.
- (viii) *General: Students Progress:* Students will normally be informed of their overall academic progress by the institution holding their registration, working in conjunction with the Co-ordinating Institution where the records will be collated and archived. Students will receive notification of individual results from the institution(s) delivering the module(s), in accordance with that institutions regulations, following the appropriate meeting of the Board of Examiners.
- (ix) *Appeals.* Appeals will only be accepted if they are in writing and submitted to the Programme Director, who will forward the appeals to the institution that is the module convenor, or is examining the Dissertation, providing the appeals are made within the timescale specified by that institution, and are in accord with the regulations of that institution.

## 9. Codes of Discipline

- (i) All students shall be subject to the disciplinary codes of each of the Partner Institutions where the study is undertaken.
- (ii) If an alleged offence is committed within the precincts of one of the Partner Institutions, the disciplinary code of that institution shall apply. When the location of the alleged offence is elsewhere other than within the precincts of one of the Partner Institutions, the Coordinating Institution’s code and procedures shall apply.

## 10. Complaints Procedure

- (i) Any student who wishes to complain about any general aspect of the Programme shall invoke the complaints procedure of the Coordinating Institution (The University of Newcastle).
- (ii) Any student who wishes to complain about a specific service or facility provided by a specific Partner Institution shall invoke the complaints procedure of that institution.

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<sup>22</sup> Not offered by the University of Glasgow - see Schedule B

## 11. Appeals

Appeals shall ordinarily be made to, and considered in accordance with the Regulations of, the Partner Institution with which the Student is registered for an award. However, the appeal may be made to the Partner Institution providing a particular module [for example, where the appeal concerns an individual module provided by a Partner Institution other than the institution with which the Student is registered for an award].

## 12. Termination

The Programme of study by a Student may be terminated on the recommendation of his/her Director of Studies and the Board of Examiners, after endorsement by the Board of Studies, that his/her academic progress is considered unsatisfactory (Sections 3.8, 4.3, 4.4). Termination under this provision requires written warning of unsatisfactory performance to be given. A Student may be excluded from this Programme for other than academic reasons in accordance with the provisions of the Rules, Regulations and Ordinances of the institution holding his / her registration or where he / she undertakes the individual modules.

## 13. Amendments

Proposed amendments to these regulations must be submitted to the Board of Studies and the individual Partner Institutions for approval.

### SCHEDULE A

#### A. MSc IN MARINE TECHNOLOGY (NAVAL ARCHITECTURE)

- or (MARINE ENGINEERING)
- or (OFFSHORE ENGINEERING)
- or (SMALL CRAFT DESIGN)
- or (CLASSIFICATION AND SURVEY)
- or (CONVERSION AND REPAIR)
- or (DEFENCE)

Programme Code	Credits	Descriptive Title	Delivering University
(i) Candidates from a non-marine background shall take the following marine foundation modules:			
A1	10	Naval Architecture	Soton
A2	10	Marine Engineering	UCL
(ii) Candidates shall take the following core modules:			
B1	10	Maritime Economics	Strath
B2	10	Marine project management	Ncl
B3	10	Risk, reliability and safety	HW
B4	10	Structural and material response in the marine environment	Glas
	80	Project	
(iii) Candidates shall take the following stream core modules, depending on the chosen stream:			
A. <i>Naval Architecture</i> (NA)			
C1	10	The regulatory framework for the marine industry	Strath
C2	10	Optimisation in engineering design	Ncl
C3	10	Advanced structural design and analysis	Glas
C4	10	Advanced hydrodynamics for design	Soton
B. <i>Marine Engineering</i> (ME)			
C5	10	Advanced marine engineering design	Ncl
C6	10	Marine system identification, modelling and control	Ncl
C7	10	Marine electrical and electronic systems	UCL
C8	10	Marine powering, transmission and propulsion	UCL
C. <i>Offshore Engineering</i> (OE)			
C9	10	Drilling and production process	HW
C10	10	Design of fixed and floating offshore	Glas
C11	10	Pipelines, moorings, umbilicals and risers	HW
C12	10	De-commissioning and re-use of offshore structures	Strath
D. <i>Small Craft Design</i> (SCD)			
C2	10	Optimisation in engineering design	Ncl
C13	10	Lightweight structural design	Glas
C14	10	High speed and Recreational craft	Soton
C15	10	Working craft design	Ncl



E. *Classification and Survey (CS)*

C1	10	The regulatory framework for the marine industry	Strath
C3	10	Advanced structural design and analysis	Glas
C5	10	Advanced marine engineering design	Ncl
C16	10	Surveying ships and offshore installations	Ncl

F. *Conversion and Repair (CR)*

C1	10	The regulatory framework for the marine industry	Strath
C2	10	Optimisation in engineering design	Ncl
C5	10	Optimisation in engineering design	Ncl
C16	10	Advanced marine engineering design	Ncl

G. *Defence (D)*

C3	10	Advanced structural design and analysis	Glas
C6	10	Marine systems identification, modelling and control	Ncl
C8	10	Marine powering, transmission and propulsion	UCL
C17	10	Design synthesis	UCL

(iv) Candidates, from a marine background, shall take further modules to a value of 20 credits from the list below, to bring their total to 180 credits, subject to the approval of the Director of Studies.

C1	10	The regulatory framework for the marine industry	Strath
C2	10	Optimisation in engineering design	Ncl
C3	10	Advanced structural design and analysis	Glas
C4	10	Advanced hydrodynamics for design	Soton
C5	10	Advanced marine engineering design	Ncl
C6	10	Marine system identification, modelling and control	Ncl
C7	10	Marine electrical and electronic systems	UCL
C8	10	Marine powering, transmission and propulsion	UCL
C9	10	Drilling and production processes	HW
C10	10	Design of fixed and floating offshore systems	Glas
C11	10	Pipelines, moorings, umbilicals and risers	HW
C12	10	De-commissioning and re-use of offshore structures	Strath
C13	10	Lightweight structural design	Glas
C14	10	High speed and Recreational craft	Soton
C15	10	Working craft design	Ncl
C16	10	Surveying ships and offshore installations	Ncl
C17	10	Design Synthesis	UCL

<i>Module</i>	<i>Stream (Compulsory)</i>	<i>Stream (Recommended)</i>
C1	NA, CS, CR	SCD
C2	NA, SCD, CR	ME, OE
C3	NA, CS, D	SCD, CR
C4	NA	OE, D
C5	ME, CS, CR	
C6	ME, D	
C7	ME	D
C8	ME, D	CS
C9	OE	
C10	OE	CR
C11	OE	
C12	OE	
C13	SCD	NA, CS
C14	SCD	NA
C15	SCD	
C16	CS, CR	ME
C17	D	

**B. POSTGRADUATE DIPLOMA IN MARINE TECHNOLOGY (NAVAL ARCHITECTURE)  
or (MARINE ENGINEERING)  
or (OFFSHORE ENGINEERING)  
or (SMALL CRAFT DESIGN)  
or (CLASSIFICATION AND SURVEY)  
or (CONVERSION AND REPAIR)  
or (DEFENCE)**

Programme Code	Credits	Descriptive Title	Delivering University
1. Candidates from a non-marine background shall take the following marine foundation modules:			
A1	10	Naval Architecture	Soton
A2	10	Marine Engineering	UCL
2. Candidates shall take the following core modules:			
B1	10	Maritime Economics	Strath
B2	10	Marine project management	Ncl
B3	10	Risk, reliability and safety	HW
B4	10	Structural and material response in the marine environment	Glas
	40	Project	
3. Candidates from a marine background, shall take all the following stream core modules, depending on the chosen stream, to bring a total credit value of 120. Candidates from a non-marine background shall take any two modules from their chosen stream.			
<i>A. Naval Architecture (NA)</i>			
C1	10	The regulatory framework for the marine industry	Strath
C2	10	Optimisation in engineering design	Ncl
C3	10	Advanced structural design and analysis	Glas
C4	10	Advanced hydrodynamics for design	Soton
<i>B. Marine Engineering (ME)</i>			
C5	10	Advanced marine engineering design	Ncl
C6	10	Marine system identification, modelling and control	Ncl
C7	10	Marine electrical and electronic systems	UCL
C8	10	Marine powering, transmission and propulsion	UCL
<i>C. Offshore Engineering (OE)</i>			
C9	10	Drilling and production process	HW
C10	10	Design of fixed and floating offshore	Glas
C11	10	Pipelines, moorings, umbilicals and risers	HW
C12	10	De-commissioning and re-use of offshore structures	Strath
<i>D. Small Craft Design (SCD)</i>			
C2	10	Optimisation in engineering design	Ncl
C13	10	Lightweight structural design	Glas
C14	10	High speed and Recreational craft	Soton
C15	10	Working craft design	Ncl
<i>E. Classification and Survey (CS)</i>			
C1	10	The regulatory framework for the marine industry	Strath
C3	10	Advanced structural design and analysis	Glas
C5	10	Advanced marine engineering design	Ncl
C16	10	Surveying ships and offshore installations	Ncl
<i>F. Conversion and Repair (CR)</i>			
C1	10	The regulatory framework for the marine industry	Strath
C2	10	Optimisation in engineering design	Ncl
C5	10	Optimisation in engineering design	Ncl
C16	10	Advanced marine engineering design	Ncl
<i>G. Defence (D)</i>			
C3	10	Advanced structural design and analysis	Glas
C6	10	Marine systems identification, modelling and control	Ncl
C8	10	Marine powering, transmission and propulsion	UCL
C17	10	Design synthesis	UCL

**C. POSTGRADUATE CERTIFICATE IN MARINE TECHNOLOGY<sup>23</sup>**

Programme Code	Credits	Descriptive Title	Delivering University
1. Candidates from a non-marine background shall take the following marine foundation modules:			
A1	10	Naval Architecture	Soton
A2	10	Marine Engineering	UCL
2. Candidates shall take the following core modules:			
B1	10	Maritime Economics	Strath
B2	10	Marine project management	Ncl
B3	10	Risk, reliability and safety	HW
B4	10	Structural and material response in the marine environment	Glas
3. Candidates from a marine background shall take further modules to a value of 20 credits from the list below to bring their total to 180 credits, subject to the approval of the Director of Studies.			
C1	10	The regulatory framework for the marine industry	Strath
C2	10	Optimisation in engineering design	Ncl
C3	10	Advanced structural design and analysis	Glas
C4	10	Advanced hydrodynamics for design	Soton
C5	10	Advanced marine engineering design	Ncl
C6	10	Marine system identification, modelling and control	Ncl
C7	10	Marine electrical and electronic systems	UCL
C8	10	Marine powering, transmission and propulsion	UCL
C9	10	Drilling and production processes	HW
C10	10	Design of fixed and floating offshore systems	Glas
C11	10	Pipelines, moorings, umbilicals and risers	HW
C12	10	De-commissioning and re-use of offshore structures	Strath
C13	10	Lightweight structural design	Glas
C14	10	High speed and Recreational craft	Soton
C15	10	Working craft design	Ncl
C16	10	Surveying ships and offshore installations	Ncl
C17	10	Design Synthesis	UCL

**SCHEDULE B*****MSc with Distinction***

Those Partner Institutions offering the MSc award with Distinction are:

- University of Glasgow
- Heriot-Watt University
- University of Newcastle
- University of Southampton

***Postgraduate Diploma***

Those Partner Institutions offering the Postgraduate Diploma award are:

- University of Glasgow
- Heriot-Watt University
- University of Newcastle
- University of Southampton

***Postgraduate Certificate***

Those Partner Institutions offering the Postgraduate Certificate award are:

- Heriot-Watt University
- University of Newcastle

**DEGREE OF MASTER OF SCIENCE IN SYSTEM LEVEL INTEGRATION and MASTER OF SCIENCE IN SYSTEM LEVEL INTEGRATION (by Distance Learning)**

The Taught Masters Programme in System Level Integration is offered jointly by the University of Edinburgh, the University of Glasgow, Heriot-Watt University and the University of Strathclyde who together have formed the Institute for

<sup>23</sup> Not offered by the University of Glasgow - see Schedule B

System Level Integration. The regulations following are those promulgated by the University of Edinburgh, the administering institution.

## 1. MSc, Diploma, Certificate and Continuing Education in System Level Integration

The Programme is open to graduating and Continuing Education students who may undertake one or more masters modules in a mixture of study modes including full-time or part-time. It is also possible to carry out a number of these activities in a distance learning mode of study (see regulation 3). On successful completion of a prescribed number of credits, graduating students will be awarded a postgraduate qualification made in the name of all four universities. Continuing Education students who successfully complete one or more masters modules will be awarded credit and will be supplied with an appropriate record of achievement which can be used for formal continuing professional development purposes.

The approved curriculum is composed so that the main theme of the programme is that of System Level Integration. However, a number of optional streams exist that allow students to specialise in a preferred area. In addition, the postgraduate qualifications available share common coursework thus facilitating the transfer in full of completed credit between these awards.

Unless otherwise specified in these course specific regulations, the general regulations of the nominated administering university (presently the University of Edinburgh) shall apply to all students on the Masters Programme in System Level Integration.

### 1.1 Admissions

#### (a) *Entrance Requirements*

Candidates must normally possess:

- (i) at least a second class honours degree in Computing/ Computer Science or Electronic and/or Electrical Engineering from a university in the United Kingdom; or
- (ii) a qualification deemed by the Institute Management Committee to be equivalent to the above; and/or
- (iii) professional or industrial experience deemed appropriate by the Institute Management Committee

#### (b) *Entrance Date*

Full-time students shall normally join the programme at the beginning of each academic year (early October). Part-time students may be allowed to join the programme at any appropriate point within the academic year.

#### (c) *Concurrent Registration and Transfer*

All graduating students shall normally be initially registered concurrently for the postgraduate degree/diploma/certificate until a final decision on the award has been reached. Transfer between awards will normally occur through agreement between the student and Programme Director or as recommended by the Institute Board of Examiners. The Examiners shall have the discretion to recommend that a candidate registered for the Master of Science in System Level Integration transfer to the Postgraduate Diploma or Postgraduate Certificate in System Level Integration. The SCOTCAT credits given for work performed towards the Master of Science shall count towards the alternative award of Postgraduate Diploma or Postgraduate Certificate.

### 1.2 Duration of Study

The minimum and maximum duration of study is dependent on the individual award and applies to graduating students only. The following minimum and maximum duration of study normally applies:

#### (a) *Normal Minimum Period of Study*

Postgraduate Certificate: 4 months full-time 12 months part-time.  
 Postgraduate Diploma: 9 months full-time 18 months part-time.  
 Master of Science: 12 months full-time 21 months part-time.

#### (b) *Normal Maximum Period of Study*

Postgraduate Certificate: 12 months full-time 3 years part-time.  
 Postgraduate Diploma: 2 years full-time 5 years part-time.  
 Master of Science: 2 years full-time 6 years part-time.

### 1.3 Nature of Study

The programme is organised in terms of a set of modules whose successful completion earns a SCOTCAT credit rating (Scottish Master's level). Each SCOTCAT credit accounts for 10 notional hours of student learning activity.

Activities may include lectures, self study, laboratories, seminars, tutorials, case studies, group work, project work, and work experience.

#### 1.4 Curriculum

**(a) *Approved List of Taught Modules***

All candidates will undertake activities as set out in the Degree Programme Table.

**(b) *Master of Science***

All candidates for the award of Master of Science in System Level Integration will be required to undertake activities totalling 180 or more SCOTCAT credits (Scottish Masters Level) made up of 120 or more SCOTCAT credits (Scottish Masters Level) taken from the approved list of taught modules and normally including ALL compulsory modules. Additionally, there will be a distinctive dissertation reporting on a supervised project whose rating is 60 SCOTCAT credits (Scottish Masters Level). All candidates for the Master of Science will undertake this project activity which must be on an approved topic in System Level Integration.

**(c) *Postgraduate Diploma***

All candidates for the award of Postgraduate Diploma in System Level Integration will be required to undertake 120 or more SCOTCAT credits (Scottish Masters Level) taken from the approved list of taught modules normally including ALL compulsory modules.

**(d) *Postgraduate Certificate***

All candidates for the award of Postgraduate Certificate in System Level Integration will be required to undertake 60 or more SCOTCAT credits (Scottish Masters Level) taken from the approved list of taught modules normally including ALL compulsory modules.

**(e) *Diploma Practical Exercise***

With the permission of the Programme Director, candidates for the award of Postgraduate Certificate or Postgraduate Diploma in System Level Integration may substitute modules from the approved list with a practical exercise of value 20 SCOTCAT credits (Scottish Masters Level). This prescribed/optional practical exercise must be on an approved topic in System Level Integration.

Under instruction from the Institute Board of Examiners, candidates for the award of Postgraduate Certificate or Postgraduate Diploma in System Level Integration may be directed to undertake a practical exercise of value 20 SCOTCAT credits (Scottish Masters Level) as an alternative to resitting failed or incomplete modules.

**(f) *Recognition of Prior/External Learning or Experience***

With the approval of the Programme Director, recognition up to a maximum of 45 SCOTCAT credits (Scottish Masters Level), or equivalent, which have not contributed to the award of another degree, may be given for prior/external learning or experience. This recognition will normally be based on relevance to the System Level Integration theme and the award being sought. Credits taken more than five years prior to admission will not be accepted. Maximum credit recognition for the following qualifications applies:

Award Maximum Recognition of Prior/External Learning

Postgraduate Certificate 20 SCOTCAT (Scottish Masters Level)

Postgraduate Diploma 30 SCOTCAT (Scottish Masters Level)

Master of Science 45 SCOTCAT (Scottish Masters Level)

**(g) *Continuing Education for Electronics Systems***

With the approval of the Programme Director, recognition up to a maximum of 60 SCOTCAT credits (Scottish Masters Level), or equivalent, which have not contributed to the award of another degree, may be given for prior/external learning or experience gained through the CEESI programme. This recognition will normally be based on relevance to the System Level Integration theme and the award being sought. Credits from CEESI may not be combined with credits from other sources for the purposes of credit recognition. Credits taken more than five years prior to admission will not be accepted. Maximum credit recognition for the following qualifications applies:

Postgraduate Certificate 20 SCOTCAT (Scottish Masters Level)

Postgraduate Diploma 40 SCOTCAT (Scottish Masters Level)

Master of Science 60 SCOTCAT (Scottish Masters Level)

#### 1.5 Assessment

**(a) *Method of Assessment***

Each module will be assessed by any approved combination of written examinations, continuous assessment, a dissertation, or oral examinations.

**(b) *The Institute Board of Examiners***

The Board of Examiners shall consist of: the Programme Director; the co-ordinators of the taught modules; the Heads of the contributing Departments or Schools; the External Examiners; and such other members of academic staff of the partner universities as may be required from year to year. The Board shall be chaired by a

professor of the nominated administering university. A quorum must include the External Examiners, the Programme Director and a representative from each of the Universities.

**(c) Reassessment**

A candidate whose performance in any activity within a module fails to satisfy the Institute Board of Examiners may be permitted by the Examiners to attempt to pass in that activity on one further occasion only and normally not later than 1 year from the date of the first attempt. In such cases the examiners shall prescribe whether the candidate shall be required to re-attend the whole course or specific parts of the course, or whether the candidate may be permitted to present for re-examination without further attendance on the course.

**1.6 Award**

**(a) Master of Science**

In order to qualify for the award of the Master of Science in System Level Integration, a candidate must have:

- (i) accumulated no fewer than 180 SCOTCAT credits (Scottish Masters Level) on the basis of successful completion of the approved curriculum and/or recognised prior/external learning or experience;
- (ii) a pass in the individual dissertation worth 60 SCOTCAT credits (Scottish Masters Level) included in the total of 180 credits.

**(b) Postgraduate Diploma**

In order to qualify for the award of the Postgraduate Diploma in System Level Integration, a candidate must have accumulated no fewer than 120 SCOTCAT credits (Scottish Masters Level) on the basis of successful completion of the approved curriculum and/or recognised prior/external learning or experience.

**(c) Postgraduate Certificate**

In order to qualify for the award of the Postgraduate Certificate in System Level Integration, a candidate must have accumulated no fewer than 60 SCOTCAT credits (Scottish Masters Level) on the basis of successful completion of the approved curriculum and/or recognised prior/external learning or experience.

**(d) Distinction**

Both the MSc in System Level Integration and the Diploma in System Level Integration may be awarded with distinction.

**1.7 Programme Table**

<i>Course Title</i>	<i>Credits</i>
SLI Methodology Overview	0
System Partitioning	15
IP Block Authoring	15
IP Block Integration	15
VLSI Design	15
Embedded Operating Systems	15
Real Life System Level Integration	8
Dissertation	60
<u>Optional courses</u>	
Introduction to Embedded Software Engineering*	0
Introduction to Hardware Design Automation**	0
Sensor Networks	8
Embedded Networking	8
Microcontrollers and Microprocessors	5
Analog and Mixed Signal Design	15
DSP for Communications	15
FPGA for DSP & Communications	8
Mobile and Multimedia Communications	8
Broadband Networks	8
Introduction to Verification ***	15
Semiconductor Design for Testability ***	15

\*This course is recommended for students with a background in electronic engineering / hardware.

\*\*This course is recommended for students with a background in computer science / software engineering.

\*\*\* Course only available via DL and full-time students need prior agreement from Programme Director.

**2. MSc, Diploma, Certificate and Continuing Education in System Level Integration (by Distance Learning)**

The Programme is open to graduating and Continuing Education students who may undertake one or more masters modules in a part-time, distance learning mode of study. On successful completion of a prescribed number of credits,

graduating students will be awarded a postgraduate qualification made in the name of all four universities. Continuing Education students who successfully complete one or more masters modules will be awarded credit and will be supplied with an appropriate record of achievement which can be used for formal continuing professional development purposes.

The approved curriculum is composed so that the main theme of the programme is that of System Level Integration. However, a number of optional streams exist that allow students to specialise in a preferred area. In addition, the postgraduate qualifications available share common coursework thus facilitating the transfer in full of completed credit between these awards.

Unless otherwise specified in these course specific regulations, the general regulations of the nominated administering university (presently the University of Edinburgh) shall apply to all students on the Masters Programme in System Level Integration.

## 2.1 Admissions

### (a) *Entrance Requirements*

Candidates must normally possess:

- (i) at least a second class honours degree in Computing/ Computer Science or Electronic and/or Electrical Engineering from a university in the United Kingdom; or
- (ii) a qualification deemed by the Institute Management Committee to be equivalent to the above; and/or
- (iii) professional or industrial experience deemed appropriate by the Institute Management Committee.

### (b) *Resident Requirements*

Candidates on this programme will be exempt from any normal on-campus requirements.

### (c) *Entrance Date*

Students may be allowed to join the programme at any appropriate point within the academic year.

### (d) *Concurrent Registration and Transfer*

All graduating students shall normally be initially registered concurrently for the postgraduate degree/diploma/certificate until a final decision on the award has been reached. Transfer between awards will normally occur through agreement between the student and Programme Director or as recommended by the Institute Board of Examiners. The Examiners shall have the discretion to recommend that a candidate registered for the Master of Science in System Level Integration transfer to the Postgraduate Diploma or Postgraduate Certificate in System Level Integration. The SCOTCAT credits given for work performed towards the Master of Science shall count towards the alternative award of Postgraduate Diploma or Postgraduate Certificate.

## 2.2 Duration of Study

The minimum and maximum duration of study is dependent on the individual award and applies to graduating students only. The following minimum and maximum duration of study applies:

### (a) *Normal Minimum Period of Study*

Postgraduate Certificate: 12 months part-time.

Postgraduate Diploma: 18 months part-time.

Master of Science: 21 months part-time.

### (b) *Normal Maximum Period of Study*

Postgraduate Certificate: 3 years part-time.

Postgraduate Diploma: 5 years part-time.

Master of Science: 6 years part-time.

## 2.3 Nature of Study

The programme is organised in terms of a set of modules whose successful completion earns a SCOTCAT credit rating (Scottish Master's level). Each SCOTCAT credit accounts for 10 notional hours of student learning activity.

Modules are available online via Blackboard, a secure managed learning environment, hosted on the ISLI server. Students can access course materials via the internet at any hour of the day from any geographical location. Blackboard is used to give access to learning materials, enhance communications, encourage peer support and monitor student progress. Modules have been carefully planned and structured to assist students pace their learning. Dedicated tutors support students in their studies by a variety of methods, including web-based discussion groups, email and telephone. Some modules have a 2-3 day residential component where students may be required to attend ISLI or a partner institution world-wide for face-to-face tutorials, access to industry design tools/design exercises and to undertake examinations under controlled conditions.

## 2.4 Curriculum

### (a) *Approved List of Taught Modules*

All candidates will undertake activities as set out in the Degree Programme Table.

Candidates studying modules by distance learning will only follow modules provided on this basis unless approval is given by the College Postgraduate Studies Committee. Candidates studying modules delivered through the traditional methods (see regulation 2.) will only be able to study modules by distance learning following approval by the College Postgraduate Studies Committee.

**(b) Master of Science**

All candidates for the award of Master of Science in System Level Integration will be required to undertake activities totalling 180 or more SCOTCAT credits (Scottish Masters Level) made up of 120 or more SCOTCAT credits (Scottish Masters Level) taken from the approved list of taught modules and normally including ALL compulsory modules. Additionally, there will be a distinctive dissertation reporting on a supervised project whose rating is 60 SCOTCAT credits (Scottish Masters Level). All candidates for the Master of Science will undertake this project activity which must be on an approved topic in System Level Integration.

**(c) Postgraduate Diploma**

All candidates for the award of Postgraduate Diploma in System Level Integration will be required to undertake 120 or more SCOTCAT credits (Scottish Masters Level) taken from the approved list of taught modules normally including ALL compulsory modules.

**(d) Postgraduate Certificate**

All candidates for the award of Postgraduate Certificate in System Level Integration will be required to undertake 60 or more SCOTCAT credits (Scottish Masters Level) taken from the approved list of taught modules normally including ALL compulsory modules.

**(e) Diploma Practical Exercise**

With the permission of the Programme Director, candidates for the award of Postgraduate Certificate or Postgraduate Diploma in System Level Integration may substitute modules from the approved list with a practical exercise of value 20 SCOTCAT credits (Scottish Masters Level). This prescribed/optional practical exercise must be on an approved topic in System Level Integration.

Under instruction from the Institute Board of Examiners, candidates for the award of Postgraduate Certificate or Postgraduate Diploma in System Level Integration may be directed to undertake a practical exercise of value 20 SCOTCAT credits (Scottish Masters Level) as an alternative to resitting failed or incomplete modules.

**(f) Recognition of Prior/External Learning or Experience**

With the approval of the Programme Director, recognition up to a maximum of 45 SCOTCAT credits (Scottish Masters Level), or equivalent, which have not contributed to the award of another degree, may be given for prior/external learning or experience. This recognition will normally be based on relevance to the System Level Integration theme and the award being sought. Credits taken more than five years prior to admission will not be accepted. Maximum credit recognition for the following qualifications applies:

Award Maximum Recognition of Prior/External Learning

Postgraduate Certificate 20 SCOTCAT (Scottish Masters Level)

Postgraduate Diploma 30 SCOTCAT (Scottish Masters Level)

Master of Science 45 SCOTCAT (Scottish Masters Level)

**(g) Continuing Education for Electronics Systems Integration (CEESI)**

With the approval of the Programme Director, recognition up to a maximum of 60 SCOTCAT credits (Scottish Masters Level), or equivalent, which have not contributed to the award of another degree, may be given for prior/external learning or experience gained through the CEESI programme. This recognition will normally be based on relevance to the System Level Integration theme and the award being sought. Credits from CEESI may not be combined with credits from other sources for the purposes of credit recognition. Credits taken more than five years prior to admission will not be accepted. Maximum credit recognition for the following qualifications applies:

Postgraduate Certificate 20 SCOTCAT (Scottish Masters Level)

Postgraduate Diploma 40 SCOTCAT (Scottish Masters Level)

Master of Science 60 SCOTCAT (Scottish Masters Level)

## 2.5 Assessment

**(a) Method of Assessment**

As with the on-campus delivery, students are assessed by a combination of examination and coursework. If required, oral examinations may take place following submission of the MSc or Diploma dissertation and / or submission of coursework assignments.

**(b) The Institute Board of Examiners**

The Board of Examiners shall consist of: the Programme Director; the co-ordinators of the taught modules; the Heads of the contributing Departments or Schools; the External Examiners; and such other members of academic staff of the partner universities as may be required from year to year. The Board shall be chaired by a



professor of the nominated administering university. A quorum must include the External Examiners, the Programme Director and a representative from each of the Universities.

**(c) Reassessment**

A candidate whose performance in any activity fails to satisfy the Institute Board of Examiners may be permitted by the Examiners to attempt to pass in that activity on one further occasion only and normally not later than 1 year from the date of the first attempt. In such cases the examiners shall prescribe whether the candidate shall be required to re-attend the whole course or specific parts of the course, or whether the candidate may be permitted to present for re-examination without further attendance on the course.

**2.6 Award**

**(a) Master of Science**

In order to qualify for the award of the Master of Science in System Level Integration, a candidate must have:

- (i) accumulated no fewer than 180 SCOTCAT credits (Scottish Masters Level) on the basis of successful completion of the approved curriculum and/or recognised prior/external learning or experience;
- (ii) a pass in the individual dissertation worth 60 SCOTCAT credits (Scottish Masters Level) included in the total of 180 credits.

**(b) Postgraduate Diploma**

In order to qualify for the award of the Postgraduate Diploma in System Level Integration, a candidate must have accumulated no fewer than 120 SCOTCAT credits (Scottish Masters Level) on the basis of successful completion of the approved curriculum and/or recognised prior/external learning or experience.

**(c) Postgraduate Certificate**

In order to qualify for the award of the Postgraduate Certificate in System Level Integration, a candidate must have accumulated no fewer than 60 SCOTCAT credits (Scottish Masters Level) on the basis of successful completion of the approved curriculum and/or recognised prior/ external learning or experience.

Distinction: Both the MSc in System Level Integration and the Diploma in System Level Integration may be awarded with distinction.

**2.7 Programme Table**

<i>Course Title</i>	<i>Credits</i>
System Partitioning	15
IP Block Authoring	15
IP Block Integration	15
VLSI Design	15
Embedded Operating Systems	15
Dissertation	60
<u>Optional courses***</u>	
Introduction to Embedded Software Engineering*	0
Introduction to Hardware Design Automation**	0
Sensor Networks	8
Embedded Networking	8
Microcontrollers and Microprocessors	15
Semiconductor Design for Testability	15
Introduction to Verification	15

\* This course is recommended for students with a background in electronic engineering / hardware.

\*\* This course is recommended for students with a background in computer science / software engineering.

\*\*\* With the approval of the Degree Programme Director, students may select suitable courses approved by the 'Continuing Education in Electronic Systems Integration (CEESI)' Consortium: up to 20 credits (Certificate); 40 Credits (PG Diploma); or 60 credits (MSc), in addition to the options available in this list.

**GENERIC REGULATIONS FOR DOCTORATE DEGREES**

**DEGREE OF DOCTOR OF PHILOSOPHY**

**RESOLUTION**

The Degree of Doctor of Philosophy is governed by Resolution No. 507 of the University Court which came into effect on 1 October 2004. The provisions of the Resolution are as follows:

1. The Degree of Doctor of Philosophy (PhD) may be awarded by the Senate of the University of Glasgow in each of the Colleges thereof;
2. The Senate shall have power to make such regulations governing the award of the Degree as may be approved by the University Court, and these shall be as stated in Schedules A to D<sup>24</sup>;
3. A candidate for the Degree may either undertake study or research in accordance with the provisions of Schedule A or, in the case of The Glasgow School of Art, Schedule C, or shall present either a published thesis or a published memoir or work or other material in accordance with the provisions of Schedule B or, in the case of The Glasgow School of Art, Schedule D;
4. The Degree of Doctor of Philosophy whether by research or by published work shall in no case be conferred on persons who have not satisfied the conditions set out below, and shall not be conferred as an Honorary Degree;

#### **Schedule A: Degree of Doctor of Philosophy by Research**

The following regulations are supplemented by a series of Guidance Notes for students which are available with the on-line *University Calendar* which can be found at [www.gla.ac.uk/services/senateoffice/calendar/](http://www.gla.ac.uk/services/senateoffice/calendar/).

1. A research student who has pursued in the University of Glasgow<sup>25</sup>, or in an institution recognised and approved for the purpose, a course of special study or research, may offer himself or herself for the Degree of Doctor of Philosophy under the following conditions:
  - (a) that he or she has obtained a degree in any Scottish university, or in another university or college specially recognised for the purpose of this Section by the University Court on the recommendation of the Senate (provided always that a diploma or certificate recognised in like manner as equivalent to a degree may be accepted in place of a degree);
  - (b) that he or she has produced to the Senate evidence of satisfactory progress in the special study or research undertaken by him or her;
  - (c) that he or she will have been registered for such study on a full-time basis for a period of not less than three academic years, or on a part-time basis for a period of either not less than five years of part-time study or not less than four years, comprising three years of part-time study and one year of full-time study, provided always that the Senate shall have power, in exceptional cases, to reduce the period by one academic year;
  - (d) that he or she must be available for supervision in the University throughout the period of study except when given permission to pursue research elsewhere.
  - (e) that he or she has pursued such formal research training and any other attendance requirements as set down by the College concerned.
2. The normal standard of admission for a research student will be that of a Degree with First or Upper Second Class Honours in a relevant discipline but another qualification, being a qualification approved by the University Court as provided in Clause 1 above, may be accepted by the relevant College as being suitable for the programme of study which it is proposed that the applicant should follow.
- 3.1 Each candidate for the Degree of Doctor of Philosophy shall present for the approval of the Senate a thesis which shall embody the results of the candidate's special study or research, and which shall be accompanied by a declaration signed by the candidate that the thesis has been composed by himself or herself.  
The thesis shall be a minimum of 70,000 and a maximum of 100,000 words including references, bibliography and appendices in each case. A candidate who wishes to submit a thesis of greater or lesser length must seek prior permission of the appropriate College Higher Degrees Committee or equivalent.
- 3.2 A thesis for the degree of PhD shall normally be presented for examination within 4 years from the date when a candidate first registered for full-time study or 6 years from the date when a candidate first registered for part-time study. Where the candidate has registered for a combination of full-time and part-time study, or where the College has approved suspension<sup>26</sup> of study for a period of time, the maximum period of study permitted shall be equivalent to the duration for full and part-time study plus the approved period of suspension adjusted proportionately.
- 3.3 Where the candidate has fulfilled the prescribed period of full-time or part-time study required by the regulations, and has not submitted the thesis for examination, the candidate shall register as a writing-up student. If further research project work is required, the College may require the candidate to register as a full-time or part-time student. Failure to meet College requirements for progress without good cause, may result in exclusion from further study.

<sup>24</sup> Schedules C and D are published in The Glasgow School of Art section of the *University Calendar*.

<sup>25</sup> It is possible for students to pursue research off-campus subject always to provisions applied by the College which will reflect the nature of study in the associated discipline.

<sup>26</sup> A College Higher Degrees Committee or equivalent may permit the period of study to be suspended for a defined period when a student is ill or has other personal circumstances which prevent the student from continuing the research. Suspension can be agreed by the College Higher Degrees Committee or equivalent for other reasons, such as student internships. The arrangements for suspension of study shall be in accordance with those of the Research Councils.

- 3.4 The thesis shall be examined by one or more examiners appointed by the Dean of Graduate Studies on behalf of Senate from among the experienced academic staff of the University, and by one or more External Examiners appointed by the Dean of Graduate Studies on behalf of the University Court and Senate. No person who has been involved in the direct supervision of the candidate may be appointed as an examiner. The internal examiner shall not undertake any duties which have been allocated to the Convener (see §3.6 below and Guidance Note 4) and shall act as an examiner in the normal way. In the case of a submission by a member of staff or a former member of staff two of the examiners must be external. A thesis may be examined by two external examiners without the appointment of an Internal Examiner, with the approval of the Dean of Graduate Studies.
- 3.5 A candidate for the Degree of PhD must present himself or herself for oral or other examination by the Committee of Examiners on the subject matter of the thesis and its context. The requirement for an oral examination shall be observed at the first submission of the thesis. In undertaking an oral or other examination the candidate must follow any requirements for the assessment as stated by the Graduate School.
- 3.6 A Convener shall be appointed by the Convener of the Higher Degrees Committee or its equivalent committee to convene the oral examination and to report on the agreed recommendations of the Committee of Examiners to the appropriate College Committee.

The Convener will be responsible for the following:

- a) making the arrangements for an oral examination and ensuring that this is normally held no later than 3 months after the submission of the thesis;
  - b) attending the whole examination and ensuring that it is conducted in a fair manner and is of a reasonable duration;
  - c) assisting the examiners to reach a consensus, noting that, subject to the authority of Senate, the view of the External Examiner shall normally prevail;
  - d) arranging for the report stating the recommendation of the Committee of Examiners to be signed at the conclusion of the examination;
  - e) after the oral, co-ordinating the completion of a joint report detailing the requirements for revision or resubmission and providing this to the candidate;
- 3.7 The supervisor shall not normally be present at the oral examination but shall be available to the Committee of Examiners for consultation. If the candidate makes a request in writing to the Convener for the supervisor to be present at the oral examination, this should normally be permitted. The request should be made no later than one week before the date of the oral.
- 3.8 Where a candidate has been permitted to resubmit a thesis for examination, an oral shall also be held other than in exceptional circumstances, where the Convener, on the recommendation of the Committee of Examiners, may seek the agreement of the Dean of Graduate Studies to set aside the requirement for an oral examination after resubmission. In such circumstances the agreement of the candidate must be obtained, otherwise the candidate shall have the right to insist on an oral being held.
- 3.9 Where a candidate has been permitted to resubmit the thesis, it shall normally be on one occasion only. The resubmitted thesis shall be examined by the Committee of Examiners appointed for the first submission or by the Committee of Examiners appointed for the second submission.

If the Committee of Examiners considers that the thesis has not achieved the standard required for the Degree of PhD but is of sufficient merit to be worthy of an award, it may recommend that the candidate revise the thesis and submit it for consideration for a Masters degree.

4. Particular conditions relating to study or research in the Colleges are set out below. A candidate must also comply with detailed requirements for research degrees published by the relevant Graduate School.

#### **Arts**

The thesis must normally be written and defended in English. Exceptionally, however, at the time of application the College Higher Degrees Committee (or equivalent) may approve arrangements whereby the thesis may be written and defended in a language other than English. Approval will normally be given only where the use of a language other than English is deemed appropriate by the relevant School and the Higher Degrees Committee and where the School and the Higher Degrees Committee are satisfied that appropriate arrangements can be made for supervision and examination.

Where a School determines it to be appropriate, candidates may present a thesis accompanied by a related piece of creative work, for example, a play, a theatrical performance, a translation or computer software. In cases where a performance element is involved, candidates must provide a permanent record of the creative aspect of the overall submission to be deposited with the thesis in the University Library. In such cases, the Higher Degrees Committee shall, in consultation with the supervising School, advise candidates on the minimum length of the thesis component. The Board of Examiners is required to attend a performance of the creative work.

In English Literature, candidates may present themselves for a PhD in a specific Creative Writing genre. Before being considered for admission to study for the award, candidates must normally satisfy the requirements of Regulation 1 above, and present sufficient evidence of potential in creative writing, through submission of a

portfolio of creative and critical work. Registered candidates must satisfactorily complete, in the first two years, prescribed studies which shall include attendance at writing seminars and/or workshops. Each candidate's progress in the prescribed studies shall be assessed by means of set projects and/or a journal of studies maintained by the candidate. During the third year, under the supervision of a person appointed for the purpose by the College, candidates shall prepare and present for the approval of the Senate, a thesis or portfolio of written work which shall make significant contribution to literature in the generic route chosen, normally containing material worthy of publication. The thesis shall be deemed to constitute a 'thesis which shall embody the results of the candidate's special study or research' as required under Regulation 3.1 of the Resolution. Following successful completion of the first two years of study, candidates will be eligible for the award of Master of Philosophy if they elect to end their studies at this stage.

In Music, candidates may present themselves in Musicology, Musical Composition or Sonic Arts. In Musical Composition the candidate shall present a portfolio of at least 2 hours composed music or work of equivalent creative depth or complexity, comprising at least 3 and no more than 9 pieces. The portfolio may comprise instrumental, vocal or electroacoustic works or any combination thereof. It should include a written commentary of between 5,000 and 7,000 words on the works contained. The compositions and the commentary taken together shall be deemed to constitute a 'thesis which shall embody the results of the candidate's special study or research' as required under Regulation 3 of the Resolution. In Sonic Arts the candidate shall present a thesis of between 40,000 and 80,000 words and project (weighted together: 100%). The project may be presented as a portfolio exemplifying and illustrating the thesis. This might involve a software/hardware project with details of its design and specification, and a description of its implementation. A research project would outline the design of experiments and present documentation and interpretation of the results. The thesis and the project taken shall be deemed to constitute a 'thesis which shall embody the results of the candidate's special study or research' as required under Regulation 3 of the Resolution.

### **Social Sciences**

The thesis must normally be written and defended in English. Exceptionally, however, at the time of application the College Higher Degrees Committee may approve arrangements whereby the thesis may be written and defended in a language other than English. Approval will normally be given only where the use of a language other than English is deemed appropriate by the relevant School and the Higher Degrees Committee and where the School and the Higher Degrees Committee are satisfied that appropriate arrangements can be made for supervision and examination.

In addition to the requirement for satisfactory completion of a thesis, the candidate will be required to attend training courses as specified by the Graduate School and also, where appropriate, by his or her supervisors. Candidates may be exempted in full or part from this requirement, normally by virtue of training undertaken and recognised by the Graduate School as meeting training requirements.

### **Medical, Veterinary & Life Sciences**

A candidate holding an appointment as a member of the teaching or research staff of the University of Glasgow, paid through the Finance Office or directly by a grant awarding body approved by the University Court, may register part-time whilst being subject to the same provisions regarding minimum periods of full-time study if he or she devotes the major part of the day, typically 75-80% of his or her time, to research studies.

In addition to the requirement for satisfactory completion of a thesis, a candidate will normally be required to attend training courses as specified by the College Graduate School.

### **Science & Engineering**

To qualify for the award of a PhD, a candidate must have demonstrated to a Board of Examiners by the presentation of a thesis and by performance in an oral examination that he or she is capable of:

- (a) pursuing original research in his or her specific field of study, and
- (b) relating his or her results to the general body of knowledge in the field, and
- (c) presenting his or her results in a critical and scholarly manner.

In addition to the requirement for satisfactory completion of a thesis, the candidate will normally be required to attend training courses as specified by the College Graduate School.

#### **5. *Teaching or Research Staff of the University or Recognised Institutions - Candidature for the Degree***

A member of the teaching staff of the University, or a person who holds an appointment as Research Assistant or Research Fellow of the University of Glasgow and is paid through the Finance Office or directly by a grant-aiding body approved by the University Court, or a member of the teaching or research staff of any other institution recognised for the purpose of Regulation 1, may notwithstanding offer himself or herself for the Degree of Doctor of Philosophy if he or she has prosecuted a course of special study or research on a part-time basis for a period of not less than three years.

#### **6. *Research in External Institutions***

As permitted in Regulation 1, College Graduate Schools may allow the candidate's study or research to be conducted in an institution external to the University of Glasgow. The period of study of research elsewhere shall not normally exceed twelve months except where that study or research is undertaken in an institution or location

approved by the appropriate College Committee. The choice of an external institution will be determined *ad hoc* and only where there exists clear alignment of the candidate's proposed study or research with the aims and objectives of the institution proposed, and where the institution can demonstrate ability to provide an appropriate level of supervision of the candidate. A full-time member of staff of a recognised Institution may be nominated by the College Graduate School on behalf of Senate *either* as a supervisor *or* as an internal examiner although such an individual may not be nominated as an examiner if he or she has previously supervised the candidate's work. In cases where an employee of the institution acts as supervisor or internal examiner, a member of staff from an appropriate subject area in the University will also be appointed.

The following institutions are recognised for the purpose of this regulation:

Animal Diseases Research Association, Moredun Research Institute  
 Beatson Institute for Cancer Research  
 Central Public Health Laboratory, Colindale  
 Department of Clinical Physics and Bioengineering of the West of Scotland Health Boards  
 Deutsches Elektronen Synchrotron Laboratory (DESY) Hamburg  
 Dunstaffnage Marine Laboratory  
 European Molecular Biology Laboratory, Heidelberg  
 European Nuclear Research Centre (CERN), Geneva  
 Fisheries Research Services Marine Laboratory, Aberdeen  
 Fisheries Research Services Freshwater Laboratory, Pitlochry  
 Glasgow and West of Scotland Blood Transfusion Service  
 Glaxo SmithKline, Stevenage  
 Hannah Research Institute  
 Institute for Animal Health  
 National Institute for Biological Standards and Control  
 Natural History Museum, London  
 NERC Centre for Ecology and Hydrology Laboratories  
 Papworth Hospital  
 Royal Botanic Garden, Edinburgh  
 Scottish Agricultural College  
 Scottish Crops Research Institute, Invergowrie  
 Scottish Universities Environmental Research Centre  
 Specialist Virology Laboratory, Gartnavel General Hospital  
 Universities Marine Biological Station, Millport  
 Veterinary Research Laboratories, Stormont

#### 7. *Submission of Thesis*

In submitting a thesis a candidate must state, generally in the preface and specifically in the notes, the sources from which his or her information is derived, the extent to which he or she has availed himself or herself of the work of others, and the portions of the thesis which he or she claims as original. The thesis must be in English.

In the College of Medical, Veterinary & Life Sciences a candidate must submit three copies of the thesis; in all other Colleges two copies of the thesis must be submitted. In all cases the submission must include a summary of 250 - 1000 words. The summary must be an adequate and informative abstract of the work, suitable for publication by the University. The submitted copies of the thesis may be soft-bound but otherwise should generally conform to the British Standard Institution's *Recommendations for the presentation of theses* (BS4821:1990) which is available for consultation in the University Library or from the College Graduate School.

In signing a submission form, the supervisor is confirming that the work was undertaken by the candidate. The wording of the form makes it clear that the supervisor's signature does not endorse that the work has been completed nor does it indicate that the thesis has achieved the required standard for the award of the degree. A candidate may submit a thesis against the advice of the supervisor but in such cases the supervisor may state the position in a report submitted to the Convener of the Committee of Examiners.

If approved for the degree, one hard-bound copy of the thesis and one electronic copy shall be deposited with the University Library. The bound copy should normally be produced to the standard defined in BS4821:1990, and the electronic copy must conform to University Library specifications published at <http://theses.gla.ac.uk/gettingstarted/format.html>. It is the University's normal practice to make the bound copy available for consultation in the Library, and to permit computer download of the electronic copy through its repository service, Enlighten. Such access may, however, be restricted under provisions of the Freedom of Information (Scotland) Act 2002 or the Environmental Information (Scotland) Regulations 2004.

#### **Schedule B: Degree of Doctor of Philosophy by Published Work**

1. A person may be admitted as a candidate for the degree of Doctor of Philosophy by published work who:

- (a) (i) is a graduate of the University of Glasgow and whose date of submission of his/her thesis is at least five years from the date of his/her first graduation in the University; or
  - (ii) is a member of staff who has normally been employed for the full-time equivalent of at least five years and is paid through the University Finance Office or directly by a grant aided body approved by the University Court; or
  - (iii) is a former member of staff who has completed the full-time equivalent of a minimum of five years employment and was paid through the University Finance Office or directly by a grant aided body approved by the University Court, and who presents him or herself as a candidate for the degree within one calendar year of leaving the University's employment.
- (b) has not been enrolled as a Research Student in the University of Glasgow during the five years preceding the date of submission although the College Higher Degrees Committee (or equivalent) shall have the discretion to entertain applications from candidates who wish to transfer from the conventional PhD; and
  - (c) does not hold any Doctoral Degree of the University of Glasgow or of any other University or College in the same subject area; and
  - (d) has been found by the appropriate College to possess *prima facie* a qualification for the Degree.

A College Higher Degrees Committee (or equivalent) shall have the discretion to reduce the qualifying period to three years in the case of full-time members of academic staff in the employment of the University.

2. Subject to the provisions of Regulation 9 of Schedule B of this Resolution, candidates for the Degree of Doctor of Philosophy by published work shall present for the approval of Senate published work, which shall be a record of original research undertaken by the candidate, and shall be accompanied by a declaration signed by the candidate detailing the extent to which the research has been done and the work written by himself or herself.
3. Every prospective candidate for the degree shall submit to the appropriate College two copies of the work to be examined together with copies of the following documentation each in triplicate: a curriculum vitae, and an explanatory essay of 2,000 - 5,000 words which justifies the intellectual significance of the submission. Should the submission comprise diverse publications, the explanatory essay should explain the relationship, if any, between the works submitted, including any developments which have occurred between one piece and another.

Material other than books must be bound in a volume in cloth with stiff boards. The layout and binding of the thesis should generally conform to the *Recommendation for the Presentation of Theses and Dissertations* published by the British Standards Institution (BS4821:1990), a summary of which is available in the University Library or may be obtained from the Clerk of the appropriate College. The thesis must include a summary (500 - 1,000 words), which must be an adequate and informative abstract of the work. The summary should be bound with the thesis where possible; and three separate copies of the summary should also be provided.

4. The Dean of Graduate Studies shall nominate a member of staff to give advice to the candidate with regard to the preparation of his/her submission.
5. Preliminary assessment - Only if it is in the opinion of the College Higher Degrees Committee (or equivalent) and of any adviser(s) whom it may consult that the work described in the abstract, in the explanatory essay and the publications is of the standard expected for the degree of Doctor of Philosophy by supervised research, will the full application be accepted for consideration.
6. If a full application is permitted by the College Higher Degrees Committee (or equivalent), a candidate must then submit two copies of the work to be examined; both copies, if approved for the Degree, shall become the property of the University.
7. All the materials submitted must normally be in English and must be published in terms of the following definition:

A work is normally regarded as published only if it is traceable through ordinary catalogues, abstracts or citation notices, and copies are available to the general public. This will normally require the work to be publicly registered with an ISSN/ISBN number. Material which is unpublished or which has only a restricted circulation is not acceptable in whole or partial fulfilment of the requirements for this degree.

Exceptionally, however, the College Higher Degrees Committee (or equivalent) may approve the submission and defence of the work in a language other than English. Approval will normally be given only where the use of a language other than English is deemed appropriate by the relevant School and the Higher Degrees Committee (or equivalent), and where the School and Higher Degrees Committee (or equivalent) are satisfied that appropriate examination arrangements can be made.

8. Any work which is about to be included in a submission by the candidate for any other Higher Degree or Diploma either in the University of Glasgow or in any other institution, or which has already been included in a submission, whether successful or unsuccessful, for any other Higher Degree or Diploma in another institution is not admissible in whole or partial fulfilment of the requirements for the Degree of PhD by published work.
9. A candidate may submit work which has resulted from collaborative research and joint authored publications, provided the nature and extent of the candidate's contribution is specified in the accompanying explanatory essay.

The candidate must seek confirmation of this from the co-authors or researchers and provide written evidence of such confirmation to the satisfaction of the Higher Degrees Committee (or equivalent).

10. A Higher Degrees Committee (or equivalent) may at its discretion disqualify any submission or part thereof. It is not a necessary requirement for this degree that the work submitted should be published within a defined period.
11. The thesis shall be examined by one or more examiners appointed by the Senate from among the experienced academic staff of the University, and by one or more External Examiners appointed by the University Court on the recommendation of the Senate. No person who has been involved in the direct supervision of the research student may be appointed as an examiner. The internal examiner shall not undertake any duties which have been allocated to the Convener (Guidance Note 3) and shall act as an examiner in the normal way. A thesis may be examined by two external examiners without the appointment of an Internal Examiner, with the approval of the Dean of Graduate Studies. In the case of a submission by a member of staff or a former member of staff two of the examiners must be external.

The Board of Examiners shall normally require that the candidate present himself or herself for oral or other examination on the subject matter of the work and other material submitted for examination. The reports of the examiners shall be submitted to the appropriate College Higher Degrees Committee (or equivalent) who shall if it thinks fit make a recommendation thereon to the Senate. The candidate shall be approved for the Degree only if, in the opinion of the College and the examiners, the submitted work constitutes an examination of a field of study which makes a significant and original contribution to existing knowledge and is of an equivalent standard to a thesis which embodies the results of three years full-time supervised research (or equivalent) and for which a candidate was awarded the degree of PhD. The Board of Examiners may require minor changes to the explanatory essay as a requirement for the award if there is otherwise agreement that the submitted work meets the criteria for the Degree.

12. An unsuccessful submission for the degree of PhD by published work will not become eligible for the award of a Master's Degree or Diploma, in lieu of the degree of PhD, and nor will the unsuccessful submission become eligible for resubmission in its present form on a future occasion.
13. No candidate may apply for re-examination for the degree of PhD by published work until the lapse of at least three years from the date of the intimation of the decision of the Higher Degrees Committee (or equivalent) regarding the previous submission. Such re-examination shall be regarded as a de novo application and not the resubmission of the initial application.

## DEGREE OF DOCTOR OF SCIENCE

### RESOLUTION

The Degree of Doctor of Science is awarded under Resolution No. 577 of the University Court, which came into force on 1 September 2007. The following are the relevant provisions of that Resolution.

1. The Degree of Doctor of Science (DSc) may be awarded by the Senate of the University of Glasgow.
2. The Senate may make regulations, which are subject to the approval of the University Court, governing the award of the Degree – these are set out in the section entitled 'Regulations' below.
3. All candidates for the Degree of Doctor of Science shall present a thesis or a published memoir or work which shall be a record of original research undertaken by the candidate in relation to science, and shall be accompanied by a declaration signed by him or her that the work has been done and the thesis composed by himself or herself. In the case of collaboration, the candidate's individual contribution must be clearly defined. The thesis, or a major part of it, shall have been published either as a book or in periodicals of recognised standing, and shall be presented in such manner as the Senate may by regulation prescribe.
4. The thesis shall be examined by one or more examiners appointed by the Senate from among the professors, readers and lecturers in the University, and by one or more additional examiners appointed by the University Court on the recommendation of the Senate. The reports of the examiners shall be submitted independently to the appropriate College Committee which shall, if it thinks fit, make a recommendation thereon to the Senate. The candidate shall be approved for the Degree only if, in the opinion of one of the Faculties of Science and of the examiners, the thesis constitutes an original, substantial and authoritative contribution to scientific knowledge.
5. The Degree of Doctor of Science shall not be conferred upon a person who has not satisfied the conditions set forth in the Regulations; provided always that it shall be in the power of the Senate to award the Degree as an Honorary degree under such regulations as may be made by the Senate with the approval of the University Court.

### Regulations

1. The following categories of persons may, after being found by the College of Medical, Veterinary & Life Sciences or the College of Science & Engineering to possess *prima facie* a qualification for the Degree, be admitted as candidates for the Degree of Doctor of Science:

- (a) A graduate of the University of Glasgow after the expiry of seven years from the date of his or her first graduation in the University of Glasgow.
  - (b) Any person who has held for a period or periods totalling at least four years such office or offices in the University of Glasgow as the University Court, on the recommendation of the Senate, may approve; provided either that he or she is a graduate of not less than seven years' standing of a university likewise approved or that he or she has held for not less than seven years some other qualification specially recognised by the University Court, on the recommendation of the Senate, as equivalent for this purpose.
  - (c) Any person who has carried out research work, in terms of the Ordinance or Resolution for the time being in force for the regulation of research, for at least five years in the University of Glasgow (or in a college affiliated thereto); provided always that he or she is a graduate of not less than seven years' standing of a university approved by the University Court, on the recommendation of the Senate.
2. For the purpose of Clause 1 of these Regulations, every prospective candidate for the Degree shall submit to the relevant College a summary of his or her proposed thesis, together with a list of the publications that are to be included in the thesis. The summary should be no longer than one thousand words. Only if it is the opinion of the College and of any adviser whom it may consult that:
    - (a) the work described properly falls into the area of science; and
    - (b) it is likely to be of the required standard
 will the candidate be considered to possess *prima facie* the necessary qualification.
  3. Each qualified candidate must submit two copies of his or her thesis: both copies, if approved for the Degree, shall become the property of the University.
  4. In addition to making the declaration required under Clause 3 of the Resolution governing this Degree, the candidate must identify any material in the DSc submission which has been, or is about to be, included in a submission by the candidate for any other higher degree or diploma in the University of Glasgow or for a higher degree or diploma in another institution; and he or she must lodge, together with his or her DSc submission, either a copy of such other submission (if available) or a precise statement of its scope. Material which has been included in a successful submission for another higher degree or diploma will not be taken into account in assessing a submission for the Degree of DSc of the University of Glasgow.
  5. Before acceptance for adjudication, a thesis, or an important part of it, shall have been published either as a book or in periodicals of recognised standing. The thesis may be presented in the form of a single memoir or writing containing a connected account of the candidate's research or work. Published papers under various headings may be submitted in lieu of a single thesis provided that they are accompanied by a statement showing the relationship between the various studies and placing the whole work critically into perspective with the general state of knowledge in the field of investigation to which the candidate's researches are related.
  6. Material other than books must be bound in a volume in cloth with stiff boards. The layout and binding of the thesis should generally conform to the Recommendations for the presentation of theses and dissertations published by the British Standards Institution (BS4821:1990) which is available for consultation in the University Library or may be obtained from the College Graduate School. The thesis must include a summary (500-1,000 words) which must be an adequate and informative abstract of the work. The summary should be bound with the thesis where possible; and three separate copies of the summary should also be provided.
  7. If approved for the Degree, an electronic copy of the thesis, this conforming to specifications published at <http://theses.gla.ac.uk/>, shall also be deposited with the University Library. It is the University's normal practice to make a bound copy available for consultation in the Library, and to permit computer download of the electronic copy through its repository service, *Enlighten*. Such access may, however, be restricted under provisions of the Freedom of Information (Scotland) Act 2002 or the Environmental Information (Scotland) Regulations 2004.
  8. No candidate may apply for re-examination for the Degree of DSc until the elapse of at least three years from the date of the previous submission.

## NON GENERIC DOCTORATE REGULATIONS

### DEGREE OF DOCTOR OF ENGINEERING IN OPTICS AND PHOTONICS TECHNOLOGIES<sup>27</sup>

The Degree of Doctor of Engineering in Optics and Photonics Technologies is offered by the University of Glasgow, as part of the Industrial Doctorate Centre (IDC) in Optics and Photonics Technologies with partner institutions Heriot-Watt University, the University of Glasgow, the University of St. Andrews and the University of Strathclyde. The IDC is conducted through a Management Committee, which has overall responsibility for the strategy, priorities and management of the Centre, and a Course Committee, to which some of the academic functions pertaining to the

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<sup>27</sup> Subject to Senate approval.



individual EngD programmes are devolved from the partner institutions. The programme is run in co-operation with industrial companies providing sponsorship of students.

## RESOLUTION

The Degree of Doctor of Engineering in Optics and Photonics Technologies is governed by Resolution 618 which at the time of going to print is in draft form.

1. The Degree of Doctor of Engineering in Optics and Photonics Technologies (EngD) may be awarded by the Senate of the University of Glasgow in the College of Science and Engineering (College);
2. The Senate shall have power to make such regulations governing the award of the Degree as may be approved by the University Court;
3. A candidate for the Degree shall undertake study and research in accordance with the provisions below, and shall present either a thesis or a themed portfolio;
4. The Degree of Doctor of Engineering in Optics and Photonics Technologies shall in no case be conferred on persons who have not satisfied the conditions set out below, and shall not be conferred as an Honorary Degree;

The following regulations are supplemented by a series of PhD Guidance Notes for students, which additionally apply to the Doctor of Engineering in Optics and Photonics Technologies unless specifically excluded by regulation, and which are available within the current on-line *Calendar* which can be found at [www.gla.ac.uk/services/senateoffice/calendar](http://www.gla.ac.uk/services/senateoffice/calendar).

## REGULATIONS

1. A research student who has pursued in the University of Glasgow, or in an institution recognised and approved for the purpose, a programme of prescribed study and industrially-focussed research, may offer himself or herself for the Degree of Doctor of Engineering in Optics and Photonics Technologies under the following conditions:
  - (a) that he or she has obtained a degree in any Scottish university, or in another university or college specially recognised for the purpose of this Section by the University Court on the recommendation of the Senate (provided always that a diploma or certificate recognised in like manner as equivalent to a degree may be accepted in place of a degree). The normal standard of admission for a research student will be that of a Degree with First or Upper Second Class Honours in a Science or Engineering discipline of a Scottish University, or an approved equivalent qualification;
  - (b) that he or she has produced to the Senate evidence of satisfactory progress in the prescribed study and research undertaken by him or her;
  - (c) that he or she will have been registered for such study on a full-time basis for a period of not less than four academic years, or on a part-time basis for a period normally of not less than eight academic years;
  - (d) that for each candidate undertaking a programme of study and research leading to the Degree there must be one or more sponsoring companies, or equivalent organisations, that will be nominated by the Course Committee;
  - (e) that each candidate will be supported by a supervision team which will normally include the primary academic supervisor, a second academic supervisor, an industrial adviser and other academic staff as required to offer expertise in guiding and supporting the candidate's research project. The sponsoring company or companies will appoint an industrial adviser for the duration of the programme and, to ensure continuity of the research project, provide an alternative industrial adviser should the first appointee be unable to continue in the role;
  - (f) that within the prescribed duration of the programme, each candidate will be required to achieve 180 credits at the appropriate standard (50% average across all taught modules, or an average of at least C3 [aggregation score 12]) from the portfolio of courses prescribed by the Course Committee in the programme documentation;
  - (g) that he or she has pursued such formal research training as set down by the Course Committee.
- 2.1 Each candidate for the Degree of Doctor of Engineering in Optics and Photonics Technologies shall present for the approval of the Senate a thesis or a themed portfolio which shall embody the results of the research, and which shall be accompanied by a declaration signed by the candidate that the thesis or themed portfolio has been composed by himself or herself. For a candidate permitted by the supervision team to submit a themed portfolio of a number of projects, they must be in the standard format and must include the following:
  - (i) a succinct bound summary which describes the contribution to knowledge and innovation demonstrated by the candidate;
  - (ii) clear evidence, either directly or indirectly, of the relationship between each project through demonstrable relevance to the doctoral programme.
- 2.2 A thesis or themed portfolio for the degree of EngD shall normally be presented for examination within 5 years from the date when a candidate first registered for full-time study, or within 9 years from the date when he or she

first registered for part-time study. Where the College has approved suspension of study for a period of time<sup>28</sup>, the maximum period of study permitted shall be equivalent to the duration for full-time or part-time study plus the approved period of suspension adjusted proportionately.

- 2.3 Where the candidate has fulfilled the minimum period of full-time study, or the minimum period of part-time study, required by the regulations, and has not submitted the thesis or themed portfolio for examination, he or she shall register as a writing-up student. If further research project work is required, the College may require the candidate to register as a full-time or part-time student. Failure to meet College requirements for progress without good cause, may result in exclusion from further study.
- 2.4 The thesis or themed portfolio shall be examined by one or more examiners appointed by the Senate from among the experienced academic staff of the University, and by one or more External Examiners appointed by the University Court on the recommendation of the Senate. Normally, two External Examiners shall be appointed with one external examiner being responsible for assessing the candidate's technical ability and the other, the candidate's management skills and understanding of the industrial context of the research project. No person who has been involved in the direct supervision of the research student may be appointed as an examiner. The internal examiner shall not undertake any duties which have been allocated to the Convener (see 2.6 below and Guidance Note 3) and shall act as an examiner in the normal way.
- 2.5 A candidate for the Degree of EngD must present himself or herself for oral or other examination by the Committee of Examiners on the subject matter of the thesis or themed portfolio and its context. This requirement for an oral examination shall be observed at the first submission of the thesis or themed portfolio.
- 2.6 A Convener shall be appointed by the Convener of the Higher Degrees Committee or its equivalent committee to convene the oral examination and to report on the agreed recommendations of the Committee of Examiners to the appropriate College Committee.

The Convener will be responsible for the following:

- a) making the arrangements for an oral examination and ensuring that this is normally held no later than 3 months after the submission of the thesis or themed portfolio;
  - b) attending the whole examination and ensuring that it is conducted in a fair manner and is of a reasonable duration;
  - c) arranging for the report stating the recommendation of the Committee of Examiners to be signed at the conclusion of the examination;
  - d) after the oral, co-ordinating the completion of a joint report detailing the requirements for revision or resubmission and providing this to the candidate;
  - e) recommending to the Higher Degrees Committee the appointment of an additional examiner in instances where agreement has not been reached. The additional examiner will normally be an External Examiner.
- 2.7 The supervisor shall not normally be present at the oral examination but shall be available to the Committee of Examiners for consultation. If the candidate makes a request in writing to the Convener for the supervisor to be present at the oral examination, this should normally be permitted. The request should be made no later than one week before the date of the oral.
  - 2.8 Where a candidate has been permitted to resubmit a thesis or themed portfolio for examination, an oral shall also be held other than in exceptional circumstances, where the Convener, on the recommendation of the Committee of Examiners, may seek the agreement of the Dean of Graduate Studies to set aside the requirement for an oral examination after resubmission. In such circumstances the agreement of the candidate must be obtained, otherwise the candidate shall have the right to insist on an oral being held.
  - 2.9 Where a candidate has been permitted to resubmit the thesis or themed portfolio, it shall normally be on one occasion only. The resubmitted thesis shall be examined by the Committee of Examiners appointed for the first submission or by the Committee of Examiners appointed for the second submission. If the Committee of Examiners considers that the thesis has not achieved the standard required for the Degree of EngD but is of sufficient merit to be worthy of an award, it may recommend that the candidate revise the thesis and submit it for consideration for a Masters degree.

### **3. Submission of Thesis or Themed Portfolio**

In submitting a thesis or themed portfolio a candidate must state, generally in the preface and specifically in the notes, the sources from which his or her information is derived, the extent to which he or she has availed himself or herself of the work of others, and the portions of the thesis or themed portfolio which he or she claims as original. The thesis must be in English.

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<sup>28</sup> The appropriate College Committee may permit the period of study to be suspended for a defined period when a student is ill or has other personal circumstances which prevent the student from continuing the research or taught elements. Suspension can be agreed by the appropriate College Committee for other reasons. The arrangements for suspension of study shall be in accordance with those of the Research Councils.

A candidate must submit three copies of the thesis or themed portfolio which must include a summary of 250 - 1000 words. The summary must be an adequate and informative abstract of the work, suitable for publication by the University. The submitted copies of the thesis may be soft-bound but otherwise should generally conform to the British Standard Institution's *Recommendations for the presentation of theses* (BS4821:1990) which is available for consultation in the University Library or from the College Graduate School.

In signing a submission form, the supervisor is confirming that the work was undertaken by the candidate. The wording of the form makes it clear that the supervisor's signature does not endorse that the work has been completed nor does it indicate that the thesis or themed portfolio has achieved the required standard for the award of the degree. A candidate may submit a thesis or themed portfolio against the advice of the supervisor but in such cases the supervisor may state the position in a report submitted to the Convener of the Committee of Examiners.

If approved for the degree, one hard-bound copy of the thesis or themed portfolio and one electronic copy shall be deposited with the University Library. The bound copy should normally be produced to the standard defined in BS4821:1990, and the electronic copy must conform to University Library specifications published at <http://theses.gla.ac.uk>. It is the University's normal practice to make the bound copy available for consultation in the Library, and to permit computer download of the electronic copy through its repository service, Enlighten. Such access may, however, be restricted under provisions of the Freedom of Information (Scotland) Act 2002 or the Environmental Information (Scotland) Regulations 2004.

## DEGREE OF DOCTOR OF ENGINEERING in System Level Integration

The Doctor of Engineering in System Level Integration is offered by the University of Edinburgh, the University of Glasgow, Heriot-Watt University and the University of Strathclyde, and the awards are made in the name of all four Universities. The degree is conducted under the aegis of the Institute for System Level Integration and through the Management Committee of the Institute and is run in co-operation with industrial companies providing sponsorship of students. The University of Glasgow is currently the administering University for the degree programme.

### RESOLUTION

The Degree of Doctor of Engineering in System Level Integration is governed by Resolution No. 573 of the University Court which came into effect on 1 September 2007 with provision that:

1. The Degree of Doctor of Engineering (EngD) in System Level Integration may be awarded jointly by the University of Glasgow, the University of Edinburgh, Heriot-Watt University and the University of Strathclyde, the collaboration of which has resulted in the Institute of System Level Integration through which the collaborating Universities may engage with selected commercial companies in the sponsorship of students pursuing advanced technological research.
2. The administering university shall be the University of Glasgow.
3. The College of Science & Engineering, on the basis of advice from the Management Committee of the Institute for System Level Integration, shall consider all matters relating to the Degree and shall report to the Senate thereon. It shall be competent for the Management Committee of the Institute for System Level Integration to make recommendations through the College of Science & Engineering to the Senate with regard to the appointment of examiners for the Degree.
4. Before being admitted to a programme of study qualifying for the Degree of Doctor of Engineering in System Level Integration a candidate must normally possess:
  - (i) at least an upper second class Honours Degree in Computing / Computer Science or Electronic and/or Electrical Engineering from a university in the United Kingdom; or,
  - (ii) a qualification from another university or college specially recognised for the purpose by the University Court on the recommendation of the Senate, as equivalent to the above; or,
  - (iii) a qualification together with professional or industrial experience deemed appropriate by the Management Committee of the Institute of System Level Integration for the Degree programme.
5. The minimum period of prescribed study and research for the Degree shall be 48 months, and the maximum period shall be 5 years. Approximately 25% of that time shall be spent in a structured training programme, and the remainder on one or more research projects with academic and industrial supervision. The candidate shall prosecute this research under the guidance of a supervision team, normally including two members of academic staff of the University of Glasgow and/or of other participating Universities, and an Industrial Adviser appointed by the sponsoring company or companies.
6. The examiners for the Degree shall be such professors and lecturers of the University of Glasgow as the Senate shall designate, together with such professors or lecturers of the other participating Universities as may be appointed for the purpose by these Universities, and such external examiners as may be appointed by the administering University.
7. The Senate may make Regulations, which are subject to the approval of the University Court, governing the award of the Degree - these shall be stated in the section entitled 'Regulations' below.

**REGULATIONS****1. Admission**

- (a) The Management Committee will recommend to the administering University:
  - (i) the names of applicants to be admitted to the EngD Programme;
  - (ii) what recognition, up to the limit of 120 SCOTCAT credits or equivalent at postgraduate level, may be given to the period which the applicant has completed for the degree of Master of Science in System Level Integration, or for any other relevant postgraduate award, towards the fulfilment of the requirements for the degree of Doctor of Engineering in System Level Integration;
  - (iii) the amount of project work done at postgraduate level which may be incorporated into the thesis submitted for the degree of Doctor of Engineering.
- (b) For each candidate undertaking a course of study leading to the Degree there must be one or more sponsoring companies which will be selected by the Management Committee.
- (c) A candidate awarded the MSc in System Level Integration who wishes to transfer to the EngD programme will be expected to gain a further 60 non-technical credits from the taught schedule. These credits may be undertaken at any time during the remaining period of the EngD programme.

**2. Duration of Study**

- (a) The period of study for the Degree may be extended only in exceptional circumstances on the advice of the candidate's supervisors and on written application from the Management Committee to the administering University.
- (b) The administering University, on the recommendation of the Management Committee, may permit a candidate to suspend his or her registration for a period if good cause is shown and on such conditions as the administering University may prescribe.
- (c) A candidate may be admitted to the programme at any time throughout the academic year.

**3. Structure of Programme**

- (a) Each candidate will take an active role in defining his or her professional development programme in line with the needs of the research project and his or her own aims. He or she will be guided by his or her supervision team in the selection of courses from the range of technical courses, management and business courses, and other credit bearing courses deemed by the EngD Management Committee to be appropriate and in accordance with these regulations.
- (b) The taught component of the programme may be delivered at the Institute for System Level Integration's premises at Livingston, at university campuses, or at independent sites, but all courses will be taught by staff approved by one of the four universities (with the exception of approved external learning). Project work, a requirement of the EngD programme, may be undertaken at the Institute for System Level Integration, in one of the four universities, or in the workplace of a sponsoring company (see below) under the day-to-day supervision of a person nominated by that company and supported by an academic supervisor appointed by the Institute for System Level Integration.

**4. Course of Study**

- (a) A Requirements Profile, which will include the definition of the candidate's research programme, will be drawn up for each candidate by his or her supervision team. The Requirements Profile will be based upon the candidate's needs and aspirations and achievement of the objectives of the EngD programme. The Requirements Profile, which will embrace technical, business, personal, and taught elements of the course, will be compiled in consultation with the candidate.
- (b) Each research theme will normally exhibit the following characteristics:
  - (i) it will be placed in a business context, taking full account of financial and commercial considerations;
  - (ii) it will be expected to lead to journal publications.

**5. Taught Elements of the Programme**

- (a) Each candidate will undertake a number of courses selected from those delivered within the MSc programme in System Level Integration (as set out in the Programme Table of the regulations governing that programme) together with relevant courses selected to support the candidate's research project(s) from: the management and business courses (set out in Schedule A below of the EngD regulations), optional technical courses (set out in Schedule B below of the EngD regulations) available at the collaborating universities, and technical courses from external MSc programmes recommended by the supervision team as appropriate to the candidate's training needs and with prior approval from the Management Committee.
- (b) Within the prescribed duration of the programme, each candidate will be required to achieve from the portfolio of courses indicated in §5(a), 180 credits at SCQF level 11, or equivalent, of which 60 credits should derive from courses, selected according to the candidate's Requirements Profile, from Schedule A below of the EngD Regulations.

**6. Supervision**

- (a) Each candidate will be supported by a supervision team which will normally include the primary academic supervisor, a second academic supervisor, an industrial adviser and other academic staff as required to offer expertise in guiding and supporting the candidate's research project.
- (b) The sponsoring company or companies will appoint an industrial adviser for the duration of the programme and, to ensure continuity of the research project, provide an alternative industrial adviser should the first appointee be unable to continue in the role.

**7. Progress**

- (a) Each candidate is expected normally to complete a minimum of 40 credits of taught material in each of his or her first two years of study.
- (b) If, in the opinion of the supervision team, the candidate is not making satisfactory progress, the supervisors will inform him or her of this in writing, with a copy of the letter sent to the Management Committee.
- (c) If the candidate continues to make unsatisfactory progress, he or she may, after due warning and on the recommendation of the Management Committee in consultation with the supervision team, be instructed by the Senate of the administering University to withdraw from the EngD programme.

**8. Thesis or Themed Portfolio**

Each candidate for the EngD will submit either a thesis or a themed portfolio of work which must comply with the following conditions:

- (a) The thesis or themed portfolio must make a significant contribution to the knowledge of the subject and must afford evidence of originality, shown either by the discovery of new facts or by the exercise of independent critical power.
- (b) For a candidate permitted by the supervision team to submit a themed portfolio of a number of projects, they must be in the standard format and must include the following:
  - (i) a succinct bound summary which describes the contribution to knowledge and innovation demonstrated by the candidate;
  - (ii) clear evidence, either directly or indirectly, of the relationship between each project through demonstrable relevance to the doctoral programme.
- (c) The thesis or themed portfolio must be written in English. The literary presentation must be satisfactory and must be suitable for publication either as submitted or in an amended form.
- (d) The thesis or themed portfolio must be the candidate's own account of his or her research and must be accompanied by a declaration to this effect signed by the candidate. It may describe work done in conjunction with the supervisors or other persons, provided that the candidate clearly states his or her own personal share in the investigation, and that both academic and industrial supervisors certify his or her statement.
- (e) The thesis or themed portfolio must not normally exceed 80,000 words and must not normally exceed 400 pages in length, including appendices. In exceptional circumstances and, provided that permission is sought at a sufficiently early stage, the administering University, on the advice of the Management Committee, may permit a candidate to exceed the stated maximum length.
- (f) Four copies of the thesis or themed portfolio must be presented for consideration by the examiners. The initial presentation of the thesis or themed portfolio may be made in a temporary binding to enable appropriate changes to be made prior to its formal acceptance by the administering University.
- (g) After the thesis or themed portfolio has been approved for the Degree of EngD, the successful candidate will normally be required to deposit two copies of it, these to become the property of the Universities. The successful candidate will be required to provide an additional copy in an electronic format conforming to University Library specifications published at <http://theses.gla.ac.uk/gettingstarted/format.html>. It is the University's normal practice to make a bound copy available for consultation in the Library, and to permit computer download of the electronic copy through its repository service, Enlighten. Such access may, however, be restricted under provisions of the Freedom of Information (Scotland) Act 2002 or the Environmental Information (Scotland) Regulations 2004.
- (h) The thesis or themed portfolio must conform in layout, binding, and presentation to the requirements prescribed by the administering University. The thesis or themed portfolio must contain an abstract, preferably not exceeding 200 words. Six additional copies of the abstract must be submitted on the appropriate form for examination and library purposes.
- (i) The Degree of Doctor of Engineering (EngD) will not be awarded in respect of a thesis, themed portfolio, or published work already submitted elsewhere in support of an application for a degree.
- (j) The thesis or themed portfolio for the degree of EngD shall normally be presented for examination within 5 years from the date when a student first registered for the programme. Where prior learning has been used towards the fulfilment of the requirements of the degree, this period will be reduced by 8 months if the incorporated prior learning is the maximum 120 credits; otherwise this period will be reduced by 4 months

where the incorporated prior learning is 60 credits or greater. Where the College has approved suspension of study for a period of time, the maximum period of study permitted shall be adjusted accordingly.

#### 9. Assessment

- (a) Each candidate will be assessed on all taught components of the Requirements Profile and on the thesis or themed portfolio.
- (b) Each candidate is required to obtain at least a grade C, or equivalent, for all taught components of the Requirements Profile before submission of his or her thesis or themed portfolio for examination.
- (c) A candidate whose performance in any course does not meet the standard required in §9(b) may attempt to reach the requisite standard for that course on one further occasion. In such cases, the examiners will prescribe whether the candidate shall be required to re-attend for the whole course or specific parts of the course, or whether he or she may be permitted, without further attendance, to submit for re-examination in the course, or to resubmit specific assignments for reassessment.
- (d) An oral examination of the candidate must be held in the presence of all of the examiners of the thesis or themed portfolio. The candidate may be questioned on any output of the thesis or themed portfolio and training programme in order to satisfy the examiners that the objectives of the programme have been met.

#### 10. Examiners

- (a) The administering University, on the recommendation of the Management Committee, will appoint for each candidate at least two external examiners and one internal examiner who will be the examiners of the thesis or themed portfolio. When making this recommendation to the administering University, the Management Committee will confirm that the candidate had passed all taught components of the Requirements Profile to the satisfaction of the examiners.
- (b) One external examiner will be responsible for assessing the candidate's technical ability and the other, the candidate's management skills and understanding of the industrial context of the research project.
- (c) The examiners will submit a report on the thesis or themed portfolio to the administering University.

#### 11. Recommendation of the Examiners of the Candidate's Thesis or Themed Portfolio

The examiners of the candidate's thesis or themed portfolio will recommend to the Senate of the administering University one of the following outcomes:

- (a) the Degree be awarded unconditionally.
- (b) the Degree be awarded subject to certain minor corrections of detail or of presentation specified by the examiners. These shall not involve changes of substance to the thesis or themed portfolio. The corrections shall normally be carried out within one month of receipt of the specifications to the satisfaction of the internal examiner.
- (c) the Degree be awarded subject to certain changes of substance in a specific element or elements of the thesis or themed portfolio specified by the examiners. These shall not involve a revision of the whole thesis or themed portfolio or of a major proportion of it. They may, however, include a requirement to carry out a further period of research in order to strengthen the thesis or themed portfolio. The revisions shall be carried out within a timescale determined by the examiners and shall be confirmed by the internal and both the external examiners.
- (d) the thesis or themed portfolio as a whole is unacceptable. The candidate is invited to resubmit the thesis or themed portfolio taking account of the comments of the examiners. The resubmitted thesis or themed portfolio will be examined on one occasion only. It will be resubmitted within a timescale to be determined by the examiners but normally no later than twelve months after the date of the joint report notifying the candidate of the requirements for revision. A resubmission fee will be charged to cover the examining costs.
- (e) the thesis or themed portfolio as a whole is unacceptable for the award of a Doctoral degree. The candidate is invited to revise and resubmit the thesis or themed portfolio for a Masters degree from one of the collaborating institutions.
- (f) no degree be awarded.

#### 12. Award

- (a) A candidate who has complied with all the conditions for the award of the degree of Doctor of Engineering will be entitled to receive the degree.
- (b) The Degree will be awarded jointly by all four universities but the Degree will be conferred at a Congregation of the administering University.

#### 13. Academic Appeals

The appeals procedure of the administering University shall normally apply.

**Schedule 'A' - Optional Taught Components – Non-Technical**

The taught, non-technical components of the EngD in System Level Integration may be drawn from the list below of Masters level Business and Management courses available at Heriot Watt University and the Universities of Edinburgh, Glasgow and Strathclyde, and from a list of subjects approved from time to time by the awarding institutions.

<i>Course Title</i>	<i>Taught by</i>	<i>Credits</i>
Business Studies for EngD Research Engineers	Glas	60
Accounting	HW	20
Alliances & Partnerships	HW	20
Competitive Strategy	HW	20
Consumer Behaviour	HW	20
Corporate Governance	HW	20
Corporate Reputation, Branding & Managing People	HW	20
Credit Risk Management	HW	20
Decision Making Techniques	HW	20
Derivatives	HW	20
Developing Effective Managers & Leaders	HW	20
Economics	HW	20
Employee Relations	HW	20
Finance	HW	20
Financial Risk Management	HW	20
Human Resource Development	HW	20
Influence	HW	20
International Marketing	HW	20
Introduction to Business Research 1	HW	20
Introduction to Business Research 2	HW	20
Introduction to Business Research 3	HW	20
Leadership	HW	20
Making Strategies Work	HW	20
Managing People in Changing Context	HW	20
Managing People in Global Markets	HW	20
Marketing	HW	20
Marketing Channels	HW	20
Marketing Communications	HW	20
Marketing Research	HW	20
Mergers & Acquisitions	HW	20
Negotiation	HW	20
Organisational Behaviour	HW	20
Performance Management	HW	20
Practical History of Financial Markets	HW	20
Project Management	HW	20
Quantitative Methods	HW	20
Research Methods for Business & Management	HW	20
Strategic Planning	HW	20
Strategic Risk Management	HW	20
Advanced Marketing Strategy	Strath	6
Business Marketing Relationships	Strath	6
Change Agency	Strath	6
E-Commerce	Strath	6
Effective Project Management	Strath	6
Entrepreneurial Finance	Strath	6
Entrepreneurship: a Company-Based Investigation	Strath	15
Global Operations Strategy	Strath	6
Innovation and New Product Development	Strath	6
International Human Resource Management	Strath	6
Judgement & Decision Analysis	Strath	6
Leadership	Strath	6
Managing Financial Resources	Strath	21
Managing for Shareholder Value	Strath	6
Managing Integrated Marketing Communications	Strath	6
Managing People in Organisations	Strath	12
Marketing Management	Strath	12
New Venture Creation	Strath	6
Organisational Change & Development	Strath	6
Performance Management & Appraisal	Strath	6
Project Risk analysis & Management	Strath	6
Reflexive Management Practice	Strath	6

<i>Course Title</i>	<i>Taught by</i>	<i>Credits</i>
Security Analysis	Strath	6
Strategic Financial Management	Strath	6
Strategy – Why Decisions Fail	Strath	6
Technology Entrepreneurship – Accessing Resources	Strath	15
Technology Entrepreneurship – In-company Investigation	Strath	15
Technology Entrepreneurship – Opportunity Recognition: Entrepreneurial Search and Insight	Strath	15
Technology Entrepreneurship - Technology Venture Management	Strath	15
The Learning Manager	Strath	3
Understanding Change in Organisation	Strath	6

### Schedule 'B' – Optional Taught Components - Technical

The taught technical components of the EngD in System Level Integration may be drawn from the list below of Masters level technical courses available at Heriot Watt University and the Universities of Edinburgh, Glasgow and Strathclyde, and from a list of subjects approved from time to time by the awarding institutions.

<i>Course Title</i>	<i>Taught by</i>	<i>Credits</i>
Adaptive Signal Processing	Edin	10
Advanced Concepts in Signal Processing	Edin	10
Advanced Databases	Edin	10
Advanced Digital Communications	Edin	20
Advanced Vision	Edin	10
Applied Databases	Edin	10
Array Processing Methods	Edin	10
Automated Speech Recognition	Edin	10
Automatic Speech Recognition	Edin	10
Compiler Optimisation	Edin	10
Computer Networking	Edin	10
Data Mining and Exploration	Edin	10
Design and Analysis of Parallel Algorithms	Edin	10
Digital Communication Fundamentals	Edin	10
Discrete-Time Signal Analysis	Edin	10
Distributed Systems	Edin	10
Energy and Environmental Economics	Edin	10
Image Processing	Edin	10
Image Processing with MATLAB	Edin	10
Mechanical Engineering: Fundamentals of Renewable Energy	Edin	10
Parallel Architectures	Edin	10
Parallel Programming Languages & Systems	Edin	10
Power Systems Engineering & Economics	Edin	20
Principles of Wind Energy	Edin	10
Probabilistic Modelling & Reasoning	Edin	10
Renewable Energy Engineering	Edin	20
Signal Processing with MATLAB	Edin	10
Software Architecture, Process, & Management	Edin	10
Statistical Signal Processing	Edin	20
Analogue CMOS Circuit Design	Glas	20
Digital Image Processing	Glas	10
Grid Computing	Glas	10
Machine Learning	Glas	10
Micro and Nano Technology	Glas	20
Microwave & Millimetre Wave Circuit Design	Glas	20
Optical Communications	Glas	20
VLSI Design & CAD	Glas	20
Adv Renewable Energy Engineering	HW	15
Advanced Physical Instrumental Techniques	HW	15
Computational Fluid Dynamics with Heat Transfer	HW	15
Demand Management & Energy Storage	HW	15
Design, Modelling and Packaging of MEMS	HW	15
Digital Design	HW	15
Distributed Generation	HW	15
Electric Power Systems	HW	15
Embedded Software	HW	15
Embedded Systems	HW	15
Foundations of Energy	HW	15
Fundamentals of Photonics & Micromechanics	HW	15
Heat Transfer & Heat Exchangers	HW	15



<i>Course Title</i>	<i>Taught by</i>	<i>Credits</i>
High Voltage Engineering	HW	15
Image Processing (VIBOT)	HW	15
Laser Applications & Engineering	HW	15
Manufacturing processes in MEMS	HW	15
Microstructure and Properties of Materials	HW	15
Nanochemistry	HW	15
Networks & Communications	HW	15
Numerical Computation & Statistics	HW	15
Principles of Mobile Comms	HW	15
Process Engineering 1	HW	15
Process Intensification	HW	15
Renewable Energy Technologies	HW	15
Renewable Generation & Conversion	HW	15
RF MEMS	HW	15
RF Mobile Communication systems	HW	15
Sensors and Actuators	HW	15
Software Engineering 1	HW	15
Software Engineering 2	HW	15
Sustainable Processing	HW	15
Communications Networks	Strath	12
Communications Theory	Strath	12
DSP Theory	Strath	12
Multimedia Signal & Image Processing	Strath	12
Simulation and Design Software for DSP and Control	Strath	12

## DEGREE OF DOCTOR OF SCIENCE IN ENGINEERING

The Degree of Doctor of Science in Engineering is awarded under Ordinance 462 (Glasgow No. 128), which came into force in September, 1964. The following are the relevant provisions of that Ordinance.

1. The Degree of Doctor of Science in Engineering (DSc(Eng)) may be awarded by the University of Glasgow.
2. The following categories of persons may be admitted as candidates for the Degree of Doctor of Science in Engineering:
  - (a) A graduate of the University of Glasgow after the expiry of seven years from the date of his first graduation in the University of Glasgow.
  - (b) Any person who has held for a period or periods totalling at least four years such office or offices in the University of Glasgow as the University Court, on the recommendation of the Senate, may approve; provided either that he is a graduate of not less than seven years' standing of a University likewise approved or that he has held for not less than seven years some other qualification specially recognised by the University Court, on the recommendation of the Senate, as equivalent for this purpose.
  - (c) Any person who has carried out research work, in terms of the Ordinance for the time being in force for the regulation of research, for at least five years in the University of Glasgow (or in a College affiliated thereto); provided always that he is a graduate of not less than seven years' standing of a University approved by the University Court, on the recommendation of the Senate.
3. All candidates for the Degree of Doctor of Science in Engineering shall present a thesis or a published memoir of work, which shall be a record of original work in relation to engineering science undertaken by the candidate and shall be accompanied by a declaration signed by him that the work has been done and the thesis composed by himself. In the case of collaboration the candidate's individual contribution must be clearly defined. The thesis, or a major part of it, shall have been published either as a book or in periodicals of recognised standing, and shall be presented in such manner as the Senate may by regulation prescribe.
4. The thesis shall be examined by one or more examiners appointed by the Senate from among the Professors, Readers and Lecturers in the University, and by one or more additional examiners appointed by the University Court on the recommendation of the Senate. The reports of the Examiners shall be submitted independently to the College of Science & Engineering, who shall if they think fit make a recommendation thereon to the Senate. The candidate shall be approved for the Degree only if, in the opinion of the College of Science & Engineering and of the examiners, the thesis constitutes an original and substantial contribution to engineering science.
5. The Senate shall have power to make such regulations governing the award of the Degree as may be approved by the University Court.
6. The Degree of Doctor of Science in Engineering shall not be conferred upon a person who has not satisfied the conditions hereinbefore set forth; provided always that the Senate may, at its discretion, permit a candidate to

offer himself for the Degree under the regulations previously in force during a period not exceeding five years from the date on which this Ordinance shall have come into operation.

#### **DSc (Eng) - Regulations**

1. Candidates who have been awarded a Certificate of Proficiency in the subjects of an Honours Group will be regarded as having 'passed the Examination in an Honours Group' for the purpose of proceeding to the Degree of DSc.
2. Before acceptance of candidature for the degree, applicants must supply to the College Graduate School, two copies of an adequate and informative abstract of the work around 1000 words along with a list of the publications that will support the thesis. The College of Science & Engineering may decline to proceed to examine the candidate if the summary and list of supporting publications does not in its opinion, show evidence of sufficient originality.
3. Each candidate must submit two copies of his or her thesis. If approved for the degree, one hard-bound copy of the thesis and one electronic copy shall be deposited with the University Library. The electronic copy must conform to University Library specifications published at <http://theses.gla.ac.uk/gettingstarted/format.html>. It is the University's normal practice to make the bound copy available for consultation in the Library, and to permit computer download of the electronic copy through its repository service, Enlighten. Such access may, however, be restricted under provisions of the Freedom of Information (Scotland) Act 2002 or the Environmental Information (Scotland) Regulations 2004.
4. In addition to making the declaration required under Section III of the Ordinance a candidate must, if the whole or any part of the subject-matter of the thesis submitted by him or her has been included in a thesis already approved for a degree in this or another University, make a declaration to that effect, and must lodge together with his or her thesis either a copy of such previously approved thesis or a precise statement of its scope.
5. Before acceptance for adjudication, a thesis, or an important part of it, shall have been published either as a book or in periodicals of recognised standing. The thesis may be presented in the form of a single memoir or writing containing a connected account of the candidate's research or work. Published papers under various headings may be submitted in lieu of a single thesis provided that they are accompanied by a statement showing the relationship between the various studies and placing the whole work critically into perspective with the general state of knowledge in the field of investigation to which the candidate's researches are related. The thesis should also be accompanied by two copies of a separate summary (500-1,000 words) which must be an adequate and informative abstract of the work, suitable for publication by the University.