

Calendar 2001–02



UNIVERSITY
of
GLASGOW

FACULTY OF ENGINEERING

DEAN: Professor John W Hancock BSc PhD

DATES OF TERMS

Martinmas: For students in the **5th year** of the curriculum for the degree of MEng(European) in Electronics and Electrical Engineering:

25th June 2001 – 14th December 2001

For all other students: 4th October 2001 – 14th December 2001

Candlemas: 7th January 2002 – 15th March 2002

Whitsun: 15th April 2002 – 21st June 2002

CONTENTS

	<i>Page</i>
Entry	Eng.2
Appeals	Eng.2
Degrees of MEng, BEng, BSc(Eng) & BES	Eng.3
Subjects of Study – Civil Engineering	Eng.16
Subjects of Study – Aeronautical Engineering	Eng.28
Subjects of Study – Mechanical Engineering	Eng.35
Subjects of Study – Naval Architecture	Eng.54
Subjects of Study – Electronic Engineering	Eng.59
Engineering Management	Eng.85
Use of Calculators	Eng.85
Degrees of BTechEd & BTechS	Eng.85
BSc in Nautical Science	Eng.109
Appeals in Nautical Science	Eng.118

I Undergraduate Entry to Faculty

Before applying for admission to the Faculty of Engineering, all applicants should consult the most recent edition of the University's *Undergraduate Prospectus*. The *Prospectus* sets out the normal qualifications required for admission, describes the application procedure, summarises the degree regulations and courses offered, and gives general information about the University. It is available in most U.K. schools, or it may be obtained from The Registry, University of Glasgow, Glasgow G12 8QQ, Scotland.

II Appeals by Students

The Senate is charged by the *Universities (Scotland) Acts* with a duty to superintend the teaching of the University. This is understood to include examining. The Senate has authorised the establishment of Faculty Appeals Committees to hear appeals in the first instance, as specified in the Code of Procedure for Appeals to a Faculty Appeals Committee.

A student may further appeal from the decision of the relevant Faculty Appeals Committee to the Senate.

Any appeal giving all the grounds of that appeal must be despatched in writing to the Faculty Secretary of the relevant Faculty, or to the Clerk of Senate, as appropriate, within 14 days of the intimation to the student of the decision against which he or she is appealing.

Students are advised to consult the Faculty Secretary of the relevant Faculty before lodging an appeal to the Faculty Appeals Committee and the Head of the Senate Office, before lodging an appeal to the Senate Appeals Committee.

The Code of Procedure for Appeals to a Faculty Appeals Committee and the Code of Procedure for Appeals to the Senate are set out in that section of the University *Calendar* entitled 'University Fees and General Information for Students', which is available either from the Faculty Office or The Registry enquiry office in the University. The address of the Faculty Secretary, Faculty of Engineering is James Watt Building (South), University of Glasgow, Glasgow G12 8QQ.

**III DEGREES OF MASTER OF ENGINEERING,
BACHELOR OF ENGINEERING,
BACHELOR OF SCIENCE IN ENGINEERING
AND BACHELOR OF ENGINEERING STUDIES**

RESOLUTION

This Resolution governs all undergraduate degrees and all undergraduate diplomas and certificates in the Faculty of Engineering with the exception of degrees in Product Design Engineering and the Bachelor of Technological Education (see *Calendar* section GSA and *p. Eng.85* respectively for Resolutions for these degrees).

1. The following degrees may be conferred by the University of Glasgow as degrees in the Faculty of Engineering:

Master of Engineering (MEng)
Bachelor of Engineering (BEng)
Bachelor of Science in Engineering (BSc)
Bachelor of Engineering Studies (BES)

The following may also be conferred as qualifications in the Faculty of Engineering:

Diploma of Higher Education (Engineering Studies)
Certificate of Higher Education (Engineering Studies)

2. The Degree of Master of Engineering is conferred as a degree with Honours in such single subjects or pairs of subjects as may be prescribed by regulation.

The Degree of Bachelor of Engineering is conferred as a degree with Honours or with a Pass in such single subjects or pairs of subjects as may be prescribed by regulation.

The Degree of Bachelor of Science in Engineering is conferred as a degree or as a degree with Honours in such single subjects or pairs of subjects as may be prescribed by regulation.

The Degree of Bachelor of Engineering Studies is conferred as a degree in General Engineering or as a degree in such single subjects or pairs of subjects as may be prescribed by regulation.

3. The minimum period of study for the degrees and other qualifications shall normally be as follows:
 - (a) Master of Engineering – five sessions of full-time study or three sessions of full-time study preceded by at least three sessions of part-time study.
 - (b) Bachelor of Engineering or Bachelor of Science in Engineering with Honours – four sessions of full-time study or two sessions of full-time study preceded by at least three sessions of part-time study.

- (c) Degree of Bachelor of Science in Engineering – four sessions of full-time study or at least six sessions of part-time study.
- (d) Bachelor of Engineering Studies – three sessions of full-time study or at least four sessions of part-time study.
- (e) Diploma of Higher Education (Engineering Studies) – two sessions of full-time or at least three sessions of part-time study.
- (f) Certificate of Higher Education (Engineering Studies) – one session of full-time or two sessions of part-time study.

Exceptionally, other combinations of full-time and part-time study may be approved by the Senate in individual cases.

4. Admission to the Degree of Master of Engineering shall be either at entry to the Faculty or by transfer of suitably qualified applicants who are registered in a course leading to the Degree of Bachelor of Engineering. Not more than the first three sessions of the curriculum for the Master of Engineering Degree shall be the same as the first three sessions of the curriculum for the Degree of Bachelor of Engineering. Transfer to the Master of Engineering Degree shall take place not later than at completion of the third session of study or after an equivalent time in the case of applicants from institutions other than the University of Glasgow. Special conditions may be applied when the transfer involves a change in discipline.

The Faculty may take cognisance of the views of suitable outside individuals in considering applications. In respect of admission account shall be taken both of academic record and of potential for development as a professional engineer.

5. A candidate who has not met the particular requirements for one of the following degrees or other qualifications:
 - (i) Master of Engineering *or*
 - (ii) Bachelor of Engineering or Bachelor of Science with Honours in Engineering *or*
 - (iii) Bachelor of Science in Engineering *or*
 - (iv) Bachelor of Engineering Studies *or*
 - (v) Diploma of Higher Education (Engineering Studies) *or*
 - (vi) Certificate of Higher Education (Engineering Studies)

or who, at any stage of the curriculum, is judged unlikely to meet the requirements, may be required to transfer to the curriculum for another degree or another qualification lower in order in the above list.

A candidate making adequate progress in the curriculum for which he or she is enrolled may choose to transfer to the curriculum for any degree or other qualification lower in order in the above list than the degree or diploma for which the candidate is currently enrolled.

A candidate who transfers between curricula for degrees or other qualifications may be exempted in whole or in part from the examinations prescribed for the degree or other qualification to which the candidate has transferred, dependent upon results gained in the previous curriculum.

6. (a) Exemption from part of the curriculum may be granted in accordance with regulations made under this Resolution. Candidates so exempted but not falling within the provisions of (b) and/or (c) below must spend a minimum of one year in an approved course of study in the University of Glasgow qualifying towards the degree of Bachelor of Engineering Studies or the Diploma in Engineering Studies or the Certificate in Engineering Studies or a minimum of two years in an approved course of study in the University of Glasgow qualifying towards the Degree of Bachelor of Engineering or the Honours Degree of Bachelor of Science in Engineering or a minimum of three years of study qualifying towards the Degree of Master of Engineering. In all cases the final year of the programme of study for the degree of Bachelor of Engineering and either Year 4 or Year 5 of the programme of study for the degree of Master of Engineering must be spent in an approved curriculum within the University of Glasgow.
 - (b) A candidate may be admitted from overseas or may be permitted to study overseas within the provisions of an international credit transfer programme approved by Senate and may be allowed to count courses attended and formally examined abroad but not forming part of a curriculum for a Glasgow University degree as qualifying towards the Degree of Master of Engineering or the Degree of Bachelor of Engineering or the Honours Degree of Bachelor of Science in Engineering.
 - (c) The fourth year of the programme of study for the Degree of Master of Engineering must be spent in an approved curriculum of the University of Glasgow which may be a curriculum for a Glasgow University degree taken furth of Glasgow within the provisions of an international credit transfer programme of study approved by Senate.
 - (d) In the case of candidates falling within the provisions of (b) and/or (c) examinations furth of Glasgow may constitute part of the Honours diet.
7. The *Senatus* with the approval of the University Court, may from time to time make regulations:
 - (a) determining the branches of engineering in which the degrees may be awarded;
 - (b) determining the subjects of study and the course of instruction;
 - (c) determining the subjects for examination and the number of divisions in which the examinations for the degrees shall be arranged.
8. The provisions of this Resolution shall apply to all candidates. However, where it is to a candidate's advantage, candidates admitted before October 1996, will be permitted to be assessed under the provisions of Resolution

No. 266 in the case of the degrees of Bachelor of Engineering and of Master of Engineering and under the provisions of Resolution No. 48 in the case of the degree of Bachelor of Science in Engineering

9. Resolutions No. 48 and No. 266 of the University Court of the University of Glasgow are hereby repealed, except in the case of candidates who enter the curriculum at first year level before October 1996, or who first enter the curriculum at second year level before October 1997 or who first enter the curriculum at third year level before October 1998.

REGULATIONS

1. Curricula, Courses and Credits

The curricula for the degrees and other qualifications shall be made up in accordance with the appended Regulations for Courses which show:

- (a) Single subjects and combinations of subjects in which the degree may be awarded.
- (b) Courses forming components of the degree curriculum in each subject or subject combination.

The Regulations for Courses specify the names and levels of these courses, their worth in credits, their admission requirements and their assessment methods.

Each course shall be worth the number of credits specified in its course entry in the Regulations for Courses. The number of credits shall be a multiple of ten and shall reflect the quantity of work each course requires in relation to the total quantity of work required to complete a full year of academic study. The normal minimum full-time workload will be between 120 and 160 credits per session.

Each candidate shall be awarded the specified number of credits on completion of the course.

2. Curriculum of an Individual Student

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 by an Adviser of Studies.

Each full-time candidate shall enrol for courses as prescribed under the Regulations for Courses but normally totalling a minimum of 120 credits in each session.

Each part-time candidate shall enrol for courses totalling a maximum of 90 credits in each session.

A candidate may include in the curriculum any course not prescribed as part of the degree curriculum the candidate is following, subject in each case to the approval of the Adviser of Studies and subject also, where the course is from outside the Faculty of Engineering, to the approval of and to any conditions prescribed by the other Faculty and Department concerned.

3. Availability of Courses and Requirements for Admission and Readmission to Courses

(a) *Availability of Courses*

All the courses listed in the Regulations for Courses will not necessarily be available in each year; the choice of a curriculum will be subject to this limitation and also to that imposed by timetables.

(b) *Admission Requirements*

Each course may have admission requirements, which shall be specified in its entry in the Course documentation.

Admission to a course is normally open only to candidates who satisfy all its admission requirements. However, the Head of Department concerned may accept other evidence of suitability for admission to the course.

(c) *Prerequisites and Corequisites*

Each course may have a prerequisite or corequisite course or courses. To be admitted to the course:

- (i) The candidate must have completed each prerequisite course, normally at either grade D or above. If the course follows a prerequisite course in the same session, however, it shall be sufficient for the candidate to have attended the prerequisite course.
- (ii) The candidate must either have attended, or be concurrently attending, each corequisite course.

(d) *Readmission*

Subject to compliance with progress requirements a candidate who has previously completed a course with a grade of E or below, or who has not completed the course, may be readmitted to attend the course.

A candidate who has previously completed a course with a Grade E or below may alternatively, be permitted during the following session only to sit the examinations in the course (normally during a period of suspension from full-time study) without reattendance at classes therein.

4. Departmental Instructions

Candidates shall be required to comply with such departmental instructions as are prescribed by the Head of Department concerned. Such instructions may require candidates: to attend specified lectures, tutorials, laboratory or practical sessions, field trips, examinations, and other meetings: to provide themselves with books, equipment, and other materials as are necessary for the course concerned: to submit items of work, including essays, reports, and dissertations, by such dates as may be instructed. All such instructions shall be communicated to the candidates in writing at the start of the course concerned. Reasonable notice of any alteration to such instructions shall be given.

Under the provisions of Regulation 5(b) a candidate who fails to comply with departmental instructions may be deemed not to have met the requirement for the award of credits.

5. Assessment

(a) *Assessment Methods*

A course may be assessed by examination paper(s), by dissertation, by coursework (including practical work, reports, and essays), by any other method approved the Faculty, or by any combination of these methods.

The assessment method(s), and the weight accorded to each component of the assessment, shall be specified in the course documentation.

(b) *Minimum Requirement for the Award of Credits*

The minimum requirement for the award of credits for a course shall be specified by a department and given to students in writing at the beginning of the course (module). This requirement shall normally include a specified minimum level of compliance with departmental instructions in terms of attendance and completion of work and a specified minimum level of performance in assessed work and examinations including the end-of-course examination (if any). Normally no grade or credits shall be awarded to a candidate who does not meet this minimum requirement. A candidate shall be refused admission to an end-of-course examination only if his or her level of compliance with departmental instructions and level of performance in assessed work and examinations prior to the end-of-course examination is such that the candidate could not be awarded at least a grade G for the course (module) whatever the level of performance in the end-of-course examination.

(c) *Exemption from the end-of-course Examination*

For courses where there is an end-of-course examination, departments may specify that students who have attained the specified minimum level of compliance with departmental instructions in terms of attendance and completion of work and a specified level of performance in assessed work and examinations other than the end-of-course examination, may be exempted from the end-of-course examination and awarded a grade on the basis of the work and examinations completed.

(d) *Grades*

Each candidate who has satisfied the minimum requirement for the award of credits for a course shall be awarded a grade. He or she shall earn the specified number of credits for the course, and a number of grade points which shall be the product of the number of credits and the grade points per credit according to the following table.

Each candidate who has not satisfied the minimum requirement for the course shall earn nothing.

The meaning of each grade and the corresponding number of grade points shall be as follows:

<i>Grade</i>	<i>Grade Descriptor</i>	<i>Grade points (per credit)</i>
A++	Excellent	20
A+	Excellent	18
A	Excellent	16
B	Very Good	14
C	Good	12
D	Satisfactory	10
E	Weak	8
F	Poor	6
G	Very Poor	2

Grades of A++ and A+ are awarded only in courses of Level 3 and above and are not used in Levels 1 and 2.

(e) *Grade Point Averages*

Each candidate's grade point average is defined to be the ratio of total grade points to total credits, calculated over all courses completed by the candidate; excepting that for the purposes of computing the grade point average, a candidate shall be entitled to discount any courses that are surplus to requirements.

(f) *Resit Examinations*

Candidates shall normally be required to sit any end-of-course (module) examination for a course (module) at Level 1, Level 2 or Level 3 at the first available diet after completion of the course. A candidate who does not attend that examination at the first diet, without good cause, shall for the purposes of these regulations have the same entitlement as a student who attends the examination and is awarded a zero mark.

A candidate who is awarded a Grade A, B, C or D after the first diet of the end-of-course (module) examination for a course(module) at Level 1, Level 2 or Level3 will not normally be allowed to resit the examination. Any other candidate entitled to sit the end-of-course examination shall be entitled to resit the examination, but normally only once and at the next available diet. He or she shall be awarded the higher of the two grades resulting from the first sitting of the examination and the resit examination.

6. Honours Degrees of Master of Engineering, Bachelor of Engineering and Bachelor of Science in Engineering

(a) *General Requirements*

Candidates for the degrees of Master of Engineering, Bachelor of Engineering and of Bachelor of Science with Honours in Engineering must complete courses totalling at least 500 credits for the Bachelor's degrees

and totalling at least 620 credits for the Master's degree. The single subjects or subject combinations in which the degrees may be awarded and the prescribed programmes of courses for the degrees in these subjects or subject combinations shall be as stated in the Regulations for Courses.

(b) *Progression in an Honours Curriculum*

In each of Years 1 and 2 the requirements for progression in an Honours curriculum are achievement of a grade point average of at least 10 together with a minimum grade of E in every subject. Each department will ensure that students are informed of the standard of performance which guarantees progression in an Honours curriculum at the end of Year 3 in the case of the degrees of Master of Engineering, Bachelor of Engineering and Bachelor of Science with Honours in Engineering and which guarantees progression at the end of Year 4 in the case of the degree of Master of Engineering. Any student who does not meet this standard of performance may apply to the department and if the department judges that the student's previous performance offers a reasonable prospect of the student reaching the standard required in the Honours curriculum, then the student will be permitted to continue in the Honours curriculum. A student may appeal to the Faculty Appeals Committee against refusal of continuation in an Honours curriculum.

Students may at the discretion of a Board of Examiners be permitted to repeat one or more of their third year courses with a view to improving their level of proficiency therein but, in such cases, results gained in repeated subjects will not contribute to the Honours assessment.

Students who, at the end of the fourth year of curriculum for the degree of Master of Engineering, are required to transfer to the curriculum for the degree of Bachelor of Engineering, must normally complete the curriculum for the degree of Bachelor of Engineering within one year of such a transfer and following attendance at any elements of the Bachelor of Engineering curriculum not included in the Master of Engineering curriculum.

(c) *Classes of Honours*

There shall be three classes of Honours as follows for the Degrees of Master of Engineering, Bachelor of Engineering and Bachelor of Science in Engineering, to be called the First, Second and Third Classes, respectively. The Second Class of Honours shall be divided into two divisions. The degrees may also be awarded as Unclassified Honours Degrees. Candidates failing to meet the minimum requirements for the Degree of Master of Engineering may be considered for any classification of the Bachelor of Engineering or Bachelor of Science in Engineering Degrees, including non-Honours Degrees. The names of the candidates placed in each class or division as the case may be, shall be arranged in alphabetical order.

(d) *Award of Honours*

The Board of Examiners will award a class of Honours based on a weighted average of marks normally comprising those for the courses of Years 3 and 4 of the Degree of Bachelor of Engineering and of the Degree of Bachelor of Science with Honours in Engineering and the courses of Years 3, 4 and 5 of the Degree of Master of Engineering with a higher weighting being given to the final year in each case. The weighting for each degree curriculum will be published in the appropriate Departmental Handbook. In making the award, the Board of Examiners may also have regard to the candidate's performance throughout the curriculum. The examination marks used in calculating the weighted average will be indicated annually to students in the appropriate Departmental Handbook.

In the case of Joint Honours the Joint Board of Examiners shall be entitled to set a minimum standard in either of the combined subjects to qualify the candidate for a particular class of Honours.

Assessment shall be conducted in accordance with the prevailing Code for Examinations, published in the Fees and General Information section of the University *Calendar*.

(e) *Deferment of Honours Examination*

A candidate for the degree with Honours shall normally present himself or herself for examination immediately upon completion of the prescribed courses. However, a Head of Department may, at his or her discretion and on grounds of illness or other good cause shown, permit a candidate to delay taking his or her final Honours examination for not more than one year.

(f) *Failed Honours*

A Pass Degree is a non-Honours Degree which may be awarded to a candidate who has followed an Honours curriculum but failed to meet the required standard. Candidates failing to meet the Honours standard may be awarded a Bachelor of Engineering Pass Degree or a Bachelor of Science in Engineering Pass Degree.

7. Degree of Bachelor of Science in Engineering

A candidate for the Degree of Bachelor of Science in Engineering must:

- (i) Have completed courses totalling at least 420 credits, including at least 120 credits at Level 3 and above, as prescribed under the Regulations for Courses.
- (ii) Have a grade point average of at least 10 over the best 420 credits.

- (iii) Have a grade point average of at least 10 over the best 80 credits at Level 3 and above.
- (iv) At least 380 of the credits, and at least 60 of the credits at Level 3 and above, must be at Grade D or better.

The Degree of Bachelor of Science in Engineering may be awarded with merit if the candidate has a Grade Point Average of at least 12 and with distinction if the candidate has a Grade Point Average of at least 14 or as otherwise determined by the Board of Examiners.

8. Degree of Bachelor of Engineering Studies

(a) *General Requirements*

A candidate for the Degree of Bachelor of Engineering Studies must have completed courses satisfying all of the following requirements:

- (i) at least 360 credits, or if exempted from Year 1, courses totalling at least 240 credits, or if exempted from Year 1 and Year 2, courses totalling at least 120 credits, which may include part of the credits for a course if this is necessary to bring the total credits to exactly 360, 240 or 120, respectively, with a grade point average of at least 10, and including at least 240, 180 or 80 credits, respectively, at grade D or better
- (ii) at least 120 credits above level 1, which may include part of the credits for a course if this is necessary to bring the total credits to exactly 120, with a grade point average of at least 10, and including at least 80 credits above level 1 at grade D or better

(b) *Bachelor of Engineering Studies in General Engineering*

To qualify for the Degree of Bachelor of Engineering in General Engineering the candidate must satisfy requirements (i) and (ii) above, and have completed courses which also satisfy all of the following requirements:

- (iii) at least 180 credits or, if exempted from Year 1 and Year 2, at least 120 credits, of Engineering courses, which may include part of the credits for a course if this is necessary to bring the total credits to exactly 180 or 120, respectively, with a grade point average of at least 10, and including at least 120 credits of Engineering courses at grade D or better
- (iv) at least 80 credits in Engineering courses above level 1, including at least 60 credits of Engineering courses above level 1 at grade D or better

(c) *Bachelor of Engineering Studies in a Designated Subject*

To qualify for the Degree of Bachelor of Engineering Studies in a Designated Subject, the candidate must satisfy requirements (i) and (ii)

above, and have completed courses which also satisfy all of the following requirements:

- (v) the curriculum in the Designated Subject as prescribed under the Regulations for Courses
- (vi) at least 180 credits or, if exempted from Year 1 and Year 2, at least 120 credits, in the Designated Subject, which may include part of the credits for a course if this is necessary to bring the total credits to exactly 180 or 120, respectively, with a grade point average of at least 10, and including at least 120 or, if exempted from Year 1 and Year 2, at least 80 credits in the Designated Subject at grade D or better
- (vii) at least 80 credits in the Designated Subject above level 1, including at least 60 credits in the Designated Subject above level 1 at grade D or better

(d) *Award of Degree with Merit or with Distinction*

The Degree of Bachelor of Engineering Studies shall be awarded with merit if the candidate has a grade point average in requirements (i) and (ii) and either (iii) or (vi) of at least 12 or with distinction if the candidate has a grade point average of at least 14 or as otherwise determined by the Board of Examiners.

9. Diploma of Higher Education (Engineering Studies)

To qualify for the Diploma of Higher Education (Engineering Studies), the candidate must satisfy the following requirements:

- (i) The candidate must have completed courses totalling at least 240 credits, or if exempted from Year 1, at least 120 credits, including in both cases at least 60 credits above Level 1.
- (ii) At least 60 credits above Level 1.
- (iii) At least 120 of the credits must be in courses in Engineering subjects.
- (iv) The candidate must have a Grade Point Average of at least 8.5.
- (v) If the candidate has been exempted from part of the curriculum with credit on first admission to the University of a grade point average of 10 under the provisions of Paragraph 12 below, the grade point average of at least 8.5 under (iv) must be obtained solely on the basis of courses attended in the University of Glasgow.

10. Certificate of Higher Education (Engineering Studies)

To qualify for the Certificate of Higher Education (Engineering Studies), the candidate must satisfy the following requirements:

- (i) The candidate must have completed courses totalling at least 120 credits.
- (ii) At least 60 of the credits must be in courses in Engineering subjects.

- (iii) The candidate must have a Grade Point Average of at least 8.5.

11. Progress Requirements

- (a) The progress of all candidates is reviewed annually.
- (b) Students who fail to satisfy the progress requirements for the degree for which they are registered will also have their progress reviewed in terms of the progress regulations for other degrees under this Resolution; and may, in the light of this review, be transferred from one degree programme to another (e.g. Master of Engineering to Bachelor of Engineering, Bachelor of Engineering to Bachelor of Engineering Studies) or from a degree programme to a programme for a Diploma or for a Certificate of Higher Education (Engineering Studies).
- (c) Full-time students admitted to first year will normally cease to be candidates for any degree in the Faculty of Engineering if they have not:
 - (i) Within one year of the date of their admission accumulated 600 grade points in their best 60 credits
 - (ii) In the case of Honours degrees of Master of Engineering, Bachelor of Engineering and Bachelor of Science in Engineering, within two years of the date of their admission completed all of the courses of the first year of the curriculum, each at a minimum grade of E.
 - (iii) After two years of full-time study have accumulated 1500 grade points in their best 150 credits.
 - (iv) In the case of Honours degrees of Master of Engineering, Bachelor of Engineering and Bachelor of Science in Engineering, within three years of the date of their admission completed all of the courses of the second year of the curriculum, each at a minimum grade of E.
 - (v) In any year of full-time study after the first accumulated at least 600 grade points in their best 60 credits.
- (d) Full-time students admitted directly to the second year will normally cease to be candidates for the degrees if they have not:
 - (i) Within one year of the date of their admission accumulated 600 grade points.
 - (ii) In the case of Honours degrees of Master of Engineering, Bachelor of Engineering and Bachelor of Science in Engineering, within two years of the date of their admission completed all of the courses of the second year of the curriculum, each at a minimum grade of E.
- (e) Part-time students will normally cease to be candidates for the degrees if, in any year of study, they have not achieved a Grade Point Average of at least 6.
- (f) Every candidate must normally obtain the Certificate of Basic IT Competence in his or her first year of study in order to progress to subsequent years.

- (g) Students in any year of study whether it be full-time, or part-time, or of enrolment for examinations only or of any combination thereof will normally cease to be candidates for the Honours Degrees of BEng of MEng or of BSc with Honours if they have not completed years three and four of the curriculum in two consecutive years of study.
- (h) Nothing in the foregoing regulations shall be taken as superseding Paragraph 5 of the Resolution and Paragraph 6(b) of the Schedule.

12. Exemption from Courses on Basis of Previous Study

Exemption may be granted on the following terms:

- (a) Candidates who have satisfied the entrance requirements for the Degree of Bachelor of Engineering may, at the discretion of the Faculty of Engineering, be exempted from study and examination in all compulsory subjects of the first year of the curriculum and be awarded the equivalent number of units associated with the first year of the course if they are qualified in any one of the following ways:
 - (i) He or she has satisfactorily completed the first year of a corresponding course of instruction in a University recognised for the purpose by the University Court on the recommendation of the *Senatus* or in another Institution similarly recognised and has passed an approved examination. (Any graduating curriculum in a Scottish University which includes courses in Mathematics and Physics will be considered for this purpose.)
 - (ii) He or she has obtained, at a normal first presentation for the General Certificate of Education (GCE) Advanced level examination, appropriate qualifications and grades in Mathematics, Physics or Engineering Science and one other approved subject;
 - (iii) He or she has obtained such other qualification as may be approved by the University Court on the recommendation of the *Senatus*. (A Higher National Diploma or Certificate with satisfactory passes and/or endorsements in approved subjects will be accepted for this purpose.)
- (b) Candidates who have satisfied the entrance requirements for the Degree of Bachelor of Engineering may, at the discretion of the Faculty of Engineering, be exempted from study and examination in all compulsory subjects of the first and second years of his curriculum and be awarded 260 credits if they are qualified in any one of the following ways:
 - (i) He or she has satisfactorily completed the second year of any corresponding course of instruction in a University recognised for the purpose by the University Court on the recommendation of the *Senatus*, or in another Institution similarly recognised and has passed an approved examination;

- (ii) Possession of such other qualification as may be approved by the University Court on the recommendation of the *Senatus*.
- (c) Every candidate for exemption may be required to attend and perform satisfactorily special courses held prior to the commencement of the session unless excused therefrom by virtue of previous work in the subject. Special courses include classes in Drawing, Computing and subject-orientated courses (e.g. Civil Engineering).

REGULATIONS FOR SUBJECTS OF STUDY AND COURSES

Except where otherwise specified the numeral indicates the earliest year of the curriculum in which a subject may be taken.

Courses listed under the headings 'Honours' are common to the curricula for the degree of Bachelor of Engineering and for the Honours Degree of Bachelor of Science in Engineering unless otherwise stated.

IV CIVIL ENGINEERING

New curricula are being progressively introduced from October 1999 for the MEng and BEng degrees in Civil Engineering and in Civil Engineering with Architecture. Consequently the old curricula apply only to students who commenced their studies prior to October 1999 and to students admitted as direct entrants to Year 2 prior to October 2000 and to Year 3 prior to October 2001.

MEng in Civil Engineering – new curriculum

	<i>Credits</i>
<i>Year 1</i>	120
Mathematics C1	30
Engineering Mechanics 1A	20
Civil Engineering Materials 1	10
Civil Engineering Geological Studies 1	10
Communication Studies 1A	20
Design Projects 1	10
<i>Courses to the weight of 20 credits from:</i>	
French for Engineers 1	20
German for Engineers 1	20
Managerial Accounting and Finance 1	20
Other courses approved by an Adviser of Studies	
 <i>Year 2</i>	 120
Applicable Mathematics 2	20
Structural Engineering 2	20

	<i>Credits</i>
Surveying C2	10
Soil Mechanics 2	10
Water Engineering 2	10
Highway Engineering C2	10
Civil Engineering Administration 2	10
Design Projects 2A	20
Managerial and Organisational Context E1*	10

* In 2001/02 any Year 2 student who has already taken Managerial and Organisational Context E1 in Year 1 will be required to take an alternative 10 credit elective course, to be agreed with an Adviser of Studies.

Year 3 **130**

Mathematics E2M	10
Mathematics E2N	10
Structural Engineering 3	30
Geotechnical Engineering 3	20
Water Engineering 3	10
Hydrology 3	10
Transportation Planning 3	10
Planning and Estimating 3	10
Design Projects 3A	20

Year 4 – available from October 2002

Provisional curriculum available in departmental handbook. Final details to be provided in due course.

Year 5 – available from October 2003

Provisional curriculum available in departmental handbook. Final details to be provided in due course.

Student Progress

Continuation on this curriculum is subject to a satisfactory level of performance. In particular, progression to Year 4 of the MEng will normally require a grade point average of at least 13 in Year 3. Students who fail to reach the required level of performance may be transferred by the Head of Department to the BEng (Honours) in Civil Engineering, BSc (Ordinary) in Civil Engineering or BES in Civil Engineering.

MEng in Civil Engineering – new curriculum – Accelerated Route

	<i>Credits</i>
<i>Year 1/2</i>	140
Engineering Mechanics 1B	10
Civil Engineering Materials 1	10
Communication Studies 1B	10
Applicable Mathematics 2	20
Structural Engineering 2	20
Surveying C2	10
Soil Mechanics 2	10
Water Engineering 2	10
Highway Engineering C2	10
Civil Engineering Administration 2	10
Design Projects 2A	20
<i>Year 3</i>	140
All courses from standard Year 3 of MEng in Civil Engineering	130
Managerial and Organisational Context E1	10
Years 4 and 5 are identical to the standard MEng in Civil Engineering.	

Student Progress

Continuation on this curriculum is subject to a satisfactory level of performance. In particular, progression to Year 4 of the MEng will normally require a grade point average of at least 13 in Year 3. Students who fail to reach the required level of performance may be transferred by the Head of Department to the BEng (Honours) in Civil Engineering, BSc (Ordinary) in Civil Engineering or BES in Civil Engineering.

MEng in Civil Engineering with Architecture – new curriculum

	<i>Credits</i>
<i>Year 1</i>	120
Mathematics C1	30
Engineering Mechanics 1A	20
Civil Engineering Materials 1	10
Architecture C1	10
Communication Studies 1A	20
Design Projects 1	10

	<i>Credits</i>
<i>Courses to the weight of 20 credits from:</i>	
French for Engineers 1	20
German for Engineers 1	20
Managerial Accounting and Finance 1	20
Other courses approved by an Adviser of Studies	

Year 2 **120**

Applicable Mathematics 2	20
Structural Engineering 2	20
Surveying C2	10
Soil Mechanics 2	10
Water Engineering 2	10
Civil Engineering Administration 2	10
Architecture C2	20
Design Projects 2B	10
Managerial and Organisational Context E1*	10

* In 2001/02 any Year 2 student who has already taken Managerial and Organisational Context E1 in Year 1 will be required to take an alternative 10 credit elective course to be agreed with an Adviser of Studies.

Year 3 **130**

Mathematics E2M	10
Mathematics E2N	10
Structural Engineering 3	30
Geotechnical Engineering 3	20
Transportation Planning 3	10
Planning and Estimating 3	10
Architecture C3	30
Design Projects 3B	10

Year 4 – available from October 2002

Provisional curriculum available in departmental handbook. Final details to be provided in due course.

Year 5 – available from October 2003

Provisional curriculum available in departmental handbook. Final details to be provided in due course.

Student Progress

Continuation on this curriculum is subject to a satisfactory level of performance. In particular, progression to Year 4 of the MEng will normally require a grade

point average of at least 13 in Year 3. Students who fail to reach the required level of performance may be transferred by the Head of Department to the BEng (Honours) in Civil Engineering with Architecture, BSc (Ordinary) in Civil Engineering or BES in Civil Engineering.

MEng in Civil Engineering with Architecture – new curriculum – Accelerated Route

	<i>Credits</i>
<i>Year 1/2</i>	140
Engineering Mechanics 1B	10
Civil Engineering Materials 1	10
Architecture C1	10
Communication Studies 1B	10
Applicable Mathematics 2	20
Structural Engineering 2	20
Soil Mechanics 2	10
Water Engineering 2	10
Civil Engineering Administration 2	10
Architecture C2	20
Design Projects 2B	10
<i>Year 3</i>	140
All courses from standard Year 3 of MEng in Civil Engineering with Architecture*	130
Managerial and Organisational Context E1	10

* Except in 2001/02, when Transportation Planning 3 will be replaced by Water Engineering 2.

Years 4 and 5 are identical to the standard MEng in Civil Engineering with Architecture.

Student Progress

Continuation on this curriculum is subject to a satisfactory level of performance. In particular, progression to Year 4 of the MEng will normally require a grade point average of at least 13 in Year 3. Students who fail to reach the required level of performance may be transferred by the Head of Department to the BEng (Honours) in Civil Engineering with Architecture, BSc (Ordinary) in Civil Engineering or BES in Civil Engineering.

BEng (Honours) in Civil Engineering – new curriculum

Years 1, 2 and 3 follow the curriculum for the MEng in Civil Engineering (new curriculum).

Year 4 – available from October 2002

Provisional curriculum available in departmental handbook. Final details to be provided in due course.

Student Progress

Continuation on this curriculum is subject to a satisfactory level of performance. Students who fail to reach the required level of performance may be transferred by the Head of Department to the BSc (Ordinary) in Civil Engineering or BES in Civil Engineering.

BEng (Honours) in Civil Engineering with Architecture – new curriculum

Years 1, 2 and 3 follow the curriculum for the MEng in Civil Engineering with Architecture (new curriculum).

Year 4 – available from October 2002

Provisional curriculum available in departmental handbook. Final details to be provided in due course.

Student Progress

Continuation on this curriculum is subject to a satisfactory level of performance. Students who fail to reach the required level of performance may be transferred by the Head of Department to the BSc (Ordinary) in Civil Engineering or BES in Civil Engineering.

BES in Civil Engineering – new curriculum

Compulsory courses

	<i>Credits</i>
<i>Year 1</i>	
Mathematics C1	30
Mechanics 1A	20
Civil Engineering Materials 1	10
Communication Studies 1A	20
Design Projects 1	10
<i>Years 2 and 3</i>	
Structural Engineering 2	20
Soil Mechanics 2	10
Water Engineering 2	10
Civil Engineering Administration 2	10

	<i>Credits</i>
<i>Either</i>	
Design Projects 2A	20
<i>Or</i>	
Design Projects 2B	10
<i>And a minimum of 50 credits from:</i>	
Structural Engineering 3	30
Geotechnical Engineering 3	20
Water Engineering 3	10
Hydrology 3	10
Transportation Planning 3	10
Planning and Estimating 3	10
Architecture C3	30
Design Projects 3A	20
Design Projects 3B	10

Selected Courses

Courses approved by an Adviser of Studies to bring the total of the curriculum to at least 360 credits.

MEng in Civil Engineering – old curriculum

	<i>Credits</i>
<i>Year 3</i>	150
Civil Engineering Design Studies 3	10
Construction Management 3	20
Hydraulics 3	20
Mathematics E2B	20
Soil Mechanics 3	20
Structural Design 3	20
Structural Mechanics 3	20
Traffic Engineering 3	20
<i>Year 4</i>	140
Experimental Project C4	20
Concrete Design 4	20
Construction Management 4	20
Foundation Engineering 4	10
Hydraulic Engineering 4	10
Matrix Structural Analysis 4	10
Steel Design 4	10
Civil 4 Projects	20
<i>and elective courses to the weight of 20 credits from:</i>	
Geotechnical Engineering 4	10
Public Health Engineering 4	10

	<i>Credits</i>
Structural Mechanics 4	10
Transportation Planning 4	10
Language Course 4	20
<i>Year 5</i>	120
Civil Engineering 5	30
Construction Management 5	20
Experimental Project C5	30
Integrated Design Project C5	40
Industrial Project C4	

The Industrial Project C4 includes approved industrial work experience in the vacation period between Years 4 and 5. The work of the Experimental Project is spread over Years 4 and 5 and students will make an interim submission and presentation in Year 4.

Student Progress

Continuation on this curriculum is subject to a satisfactory level of performance. Students who fail to reach the required level of performance may be transferred by the Head of Department to the BEng (Honours) in Civil Engineering, BSc (Ordinary) in Civil Engineering or BES in Civil Engineering.

MEng in Civil Engineering with Architecture – old curriculum

	<i>Credits</i>
<i>Year 3</i>	150
Civil Engineering and Architectural Design Studies 3	10
Architecture 3	40
Construction Management 3	20
Mathematics E2B	20
Soil Mechanics 3	20
Structural Design 3	20
Structural Mechanics 3	20
<i>Year 4</i>	140
Experimental Project C4A	20
Architectural and Structural Design Projects 4	40
Concrete Design 4	20
Foundation Engineering 4	10
Matrix Structural Analysis 4	10
Steel Design 4	10
<i>And elective courses to the weight of 30 credits from:</i>	
Geotechnical Engineering 4	10
Hydraulics 3	20

	<i>Credits</i>
Public Health Engineering 4	10
Structural Mechanics 4	10
Language Course 4	10
<i>Year 5</i>	120
Structural Mechanics 5	10
Structural Design 5	10
Construction Management 5	20
Experimental Project CA5	30
Architectural and Structural Design Projects 5	50
Industrial Project CA4	

The Industrial Project CA4 includes approved industrial work experience in the vacation period between Years 4 and 5. The work of the Experimental Project is spread over Years 4 and 5 and students will make an interim submission and presentation in Year 4.

Student Progress

Continuation on this curriculum is subject to a satisfactory level of performance. Students who fail to reach the required level of performance may be transferred by the Head of Department to the BEng (Honours) in Civil Engineering with Architecture, BSc (Ordinary) in Civil Engineering or BES in Civil Engineering.

BEng (Honours) in Civil Engineering – old curriculum

	<i>Credits</i>
<i>Year 3</i>	150
Year 3 follows the curriculum for the MEng in Civil Engineering (old curriculum).	
<i>Year 4</i>	140
Final Year Project C4	20
Concrete Design 4	20
Foundation Engineering 4	10
Hydraulic Engineering 4	10
Matrix Structural Analysis 4	10
Steel Design 4	10
Civil 4 Projects	20
<i>and elective courses to the weight of 40 credits from:</i>	
Construction Management 4	20
Geotechnical Engineering 4	10
Public Health Engineering 4	10
Structural Mechanics 4	10
Transportation Planning 4	10
Language Course 4	20

Student Progress

Continuation on this curriculum is subject to a satisfactory level of performance. Students who fail to reach the required level of performance may be transferred by the Head of Department to the BSc (Ordinary) in Civil Engineering or BES in Civil Engineering.

BEng (Honours) in Civil Engineering with Architecture – old curriculum

	<i>Credits</i>
<i>Year 3</i>	150
Year 3 follows the curriculum for the MEng in Civil Engineering with Architecture (old curriculum).	
<i>Year 4</i>	140
Final Year Project C4A	20
Architectural and Structural Design Projects 4	40
Concrete Design 4	20
Foundation Engineering 4	10
Matrix Structural Analysis 4	10
Steel Design 4	10
<i>and elective courses to the weight of 30 credits from:</i>	
Geotechnical Engineering 4	10
Hydraulics 3	10
Public Health Engineering 4	10
Structural Mechanics 4	10
Language course 4	20

Student Progress

Continuation on this curriculum is subject to a satisfactory level of performance. Students who fail to reach the required level of performance may be transferred by the Head of Department to the BSc (Ordinary) in Civil Engineering or BES in Civil Engineering.

BSc (Ordinary) in Civil Engineering – old curriculum*Compulsory courses*

	<i>Credits</i>
<i>Year 1</i>	
Civil Engineering 1	30
Applicable Mathematics C1	50

	<i>Credits</i>
<i>Year 2</i>	
Civil Engineering Materials 2	10
Design Drawing and Detailing 2	20
Structural Mechanics 2	20
Surveying 2	20
<i>and one from:</i>	
Architecture 2	20
Highway Engineering 2	20
Hydraulics 2	20

*Years 3 and 4**A minimum of 100 credits from:*

Architecture 3	30
Construction Management 3	20
Hydraulics 3	20
Soil Mechanics 3	20
Structural Design 3	20
Structural Mechanics 3	20
Traffic Engineering 3	20

Selected courses

Approved courses from the following List 1C or courses not attempted from previous years of the BEng curricula to bring the total of the curriculum to at least 420 credits.

	<i>Credits</i>
<i>List 1C</i>	
Applicable Mathematics 2	20
Architecture 1	20
Architecture 2	20
Architecture 3	40
Architectural and Structural Design Projects 4	40
Astronomy 1X	20
Astronomy 1Y	20
Computing C1	20
Construction Management 3	20
Concrete Design 4	20
Earth Science 1Y	20
Exploring the Cosmos 1X	20
Exploring the Cosmos 1Y	20
Financial Management E1	20
Foundation Engineering 4	10
Geology E1A	10
Geology E2A	20

	<i>Credits</i>
Geology E2B	10
Geology E3A	10
Geology E3B	10
Geology E3C	10
Geology E4A	10
Geology E4B	10
Geology E4C	10
Geotechnical Engineering 4	10
Hydraulic Engineering 4	10
Macroeconomics E1	10
Management and Organisational Context E1	10
Marketing E1	10
Mathematics E2B	20
Mathematics E3	20
Matrix Structural Analysis 4	10
Microeconomics E1	10
Operations Management E1	10
Professional Studies 4	10
Public Health Engineering 4	10
Steel Design 4	10
Structure of Industry 1	10
Structural Mechanics 4	10
Transportation Planning 4	10

Selection of courses from List 1C is subject to the necessary prerequisites being met and to the availability of the courses. Courses not included in List 1C above may also be selected with the approval of an Adviser.

Architecture Specialisation

Candidates will be regarded as having specialised in Architecture (and have their degree scrolls endorsed accordingly) if they have, in addition to completing the curriculum for the BSc (Ordinary) in Civil Engineering under the above rules, included in that curriculum the following courses, all at a minimum of Grade D:

Architecture 1	20
Architecture 2	20
Architecture 3	40
Architectural and Structural Design Projects 4	40

BES in Civil Engineering – old curriculum

Compulsory courses

	<i>Credits</i>
<i>Year 1</i>	
Civil Engineering 1	30
Applicable Mathematics C1	50

	<i>Credits</i>
<i>Years 2 and 3</i>	
Civil Engineering Materials 2	10
Design Drawing and Detailing 2	20
Structural Mechanics 2	20
Surveying 2	20
<i>And a minimum of 40 credits from:</i>	
Architecture 2	20
Highway Engineering 2	20
Hydraulics 2	20
Construction Management 3	20
Hydraulics 3	20
Soil Mechanics 3	20
Structural Design 3	20
Structural Mechanics 3	20
Traffic Engineering 3	20

Selected courses

Approved courses from List 1C, other Engineering Faculty courses, or courses offered by other Faculties participating in the 3-year degree to bring the total of the curriculum to at least 360 credits.

V AERONAUTICAL ENGINEERING**Honours Bachelor of Engineering in Aeronautical Engineering**

	<i>Credits</i>
<i>Year 1 – Compulsory Subjects</i>	
Applied Mechanics 1	20
Thermodynamics and Fluid Mechanics 1	20
Mathematics E1	40
Physics E1A	20
Structure of Industry 1	10
Aerospace Engineering 1	10
Engineering Skills 1	20
<i>Year 2 – Compulsory Subjects</i>	
Aerospace Design Project 2	10
Applied Mechanics 2	20
Introduction to Engineering Materials 2	10
Mathematics E2A & E2C	40
Thermodynamics and Fluid Mechanics 2	20
Power Electronics 2	10

	<i>Credits</i>
Macroeconomics E1	10
Engineering Skills 2	10
Introduction to Aerodynamics 2	10
 <i>Year 3 – Honours, Compulsory Subjects</i>	
Aerospace Instrumentation and Measurements 3	10
Aerodynamics and Fluid Mechanics 3	20
Dynamics and Control 3	20
Flight Mechanics and Performance 3	20
Aircraft Structures and Materials 3	20
Aerospace Design Project 3	20
Propulsion and Turbomachinery 3	10
Numerical Methods in Aerospace Engineering 3 and one subject chosen from List 1A	10 10
 <i>Year 4</i>	
Aeronautical Engineering 4A: <i>comprising</i>	
Aeroelasticity 4	20
Aerospace Dynamics 4A	20
Aerospace Structures 4	20
<i>and</i>	
Subjects totalling at least 20 Credits from List 2A	
 Aeronautical Design 4	 20
Professional Studies 4	10
Final Year Project (Aero)	40

Student Progress

Continuation in the Honours curriculum is subject to achievement in degree examinations of a good enough level of performance for the purpose. Students who fail to attain the standard prescribed by the Department in 3rd year or Aeronautical Engineering 4A of the Honours curriculum will not be eligible for Honours.

Master of Engineering in Avionics

This course is administered by the Department of Aerospace Engineering.

Candidates will qualify for this degree if they successfully complete the course of study detailed below. However, candidates will only be permitted to follow this course of study at the discretion of the Head(s) of Departments of Aerospace Engineering and of Electronics and Electrical Engineering and subject to having achieved a sufficiently high level of performance for the purpose in the first year.

	<i>Credits</i>
<i>Year 1</i>	130
Aerospace Engineering 1	10
Applied Mechanics 1	20
Electronic Engineering 1X	20
Electronic Engineering 1Y	20
Engineering Mathematics EE1X	20
Engineering Mathematics EE1Y	20
Thermofluids 1	20
 <i>Year 2</i>	 130
Aerospace Design Project 2	10
Aerospace Dynamics 2	20
Analogue Electronics 2	10
Computer Architecture 2	10
Digital Electronics 2	10
Electrical Circuits 2X	10
Electrical Circuits 2Y	10
Engineering Mathematics EE2X	10
Engineering Mathematics EE2Y	10
Introduction to Aerodynamics 2	10
Introductory Programming EE1	10
<i>Either</i> Embedded Processors 2	10
<i>or</i> Engineering Electromagnetics 2	10
 <i>Year 3</i>	 130
Aerospace Informatics 3	10
Aerospace Instrumentation and Measurement 3	10
Communication Systems 3A	10
Control EE3A	10
Control EE3B	10
Electronic System Design 3	20
Engineering Mathematics EE3	10
Flight Mechanics and Performance 3	20
Simulation of Engineering Systems 3	10
Team Design Project EE3	10
Courses totalling at least 10 credits selected from:	
Aerodynamics 3	10
Communications Systems 3B	10
Electromagnetic Compatibility 3	10
Real Time Computer Systems 3	10
Space Flight Dynamics 3	10

	<i>Credits</i>
<i>Year 4</i> – available from October 2002	130
Avionics Systems 4	20
Control EE4	20
Entrepreneurship and Technology Venturing 4	20
Flight Dynamics 4	10
Flight Testing 4	10
Industrial Project A4	20
Courses totalling at least 10 credits selected from:	
High Speed Aerodynamics 4	10
Rotorcraft Aeromechanics 4	10
Space Flight Dynamics 4	10
Courses totalling at least 20 credits from List 4E	20
<i>Year 5</i> – available from October 2003	150
Advanced Control Systems Engineering 5	20
Aircraft Handling Qualities and Control 5	10
Aircraft Operations and Systems 5	10
Industrial Project AE5	60
Courses totalling at least 10 credits selected from:	
High Speed Aerodynamics 4	10
Rotorcraft Aeromechanics 4	10
Space Flight Dynamics 4	10
Experimental Aerodynamics 5	10
Space Craft Systems 5	10
Courses totalling at least 20 credits selected from List 4E or 5E	20
Courses totalling at least 20 credits selected from List 1E	20

Practical Work

Approximately 150 hours in each of years 1, 2 and 3, 100 hours in year 4, full time during the summer placement between years 4 and 5, and 250 hours during the remainder of year 5 (including project).

Student Progress

Continuation in this curriculum is subject to achievement in degree examinations of a good enough level of performance for the purpose. Students who fail to reach the required level of performance may be transferred at the sole discretion of the Heads of Department to the Honours or Ordinary Degree curriculum in Aeronautical Engineering or Electronics and Electrical Engineering.

BEng (Honours) in Avionics

This course is administered by the Department of Aerospace Engineering.

Years 1, 2 and 3

These follow the curriculum for the degree of Master of Engineering in Avionics.

Credits

Year 4 – October 2001 will be final year of this curriculum

Avionics 4, *comprising:*

Aerospace Dynamics 4	20
Control EE4	20
Avionics Systems 4	20
Final Year Project (Aero) 4	40

and *either:*

subjects totalling at least 20 credits from List 4E	
<i>or:</i> Space Systems 4	20

Year 4 – available from October 2002 **130**

Avionics Systems 4	20
Control EE4	20
Individual Project EE4 (in Aerospace or Electronics and Electrical Engineering)	40
Flight Dynamics 4	10
Courses totalling at least 10 credits selected from:	
Flight Testing 4	10
High Speed Aerodynamics 4	10
Rotorcraft Aeromechanics 4	10
Space Flight Dynamics 4	10
Courses totalling at least 20 credits from List 4E	20
Courses totalling at least 10 credits selected from List 1E	10

Practical Work

Approximately 150 hours in each of Years 1, 2 and 3 and 300 hours in year 4 (including project).

Student Progress

Continuation in this curriculum is subject to achievement in degree examinations of a good enough level of performance for the purpose. Students who fail to reach the required level of performance may be transferred at the sole discretion of the Heads of Department to the Honours or Ordinary Degree curriculum in Aeronautical Engineering or Electronics and Electrical Engineering.

Master of Engineering in Aerospace Engineering

Years 1, 2 and 3 follow the curriculum for the degree of Bachelor of Engineering in Aeronautical Engineering or Avionics.

	<i>Credits</i>
<i>Year 4</i>	
Aerospace Engineering 4M, <i>comprising:</i>	
<i>either:</i>	
Aeronautical Engineering 4A	80
and	
Aeronautical Design 4	20
<i>or:</i>	
Avionics 4	80
Language Course 4A	30
<i>Years 4 and 5</i>	
Industrial Project Management 5A	40
<i>Year 5</i>	
Aircraft System Design and Integration 5	20
European Joint Project 5A	80

Student Progress after Year 3

Continuation in this curriculum is subject to achievement in degree examinations of a good enough level of performance for the purpose. Students who fail to reach the required level of performance may be transferred by the Head of Department to the Honours or Ordinary degree curriculum in Aeronautical Engineering or the Honours degree curriculum in Avionics at his discretion.

Ordinary Bachelor of Science in Aeronautical Engineering

	<i>Credits</i>
<i>Year 1 – Compulsory Subjects</i>	
Aerospace Engineering 1	10
Applied Mechanics 1	20
Engineering Skills 1	20
Mathematics E1	40
Physics E1A	20
Structure of Industry 1	10
Thermodynamics & Fluid Mechanics 1	20

	<i>Credits</i>
<i>Year 2 – Compulsory Subjects</i>	
Aerospace Design Project 2	10
Applied Mechanics 2	20
Introduction to Aerodynamics 2	10
Introduction to Engineering Materials 2	10
Mathematics E2A & E2C	40
Thermodynamics and Fluid Mechanics 2	20
Macroeconomics E1	10
Engineering Skills 2	10
Power Electronics 2	10
<i>Year 3 – Compulsory Subjects</i>	
Aerospace Instrumentation and Measurements 3	10
Aerodynamics and Fluid Mechanics 3	20
Dynamics and Control 3	20
Flight Mechanics and Performance 3	20
Aircraft Structures and Materials 3	20
Aerospace Design Project 3	20
Propulsion and Turbomachinery 3	10
<i>Year 4</i>	
Final Year Project (Aero)	40

Selected Subjects

Approved subjects from List 1A with a minimum of 10 Credits to bring the total of the curriculum, including the Final Year Project, to at least 420 Credits.

Lists of Selected Subjects*List 1A*

	<i>Credits</i>
Aerospace Informatics 3	10
Industrial Aerodynamics 3	10
Financial Management E1	20
Spaceflight Dynamics 3	10
French for Engineers	30
Numerical Methods in Aerospace Engineering 3	10

List 2A

	<i>Credits</i>
Fluid Mechanics 4	20
Gas Dynamics and Thermo-dynamics Machines 4	20
Laser & Electro-Optical Systems	20
Space Systems 4	20

VI MECHANICAL ENGINEERING**Honours and Ordinary**

	<i>Credits</i>
<i>Year 1</i>	
<i>Compulsory Subjects</i>	
Applicable Mathematics 1	50
Basic Engineering M1	50
Design & Manufacture 1	20
<i>Optional Subjects (at least one of which must be selected)</i>	
Managerial and Organisational Context E1	10
Language	20
<i>Year 2</i>	
<i>Compulsory Subjects</i>	
Applicable Mathematics 2	20
Basic Engineering M2	50
Electrical Power Engineering 2	10
Power Electronics 2	10
Engineering Design 2	10
Engineering Practice 2	10
Workshop Practice 1	
Engineering Applications M1	
<i>Optional Subjects (at least two of which must be selected)</i>	
Language	20
Microeconomics E1	10
Operations Management E1	10

Options may be restricted by the timetable.

Engineering Applications M1 is a Block Course. Engineering Applications M1 will be completed on satisfactory performance in (or exemption from) Design & Manufacture M1, Engineering Practice 2, Workshop Practice 1 and Communications 1. It will indicate that the Student has satisfied the requirement of the

IMechE. Every component of a composite subject must have been completed with a minimum grade of E.

BEng and BSc Honours – Years 3 and 4

Candidates will only be able to follow these degree programmes if they have completed all first and second year subjects with a minimum grade of E and a minimum grade point average of ten within three years of entry into the first year of the programme or within two years of entry into second year of the programme. Suitably qualified candidates may be admitted directly into the third year of the programme. Candidates will be admitted to the BEng programme only if they can demonstrate that they have satisfied the Institution of Mechanical Engineering requirements for Engineering Applications M1.

In order to progress to the fourth year of the programme candidates must normally complete the third year of the programme with the required weighted average within one year of entering the third year. Other candidates may be admitted, or allowed to progress in the programme at the discretion of the Head of the Department of Mechanical Engineering and subject to having achieved a satisfactorily high level of performance for the purpose.

Credits

Year 3

Compulsory Subjects

Mechanical Engineering 3 comprising:

Mathematics E2B	20
Dynamics M3	20
Energy Systems & Fluid Mechanics M3	30
Mechanics, Materials & Manufacture M3	30
Instrumentation and Data Systems 3	10
Engineering Design Workshop M3	10

Optional Subjects (At least two of which must be selected)

Language option ¹	20
Marketing E1	10
Macroeconomics E1	10
Software Engineering 3	10

Options may be restricted by the timetable.

¹ The Language Option is not available to students who have selected this option in years 1 and 2, nor to third-year entrants.

Credits

Year 4

Compulsory Subjects

Professional Studies 4	10
Final Year Project (Mechanical)	30
Mechanical Engineering 4A, <i>comprising:</i>	
Design 4	30
Plus three additional subjects chosen from the list of selected subjects below.	

List of Selected Subjects (all subjects 20 credits)

Control M4 ²
Design 4
Fluid Mechanics 4
Gas Dynamics and Thermodynamic Machines M4
Advanced Heat Transfer M4
Lasers and Electro-optic Systems M4
Materials Engineering M4
Mechanics of Solids and Structures M4
Process Engineering M4
Vibration 4 ²
Vibration and Control 4 ²

BSc Ordinary Degree – Years 3 and 4

The minimum number of credits to qualify for the award of Ordinary Degree is 420.

Credits

Compulsory subjects

Mechanical Engineering 4B³, *comprising at least 140 credits chosen from the list below:*

Instrumentation and Data Systems 3	10
Dynamics M3	20
Energy Systems and Fluid Mechanics M3	30
Mechanics, Materials and Manufacture M3	30
Marketing E1	10
Language	20
Macroeconomics E1	10
Software Engineering 3	10

² Vibration and Control M4 cannot be taken with Vibration M4 or Control M4.

³ The components of this course will commonly be taken over more than one year.

Selected Subjects

The further requirements to complete the Ordinary degree can be made up by completing any subject(s) carrying the appropriate number of credits, provided the course of study has been approved by the Adviser of Studies. These subjects may be drawn, for example, from the Honours curriculum, Management Subjects and Languages.

Master of Engineering in Mechanical Engineering*Years 1, 2 and 3*

follow the curriculum of the BEng in Mechanical Engineering.

	<i>Credits</i>
<i>Year 4</i>	
Professional Studies 4	10
Design 4	30
Additional subjects chosen from lists A & B of selected subjects below to a total of at least 80 credits:	
<i>List A: Compulsory if not taken before; subjects cannot be repeated.</i>	
Macroeconomics E1	10
Managerial and Organizational Context 1	10
Marketing E1	10
Microeconomics E1	10
Operations Management E1	10
Software Engineering 3	10
<i>List B:</i>	
Control M4 ⁴	20
Fluid Mechanics 4	20
Gas Dynamics & Thermodynamic Machines M4	20
Advanced Heat Transfer M4	20
Lasers & Electro-optic Systems M4	20
Materials Engineering M4	20
Mechanics of Solids & Structures M4	20
Process Engineering M4	20
Vibration M4 ⁴	20
Vibration & Control M4 ⁴	20

⁴ Vibration & Control M4 cannot be taken with Vibration M4 or Control M4.

	<i>Credits</i>
<i>Year 5</i>	
Industrial Project M5	50
Industrial Management EE5	50
Applied Design Systems M5	10
<i>Optional Subjects (at least two of which must be selected)</i>	
Built Environment M5	10
Advanced Control Systems Engineering M5	10
Dynamics M5	10
Laser Design & Machine Vision M5	10
Mechanics & Materials M5	10
Mechanics of Solids & Structures M5	10
Rotodynamic Machinery M5	10

European Master of Engineering students who have, or acquire, the necessary language skills may take an equivalent fourth year at a European University or Institution of Higher Education approved by the University under the European Credit Transfer Scheme (ECTS).

Master of Engineering in Mechanical Engineering – Accelerated route

	<i>Credits</i>
<i>Year 1</i>	
<i>Compulsory Subjects:</i>	
Applicable Mathematics 2	20
Basic Engineering F2, <i>comprising:</i>	60
Basic Engineering M2	
Basic Engineering M1: Fluids	
Applicable Mathematics 1F	20
Electrical Power Engineering 2	10
Power Electronics 2	10
Engineering Design 2	10
Engineering Practice 2	10
Workshop Practice 1	
Engineering Applications 1	
<i>Optional Subjects (at least two of which must be selected)</i>	
Language	20
Microeconomics E1	10
Operations Management E1	10

Options may be restricted by the timetable.

Years 2, 3 and 4

follow the curriculum of the MEng in Mechanical Engineering Years 3, 4 and 5.

European Master of Engineering students who have, or acquire, the necessary language skills may take an equivalent fourth year at a European University or Institution of Higher Education approved by the University under the European Credit Transfer Scheme (ECTS).

Student Progress after Year 3

Continuation in these curricula is subject to achievement in degree examinations of a good enough level of performance for the purpose. Students who fail to reach the required level of performance may be transferred by the Head of Department to the Honours or Ordinary degree curriculum in Mechanical Engineering.

Year Out In Industry

Students who enter the degree programme in year 1 or year 2 may elect to take a year-out from their studies between the second and third or between the third and fourth years of their study, subject to the agreement of their Advisor of Studies and of the Head of Department. The student must arrange an approved programme of activity that will develop their engineering knowledge and experience. Normally this will involve a period of employment in an engineering company. The year out will be added to the time allowed for the student to satisfy the progress regulations of the degree provided that the student has completed the full curriculum to date.

Mechanical Engineering with Aeronautics**Honours and Ordinary***Credits**Year 1**Compulsory Subjects*

Aerospace Engineering 1	10
Applicable Mathematics 1	50
Basic Engineering M1	50
Engineering Design and Computing 1	10
Communications 1	

Optional Subjects (at least one of which must be taken)

Managerial and Organisational Context E1	10
Language	20

	<i>Credits</i>
<i>Year 2</i>	
<i>Compulsory Subjects</i>	
Applicable Mathematics 2	20
Basic Engineering MA2	50
Electrical Power Engineering 2	10
Power Electronics 2	10
Engineering Design 2	10
Introduction to Aerodynamics 2	10
Workshop Practice 2	
Engineering Applications MA1	
<i>Optional Subjects (at least two of which must be selected)</i>	
Language	20
Macroeconomics E1	10
Operations Management E1	10

Engineering Applications MA1 is a Block course. Engineering Applications MA1 will be completed on satisfactory performance in (or exemption from) Basic Engineering Coursework M1 and M2, Aerospace Engineering 1, Aerodynamics 2, Workshop Practice 2 and Communications 1. It will indicate that the Student has satisfied the requirement of the IMechE. Every component of a composite subject must have been completed with a minimum grade of E.

BEng and BSc Honours – Years 3 and 4

Candidates will only be able to follow these degree programmes if they have completed all first and second year subjects with a minimum grade of E and a minimum grade point average of ten within three years of entry into the first year of the programme or within two years of entry into second year of the programme. Suitably qualified candidates may be admitted directly into the third year of the programme. Candidates will be admitted to the BEng programme only if they can demonstrate that they have satisfied the Institution of Mechanical Engineers requirements for Engineering Applications MA1.

In order to progress to the fourth year of the programme candidates must normally complete the third year of the programme with the required weighted average within one year of entering the third year. Other candidates may be admitted, or allowed to progress in the programme at the discretion of the Head of the Department of Mechanical Engineering and subject to having achieved a satisfactorily high level of performance for the purpose.

	<i>Credits</i>
<i>Year 3</i>	
<i>Compulsory Subjects</i>	
Mechanical Engineering with Aeronautics 3 <i>comprising:</i>	
Aerodynamics and Flight Mechanics 3	20
Dynamics M3	20
Flight Mechanics and Performance 3	20
Propulsion Turbomachinery 3	10
Mathematics E2B	20
Mechanics, Materials and Manufacture M3	30
<i>Optional Subjects (At least two of which should be taken)</i>	
Language	20
Macroeconomics E1	10
Marketing E1	10
Software Engineering M3	20
<i>Year 4</i>	
<i>Compulsory Subjects</i>	
Professional Studies 4	10
Project(Aeronautics) M4	30
Mechanical Engineering with Aeronautics 4 <i>comprising:</i>	
Aeronautical Design 4	30
Plus three additional subjects chosen from the list of selected subjects below.	

List of Selected Subjects (all subjects 20 credits)

Aerospace Dynamics 4A
 Aerospace Structures 4
 Control M4⁵
 Fluid Mechanics 4
 Materials Engineering M4
 Mechanics of Solids and Structures M4
 Vibration M4⁵
 Vibration and Control M4⁵

BSc Ordinary Degree – Years 3 and 4

The minimum number of credits to qualify for the award of Ordinary Degree is 420.

⁵ Vibration & Control M4 cannot be taken with Vibration M4 or Control M4.

	<i>Credits</i>
<i>Compulsory Subject</i>	
Mechanical Engineering with Aeronautics 4B ⁶	160
<i>comprising at least 80 credits chosen from the list below:</i>	
Aerodynamics and Flight Mechanics 3	20
Dynamics M3	20
Flight Mechanics and Performance 3	20
Propulsion and Turbomachinery 3	10
Mechanics Materials and Manufacture 3	30
and further selected subjects.	

Selected Subjects

The further requirements to complete the Ordinary degree can be made up by completing any subject(s) carrying the appropriate number of credits, provided the course of study has been approved by the Adviser of Studies. These subjects may be drawn, for example, from the Honours curriculum, Management Subjects and Languages.

Master of Engineering in Mechanical Engineering with Aeronautics*Years 1, 2 and 3*

Follow the curriculum of the BEng in Mechanical Engineering with Aeronautics

	<i>Credits</i>
<i>Year 4</i>	
Professional Studies 4	10
Aerospace Design 4	30
Plus four additional subjects chosen from the list of selected subjects below:	
Aerospace Dynamics 4A	20
Aerospace Structures 4	20
Control M4 ⁵	20
Fluid Mechanics 4	20
Materials Engineering M4	20
Mechanics of Solids & Structures M4	20
Vibration M4 ⁵	20
Vibration & Control M4 ⁵	20

⁵ Vibration & Control M4 cannot be taken with Vibration M4 or Control M4.

⁶ The components of this Course will commonly be taken over more than one year.

	<i>Credits</i>
<i>Year 5</i>	
Entrepreneurial Studies M5	40
Industrial Project M5	50
<i>Compulsory subject:</i>	
Applied Design Systems M5	10
plus two additional subjects chosen from the list of selected subjects below:	
Built Environment M5	10
Control M5	10
Dynamics M5	10
Lasers & Electro-optic Systems M5	10
Materials Engineering M5	10
Rotodynamic Machinery M5	10

Master of Engineering in Mechanical Engineering with Aeronautics – Accelerated Route

	<i>Credits</i>
<i>Year 1</i>	
<i>Compulsory Subjects</i>	
Applicable Mathematics 2	20
Basic Engineering MA2	50
Applicable Mathematics 1F	20
Electrical Power Engineering 2	10
Power Electronics 2	10
Engineering Design 2	10
Introduction to Aerodynamics 2	10
Workshop Practice 1	
Engineering Applications MA1	
<i>Optional Subjects (at least two of which must be selected)</i>	
Language	20
Macroeconomics E1	10
Operations Management E1	10
<i>Options may be restricted by the timetable</i>	

Years 2, 3 and 4

Follow the curriculum of the MEng in Mechanical Engineering with Aeronautics – years 3, 4 and 5.

The Industrial Project M5 will normally be based in an Aerospace Industry.

Student Progress after year 3

As for Mechanical Engineering

Year out in Industry

As for Mechanical Engineering

BEng in Mechanical Engineering (European Curriculum)

Year 1

As for Mechanical Engineering

Year 2

As for Mechanical Engineering, but Language Half Ordinary A must be studied

Year 3

Year abroad studying the equivalent of Mechanical Engineering Year 3

Year 4

As for Mechanical Engineering

MEng in Mechanical Engineering (European Curriculum)

Year 1

As for Mechanical Engineering

Year 2

As for Mechanical Engineering⁷

Year 3

As for Mechanical Engineering⁷ or year abroad⁸ studying the equivalent of Mechanical Engineering Year 3

Year 4

As for Mechanical Engineering or year abroad⁸ studying the equivalent of Mechanical Engineering Year 4

Year 5

As for Mechanical Engineering

⁷ Language Half Ordinary A must be studied in either year 2 or year 3. Students without the necessary language qualifications may transfer to this programme provided that they study French for Engineering or German for Engineers in year 1 or 2 in addition to the standard Mechanical Engineering curriculum. Students who fail in their year abroad may be permitted to continue in the curriculum for BEng in Mechanical Engineering.

⁸ A student may only study for one year abroad.

Mechanical Engineering with Electrical Engineering – Honours and Ordinary

Credits

Year 1

Compulsory Subjects

Applicable Mathematics 1	50
Basic Engineering ME1	40
Digital Electronics 1X	10
Digital Electronics 1Y	10
Engineering Design and Computing 1 Communications 1	10

Optional Subjects (at least one of which must be taken)

Managerial and Organisational Context E1	10
Language	20

Year 2

Compulsory Subjects

Basic Engineering M2	50
Engineering Design 2	10
Engineering Mathematics EE2	20
Engineering Practice 2	10
Electrical Power Engineering 2	10
Power Electronics 2	10
Workshop Practice 2	
Engineering Applications ME1	

Optional Subjects (at least two of which must be selected)

Language	20
Microeconomics E1	10
Operations Management E1	10

Engineering Applications ME1 is a Block course. Engineering Applications ME1 will be completed on satisfactory performance in (or exemption from) Basic Engineering Coursework ME1 and M2, the practical aspects of Digital Electronics 1X and 1Y, Workshop Practice 2 and Communications 1. It will indicate that the student has satisfied the requirements of the IMechE. Every component of a composite subject must be completed with a minimum grade of E.

BEng and BSc Honours – Years 3 and 4

Candidates will only be able to follow these degree programmes if they have completed all first and second year subjects with a minimum grade of E and a minimum grade point average of ten within three years of entry into the first year of the programme or within two years of entry into the the second year of the programme. Suitably qualified candidates may be admitted directly into the third year of the programme. Candidates will be admitted to the BEng programme only if they can demonstrate that they have satisfied the Institution of Mechanical Engineers requirements for Engineering Applications ME1.

In order to progress to the fourth year of the programme candidates must normally complete the third year of the programme with the required weighted average within one year of entering the third year. Other candidates may be admitted, or allowed to progress in the programme at the discretion of the Head of the Department of Mechanical Engineering and subject to having achieved a satisfactorily high level of performance for this purpose.

*Credits**Year 3**Compulsory Subjects***Mechanical Engineering with Electrical Engineering 3 comprising:**

Control EE3A	10
Control EE3B	10
Engineering Design Workshop M3	10
Heat Transfer ME3	10
Instrumentation and Data Systems 3	10
Mechanics, Materials and Manufacture M3	30
Power Engineering 3	20
Vibration ME3	10

Optional Subjects (at least two of which must be attempted)

Embedded Processors 2	10
Language	20
Marketing E1	10
Macroeconomics E1	10
Simulation of Engineering Systems 3	10
Software Engineering M3	10

	<i>Credits</i>
<i>Year 4</i>	
<i>Compulsory Subjects</i>	
Professional Studies 4	10
Final Year Project	30
Mechanical Engineering with Electrical Engineering 4A, <i>comprising:</i>	
Design 4	30
plus three additional subjects chosen from the following list:	
<i>List of Selected Subjects (all subjects 20 credits)</i>	
Advanced Heat Transfer M4	
Control M4	
Electric Drives and Power Electronics 4	
Electromechanical Engineering ME4	
Lasers and Electro-optic Systems M4	
Materials Engineering M4	
Mechanics of Solids and Structures M4	
Power Systems 4	
Vibration M4	
Vibration and Control M4*	

* Vibration and Control M4 cannot be taken with Control M4 or Vibration M4.

BSc Ordinary Degree – Years 3 and 4

The minimum number of credits to qualify for the Ordinary Degree is 420.

	<i>Credits</i>
<i>Compulsory Subject</i>	
Mechanical Engineering with Electrical Engineering 4B <i>comprising at least 80 credits from the list below:</i>	
Control EE3A	10
Control EE3B	10
Engineering Design Workshop M3	10
Heat Transfer ME3	10
Instrumentation and Data Systems 3	10
Mechanics, Materials and Manufacture M3	30
Power Engineering 3	20
Vibration ME3	10

Selected Subjects

The further requirements to complete the Ordinary degree can be made up by completing any subject(s) carrying the appropriate number of credits, provided

the course of study has been approved by the Adviser of Studies. These subjects may be drawn, for example, from the Honours curriculum, Management Subjects and Languages.

Master of Engineering in Mechanical Engineering with Electrical Engineering

Years 1,2 and 3

Follow the curriculum of the BEng in Mechanical Engineering with Electrical Engineering.

Credits

Year 4

Professional Studies 4	10
Design 4	30

plus four additional subjects chosen from the list of selected subjects below:

List of Selected Subjects (all subjects 20 credits)

- Advanced Heat Transfer M4
- Control M4
- Electric Drives and Power Electronics 4
- Electromechanical Engineering ME4
- Lasers and Electro-optic Systems M4
- Materials Engineering M4
- Mechanics of Solids and Structures M4
- Power Systems 4
- Vibration M4
- Vibration and Control M4*

* Vibration and Control M4 cannot be taken with Control M4 or Vibration M4.

Year 5

Entrepreneurial Studies M5	40
Industrial Project M5	50

plus thirty additional credits chosen from the list of selected subjects below:

Advanced Control Systems Engineering EE5	20
Advanced Control Systems Engineering M5	10
Dynamics M5	10
Laser Design and Machine Vision M5	10
Mechanics and Materials M5	10
Mechanics of Solids and Structures M5	10
Microelectronics in Consumer Products P4	10
Renewable Energy and Power Electronic Control 5	20

Student Progress after Year 3

As for Mechanical Engineering.

Year Out in Industry

As for Mechanical Engineering.

Honours and Ordinary in Mechanical Design Engineering

Candidates are reminded that in addition to satisfying the following regulations they must also satisfy the regulations regarding pre-requisite subjects. These subjects, which are identified in the subject course descriptions, must normally be completed with a minimum of grade D.

Years 1 and 2

As for Mechanical Engineering.

MEng, BEng and BSc Honours – Year 3

Candidates who enter the first year of the degree programme will only be able to follow these honours degree programmes if they completed all first and second year subjects courses with a minimum grade E and a minimum grade point average of ten within three years of entry. Candidates who enter at the second year of the degree programme will only be able to follow these honours degree programmes if they have completed all second year subject courses with a minimum grade E and a minimum grade point average of ten within two years of entry. Suitably qualified candidates may be admitted directly into the third year of the programme. Candidates will be admitted to the BEng and MEng honours programme only if they can demonstrate that they have satisfied the Institution of Mechanical Engineers requirements for Engineering Applications 1.

	<i>Credits</i>
<i>Compulsory Subjects:</i>	
Mechanical Design Engineering 3A comprising:	
Mechanics, Materials & Manufacture M3	30
Design Evaluation P3	20
Mechanical Design Engineering 3B, comprising:	
Elements of Machines P3	30
Marketing E1	10
<i>Plus one option from:</i>	
Macroeconomics E1	10
Language Option ⁹	20

⁹ The language option is not available to students who have selected this option in year 1 and 2, nor to third year entrants.

	<i>Credits</i>
Engineering Design Workshop D3 Labs. (CAD, Material, Machines) Industrial Design (studio based)	30

BEng and BSc Honours – Year 4

In order to progress to the fourth year of an honours programme candidates must normally complete the third year of the programme with the required grades in all subject courses within one year of entering the third year. Other candidates may be admitted, or allowed to progress in the programme, at the discretion of the Head of the Department of Mechanical Engineering and subject to having achieved a satisfactorily high level of performance for the purpose. In order to progress to the fourth year of an honours degree programme candidates must have completed each of the following subject courses or composite courses with a minimum grade D:

	<i>Credits</i>
Mechanical Design Engineering 3A	50
Mechanical Design Engineering 3B	50
Engineering Design Workshop D3	30

Note: The numbers give the accumulated credits of the component subjects of the composite courses. Every component subject of a composite course must have been completed with a minimum grade E.

	<i>Credits</i>
<i>Compulsory Subjects</i>	
Mechanical Design Engineering 4A, <i>comprising:</i>	
Professional Studies 4	10
Applied Design Systems P4	20
Advanced Materials Technology P4	10
Micro-Electronics in Consumer Products P4	10
Design 4	30
Project D4	50

BSc Ordinary – Years 3 & 4

Candidates not admitted to honours may qualify for the BSc Ordinary degree.

Candidates must complete year 1 and 2 with a minimum grade point average of 10, and complete the specified number of credits in each of the following elements of the programme with a minimum grade D.

	<i>Credits</i>
<i>Compulsory Subjects</i>	
Mechanical Design Engineering 3A	50
Engineering Design Workshop D3	30

	<i>Credits</i>
Mechanical Design Engineering 4B <i>comprising:</i> subject courses totalling 50 credits selected from Mechanical Design Engineering 3B and Mechanical Design Engineering 4A	50
Project D4B	30

MEng Honours – Years 4 & 5

Candidates will only be able to follow this course at the discretion of the Head of the Department of Mechanical Engineering, and subject to achieving and sustaining a satisfactorily high level of performance for the purpose throughout years 3, 4 and 5 of the degree programme. This will normally require candidates to complete at the first available examination diet each of the following subject courses or composite courses with a minimum grade C:

	<i>Credits</i>
Mechanical Design Engineering 3A	50
Mechanical Design Engineering 3B	50
Engineering Design Workshop D3	30

Note: The numbers give the accumulated credits of the component subjects of the composite courses.

	<i>Credits</i>
<i>Compulsory Subjects</i>	
<i>Year 4</i>	
Mechanical Design Engineering 4M, <i>comprising:</i>	
Mechanical Design Engineering 4A	50
Design 4	30
One engineering science or technology subject (20 credits) from the fourth year Mechanical Engineering curriculum.	20
Project D4M	30
<i>Year 5</i>	
Mechanical Design Engineering 5M, <i>comprising:</i>	
Design Management P4	20
Project Management D5	20
<i>and</i> subjects totalling 40 credits selected from: Engineering science or technology subjects (20 credits each) from the fourth year Mechanical Engineering curriculum	
Advanced Human Factors P5	10
History of Design and Technology P5	10
Project D5M	50

Master of Engineering in Mechanical Design Engineering – Accelerated Route*Year 1*

Follow the curriculum for MEng in Mechanical Engineering – Accelerated Route.

Years 2, 3 and 4

Follow the curriculum of the MEng in Mechanical Design Engineering – years 3, 4 and 5.

Candidates who fail to sustain the required level of performance in project work and examinations may be required by the Head of Department of Mechanical Engineering to transfer to the curriculum for the BEng degree or to the curriculum for the BSc ordinary degree.

Year Out in Industry

Students who enter the degree programme in year 1 or year 2 may elect to take a year out from their studies between second and third years, or between third and fourth years, subject to the agreement of their Advisor of Studies and the Head of Department. The student must arrange an approved programme of activity that will develop his/her engineering knowledge and experience. Normally this will involve a period of employment in an engineering company. The year out will be added to the time allowed for the student to satisfy the progress regulations of the degree provided that the student has completed the full curriculum to date.

European Study Options*European Credit Transfer Scheme (ECTS)*

Students who have, or acquire, the necessary language skills can apply to spend the third year of the degree programme studying an equivalent course at a European University or Institution of Higher Education approved by the University.

MEng with European Studies

Mechanical Design Engineering 4ME.

Credits
130

Students who have, or acquire, the necessary language skills may take the equivalent, or an approved substitute, of Mechanical Design Engineering 4M and Project D4M at a European University or Institution of Higher Education approved by the University under the Socrates Erasmus scheme.

VII NAVAL ARCHITECTURE AND OCEAN ENGINEERING

The regulations contained in this Calendar for the award of the degrees of MEng, BEng and BSc Ordinary in Naval Architecture and Ocean Engineering; and the degrees of MEng in Advanced Marine Design and MEng in Naval Architecture and Ocean Engineering with European Studies apply only to students who commenced study prior to October 2001.

The Department of Naval Architecture and Ocean Engineering, University of Glasgow, and the Department of Ship and Marine Technology, University of Strathclyde, will form the merged Department of Naval Architecture and Marine Engineering from 1 August 2001. Degree Programmes within the merged department will be the subject of regulations which will apply to students who commenced study from October 2001 and which are available from the Faculty Offices of the Universities of Glasgow and Strathclyde.

Honours Compulsory Subjects

	<i>Credits</i>
<i>Year 1</i>	
Applicable Mathematics 1M	50
Basic Engineering 1M	50
Engineering Design 1N	10
Naval Architecture and Marine Vehicles 1	10
Naval Architecture Design Projects 1	10
<i>Year 2</i>	
Applicable Mathematics 2	20
Basic Engineering 2M	50
Micro Economics E1	10
Engineering Applications 1M	
Electrical Technology 2	10
Hydrostatics and Stability 2A	10
Hydrostatics and Stability 2B	10
Naval Architecture Design Projects 2	10
Marine Design Concepts 2	10
<i>Year 3</i>	
Naval Architecture and Ocean Engineering 3, <i>comprising:</i>	90
Ship Structural Analysis 3	10
Mechanics of Marine Structures 3	10
Resistance and Propulsion 3	10
Marine Hydrodynamics 3	10
Dynamics of Marine Vehicles 3	10
Marine Engineering Systems 3	10

	<i>Credits</i>
Computational Methods for Naval Architects 3	10
Ship Design 3	10
Naval Architecture Design Projects 3	10
Mathematics E2B	20
Financial Management E1	20
 <i>Year 4</i>	
Naval Architecture and Ocean Engineering 4, <i>comprising:</i>	80
Modelling the Ocean Environment 4	10
Ship Motions and Sea Loads 4	10
Mechanics of Marine Structures 4	10
Marine Propulsion Systems 4	10
Ship Design and Construction 4	10
Naval Architecture Design Projects 4	10
Approved subjects from a list approved from time to time by Faculty	20
Professional Studies 4	10
Fourth Year Project N4	30

Student Progress

In order to progress to the fourth year of the BEng Honours degree programme in Naval Architecture and Ocean Engineering, students must normally accumulate, at the first diet of examinations, a minimum of 900 grade points in Naval Architecture and Ocean Engineering 3, of which at least 80 must be contributed by each component.

Students who are not eligible for continuation in the BEng Honours degree programme in Naval Architecture and Ocean Engineering will be transferred to the BSc Ordinary degree programme in Naval Architecture and Ocean Engineering with credit for individual subjects passed.

Ordinary Compulsory Subjects

	<i>Credits</i>
 <i>Year 1</i>	
As for Honours in Naval Architecture and Ocean Engineering	130
 <i>Year 2</i>	
As for Honours in Naval Architecture and Ocean Engineering	140

	<i>Credits</i>
<i>Years 3 and 4</i>	
Ship Structural Analysis 3	10
Mechanics of Marine Structures 3	10
Resistance and Propulsion 3	10
Marine Hydrodynamics 3	10
Dynamics of Marine Vehicles 3	10
Marine Engineering Systems 3	10
Computational Methods for Naval Architects 3	10
Ship Design 3	10
Naval Architecture Design Projects 3	10
Mathematics E2B	20
Financial Management E1	20
approved subjects from a list approved from time to time by the Faculty	20

Master of Engineering in Advanced Marine Design

Compulsory Subjects

Years 1, 2 and 3 follow the curriculum for the BEng Honours degree programme in Naval Architecture and Ocean Engineering.

	<i>Credits</i>
<i>Year 4</i>	
Naval Architecture and Ocean Engineering 4, <i>comprising:</i>	80
Modelling the Ocean Environment 4	10
Ship Motions and Sea Loads 4	10
Mechanics of Marine Structures 4	10
Lightweight Marine Structures 4	10
Ship Design and Construction 4	10
Naval Architecture Design Projects 4	10
Marine Propulsion Systems 4	10
Control of Marine Vehicles 4	10
Professional Studies 4	10
Fourth Year Project N4	30
<i>Year 5</i>	
Naval Architecture and Ocean Engineering 5, <i>comprising:</i>	60
Modelling & Optimisation in Design 5	10
Reliability and Risk Analysis 5	10
Mechanics of Marine Structures 5	10

	<i>Credits</i>
Marine Noise and Vibration 5	10
Concepts in Fast Ship Design 4	10
Safety of Marine Vehicles & Structures 4	10
Naval Architecture Design Projects 5	60

Student Progress

In order to progress to the fourth year of the MEng degree programme in Advanced Marine Design, students must normally accumulate, at the first diet of examinations, a minimum of 1170 grade points in Naval Architecture and Ocean Engineering 3, of which at least 80 must be contributed by each component.

In order to progress to the fifth year of the MEng degree programme in Advanced Marine Design, the sum total of grade points accumulated by the students from the first diets of examinations in Naval Architecture and Ocean Engineering 3 and Naval Architecture and Ocean Engineering 4 and from the fourth year project must be at least 2600. In addition, students must normally accumulate at least 80 grade points from each component of Naval Architecture and Ocean Engineering 4 and at least 300 grade points from the fourth year project.

Students who are not eligible for continuation in the MEng degree programme in Advanced Marine Design will be transferred to the BEng Honours degree programme in Naval Architecture and Ocean Engineering with credit for individual subjects passed.

Master of Engineering in Naval Architecture and Ocean Engineering with European Studies

Compulsory Subjects

Years 1 and 2 follow the curriculum for the BEng Honours degree programme in Naval Architecture and Ocean Engineering.

	<i>Credits</i>
<i>Year 3</i>	
Naval Architecture and Ocean Engineering 3	90
Mathematics E2B	20
Financial Management E1	20
and an approved modern language subject comprising at least 20 credits	

	<i>Credits</i>
<i>Year 4</i>	
Naval Architecture and Ocean Engineering 4,	80
<i>comprising:</i>	
Modelling the Ocean Environment 4	10
Ship Motions and Sea Loads 4	10
Mechanics of Marine Structures 4	10
Marine Propulsion Systems 4	10
approved modern language subjects	40
Professional Studies 4	10
Fourth Year Project 4	30
<i>Year 5</i>	
Naval Architecture and Ocean Engineering 5,	60
<i>comprising:</i>	
Ship Design and Construction 4	10
Naval Architecture Design Projects 4	10
Concepts in Fast Ship Design 4	10
Safety of Marine Vehicles & Structures 4	10
Approved subjects from a list approved from time to time by the Faculty	20

Students will normally be expected to take at least one modern language to level 2 or higher.

Student Progress

In order to progress to the fourth year of the MEng degree programme in Naval Architecture and Ocean Engineering with European Studies, students must normally accumulate, at the first diet of examinations, a minimum of 1170 grade points in Naval Architecture and Ocean Engineering 3, of which at least 80 must be contributed by each component.

In order to progress to the fifth year of the MEng degree programme in Naval Architecture and Ocean Engineering with European Studies, the sum total of grade points accumulated by the student from the first diets of examinations in Naval Architecture and Ocean Engineering 3 and Naval Architecture and Ocean Engineering 4 and from the fourth year project must be at least 2600. In addition, students must normally accumulate at least 80 grade points from each component of Naval Architecture and Ocean Engineering 4 and at least 300 grade points from the fourth year project.

Students who are not eligible for continuation in the MEng degree programme in Naval Architecture and Ocean Engineering with European Studies will be transferred to the BEng Honours degree programme in Naval Architecture and Ocean Engineering with credit for individual subjects passed.

VIII ELECTRONICS AND ELECTRICAL ENGINEERING

Not all the courses listed will necessarily be available in each year; the choice of a curriculum will be subject to this limitation and also to that imposed by timetable constraints.

MEng in Electronics and Electrical Engineering

	<i>Credits</i>
<i>Year 1</i>	120
Electronic Engineering 1X	20
Electronic Engineering 1Y	20
Engineering Mathematics EE1X	20
Engineering Mathematics EE1Y	20
Engineering Physics EE1	20
<i>Either:</i>	20
Computing Science 1P	20
<i>or:</i>	
Introductory Programming 1EE	10
Application Software EE1	10
 <i>Year 2</i>	 130
Analogue Electronics 2	10
Computer Architecture 2	10
Digital Electronics 2	10
Electrical Circuits 2X	10
Electrical Circuits 2Y	10
Electronic Design Project 2	10
Electronic Devices 2	10
Embedded Processors 2	10
Engineering Electromagnetics 2	10
<i>Either:</i>	40
Engineering Mathematics EE2X	10
Engineering Mathematics EE2Y	10
Course(s) totalling at least 20 credits selected from the following list and List 1E:	
Data Structures and Algorithms 2 (Computing Science)	10
Software Design and Implementation 2 (Computing Science)	10
<i>or:</i>	
Mathematics E2G	10
Mathematics E2H	10
Mathematics E2M	10
Mathematics E2N	10

	<i>Credits</i>
<i>Year 3</i>	130
Communication Systems 3A	10
Control EE3A	10
Electromagnetic Compatibility 3	10
Electronic Circuit Design 3	10
Electronic System Design 3	20
Engineering Career Skills 3	10
Engineering Mathematics EE3	10
Team Design Project EE3	10
Courses totalling at least 40 credits selected from the following list and List 1E, of which at least 20 credits must be taken from the following list:	40
Advanced Programming 3 (Computing Science)	10
Communication Systems 3B	10
Control EE3B	10
Network Systems Architecture 3 (Computing Science)	10
Operating Systems 3 (Computing Science)	10
Optical & Quantum Electronics 3	20
Power Engineering 3	20
Real Time Computer Systems 3	10
Silicon Devices and Technology 3	20
Simulation of Engineering Systems 3	10
<i>Year 4</i>	130
Entrepreneurship and Technology Venturing 4	20
Individual Project Design and Management 4	10
Supply Chain Logistics and Behaviour E4	20
Courses totalling at least 80 credits selected from Lists 4E and 4CS	80
<i>Year 5</i>	140
Industrial Project EE5	70
Courses totalling at least 60 credits selected from List 5E	60
Course(s) totalling at least 10 credits selected from the following List 1E courses	10
Managerial and Organisational Context E1	10
Marketing E1	10
Microeconomics E1	10

Practical Work

Approximately 150 hours in each of years 1, 2 and 3, 100 hours in year 4, and practical work extending over 6 months in year 5.

Student Progress After Year 3

Continuation in this curriculum is subject to achievement in degree examinations of a good enough level of performance for the purpose. Students who fail to reach the required level may be transferred at the sole discretion of the Head of Department to any one of the BEng or BSc curricula.

Prerequisites

Students may only take more advanced courses for which they have passed the necessary prerequisite course(s). This condition applies to *all* courses, including those taught by the Department of Computing Science.

MEng in Audio and Video Engineering

	<i>Credits</i>
<i>Year 1</i>	130
As for MEng in Electronics and Electrical Engineering, Electronic and Software Engineering, or Microcomputer Systems Engineering.	
<i>Year 2</i>	130
Analogue Electronics 2	10
Computer Architecture 2	10
Digital Electronics 2	10
Electrical Circuits 2X	10
Electrical Circuits 2Y	10
Electronic Design Project 2	10
Embedded Processors 2	10
Engineering Electromagnetics 2	10
Engineering Mathematics EE2X	10
Engineering Mathematics EE2Y	10
Psychology of Perception 2	10
Course(s) totalling at least 20 credits selected from the following list and List 1E:	20
Electronic Devices 2	10
Data Structures and Algorithms 2 (Computing Science)	10
Software Design and Implementation 2 (Computing Science)	10
<i>Year 3</i>	130
Audio and Video Processing and Encoding 3	10
Communication Systems 3A	10
Control EE3A	10

	<i>Credits</i>
Electromagnetic Compatibility 3	10
Electronic Circuit Design 3	10
Electronic System Design 3	20
Engineering Career Skills 3	10
Engineering Mathematics EE3	10
Real Time Computer Systems 3	10
Team Design Project EE3	10
Course(s) totalling at least 20 credits selected from the following list and List 1E:	20
Advanced Programming 3 (Computing Science)	10
Communication Systems 3B	10
Control EE3B	10
Network Systems Architecture 3 (Computing Science)	10
Operating Systems 3 (Computing Science)	10
Optical and Quantum Electronics 3	20
Power Engineering 3	20
Silicon Devices and Technology 3	20
Simulation of Engineering Systems 3	10
 <i>Year 4</i>	 130
Entrepreneurship and Technology Venturing 4	20
Individual Project Design and Management 4	10
Supply Chain Logistics and Behaviour E4	20
Courses totalling at least 40 credits selected from the following list	40
Acoustics and Audio Technology 4	20
Audio Programming and Signal Processing 4	20
Computer Architecture and Communications 4	20
Digital Communications 4	20
Image and Data Processing 4	20
Further courses totalling at least 40 credits selected from Lists 4E and 4CS	40
 <i>Year 5</i>	 140
Industrial Project EE5	70
Courses totalling at least 40 credits selected from the following list	40
Computer Architecture and Communications 5	20
Data Visualisation and Multimedia 5	20
Signal Processing 5	20
Further course(s) totalling at least 20 credits selected from List 5E	20
Course(s) totalling at least 10 credits selected from the following List 1E courses	10

	<i>Credits</i>
Managerial and Organisational Context E1	10
Marketing E1	10
Microeconomics E1	10

Practical Work

Approximately 150 hours in each of years 1, 2 and 3, 100 hours in year 4, and practical work extending over 6 months in year 5.

Student Progress After Year 3

Continuation in this curriculum is subject to achievement in degree examinations of a good enough level of performance for the purpose. Students who fail to reach the required level may be transferred at the sole discretion of the Head of Department to any one of the BEng or BSc curricula.

Prerequisites

Students may only take more advanced courses for which they have passed the necessary prerequisite course(s). This condition applies to *all* courses, including those taught by the Department of Computing Science.

MEng in Microcomputer Systems Engineering

	<i>Credits</i>
<i>Year 1</i>	120
Electronic Engineering 1X	20
Electronic Engineering 1Y	20
Engineering Mathematics EE1X	20
Engineering Mathematics EE1Y	20
Engineering Physics EE1	20
Computing Science 1P	20
<i>Year 2</i>	130
Analogue Electronics 2	10
Computer Architecture 2	10
Data Structures and Algorithms 2 (Computing Science)	10
Digital Electronics 2	10
Electrical Circuits 2X	10
Electrical Circuits 2Y	10
Electronic Design Project 2	10
Electronic Devices 2	10
Embedded Processors 2	10
Engineering Electromagnetics 2	10
Engineering Mathematics EE2X	10

	<i>Credits</i>
Engineering Mathematics EE2Y	10
Software Design and Implementation 2 (Computing Science)	10
 <i>Year 3</i>	 130
Advanced Programming 3 (Computing Science)	10
<i>Either</i>	10
Network Systems Architecture 3 (Computing Science)	10
<i>or:</i>	
Operating Systems 3 (Computing Science)	10
Control EE3A	10
Electromagnetic Compatibility 3	10
Electronic System Design 3	20
Engineering Career Skills 3	10
Real Time Computer Systems 3	10
Simulation of Engineering Systems 3	10
Team Design Project EE3	10
Courses totalling at least 30 credits selected from:	30
Communication Systems 3A	10
Communication Systems 3B	10
Control EE3B	10
Electronic Circuit Design 3	10
Engineering Mathematics EE3	10
Optical & Quantum Electronics 3	20
Power Engineering 3	20
Silicon Devices and Technology 3	20
 <i>Year 4</i>	 130
Computer Architecture and Communications 4	20
Entrepreneurship and Technology Venturing 4	20
Individual Project Design and Management 4	10
Supply Chain Logistics and Behaviour E4	20
Further courses totalling at least 60 credits selected from Lists 4E and 4CS	60
 <i>Year 5</i>	 140
Industrial Project EE5	70
Computer Architecture and Communications 5	20
Courses totalling at least 40 credits selected from List 5E	40
Course(s) totalling at least 10 credits selected from the following List 1E courses	10
Managerial and Organisational Context E1	10
Marketing E1	10
Microeconomics E1	10

Practical Work

Approximately 150 hours in each of years 1, 2 and 3, 100 hours in year 4, and practical work extending over 6 months in year 5.

Student Progress After Year 3

Continuation in this curriculum is subject to achievement in degree examinations of a good enough level of performance for the purpose. Students who fail to reach the required level may be transferred at the sole discretion of the Head of Department to any one of the BEng or BSc curricula.

Prerequisites

Students may only take more advanced courses for which they have passed the necessary prerequisite course(s). This condition applies to *all* courses, including those taught by the Department of Computing Science.

MEng in Electrical Power Engineering

	<i>Credits</i>
<i>Years 1 and 2</i>	250
As for MEng in Electronics and Electrical Engineering	
<i>Year 3</i>	130
Control EE3A	10
Control EE3B	10
Electromagnetic Compatibility 3	10
Electronic Circuit Design 3	10
Electronic System Design 3	20
Engineering Career Skills 3	10
Power Engineering 3	20
Team Design Project EE3	10
Courses totalling at least 30 credits selected from:	30
Communication Systems 3A	10
Communication Systems 3B	10
Engineering Mathematics EE3	10
Optical & Quantum Electronics 3	20
Real Time Computer Systems 3	10
Silicon Devices and Technology 3	20
Simulation of Engineering Systems 3	10
<i>Year 4</i>	130
Entrepreneurship and Technology Venturing 4	20

	<i>Credits</i>
Individual Project Design and Management 4	10
Supply Chain Logistics and Behaviour E4	20
Electric Drives and Power Electronics 4	20
Power Systems 4	20
Further courses totalling at least 40 credits selected from List 4E	40
 <i>Year 5</i>	 140
Industrial Project EE5	70
Renewable Energy and Power Electronic Control 5	20
Courses totalling at least 40 credits selected from List 5E	40
Course(s) totalling at least 10 credits selected from the following List 1E courses	10
Managerial and Organisational Context E1	10
Marketing E1	10
Microeconomics E1	10

Practical Work

Approximately 150 hours in each of years 1, 2 and 3, 100 hours in year 4, and practical work extending over 6 months in year 5.

Student Progress After Year 3

Continuation in this curriculum is subject to achievement in degree examinations of a good enough level of performance for the purpose. Students who fail to reach the required level may be transferred at the sole discretion of the Head of Department to any one of the BEng or BSc curricula.

MEng in Electronic and Software Engineering

	<i>Credits</i>
 <i>Year 1</i>	 120
Electronics and Electrical Engineering:	
Electronic Engineering 1X	20
Electronic Engineering 1Y	20
Engineering Mathematics EE1X	20
Engineering Mathematics EE1Y	20
Computing Science 1P	20
Computing Science 1Q	20

	<i>Credits</i>
<i>Year 2</i>	130
Electronics and Electrical Engineering:	
Analogue Electronics 2	10
Computer Architecture 2	10
Digital Electronics 2	10
Electrical Circuits 2X	10
Electrical Circuits 2Y	10
Electronic Design Project 2	10
Embedded Processors 2	10
Engineering Electromagnetics 2	10
Computing Science:	
Algorithmic Foundations 2	10
Computer Systems 2	10
Data Management 2	10
Data Structures and Algorithms 2	10
Software Development and Implementation 2	10
<i>Year 3</i>	130
Electronics and Electrical Engineering:	
Control EE3A	10
Control EE3B	10
Electromagnetic Compatibility 3	10
Electronic System Design 3	20
Real Time Computer Systems 3	10
Computing Science:	
Advanced Programming 3	10
Operating Systems 3	10
Professional Software Development 3	20
Networked Systems Architecture 3	10
Joint:	
Team Project ESE3	20
<i>Year 4</i>	140
Electronics and Electrical Engineering:	
Computer Architecture and Communications 4	20
Entrepreneurship and Technology Venturing 4	20
Individual Project Design and Management 4	10
Supply Chain Logistics and Behaviour E4	20
Additional course(s) totalling at least 20 credits selected from List 4E	20
Computing Science:	
Software Engineering Work Placement (Computer Science 3Z)	10

	<i>Credits</i>
An approved 20 credits selected from:	20
Distributed Algorithms and Systems 4	10
Formal Methods 4	10
Requirements Engineering and Re-Engineering 4	10
Safety Critical Systems 4	10
Software Engineering Tools and Processes 4	10
A further approved 20 credits selected from List 4CS	20
 <i>Year 5</i>	 140
Industrial Project EE5	70
Electronics and Electrical Engineering:	
Computer Architecture and Communications 5	20
Course(s) totalling at least 10 credits selected from the following List 1E courses	10
Managerial and Organisational Context E1	10
Marketing E1	10
Microeconomics E1	10
Computing Science:	
Reactive Software Systems 5	20
Course(s) totalling at least 20 credits selected from	20
<i>Either</i>	
List 5E	20
<i>or</i>	
Approved level 5 courses offered by Computing Science	20

Practical Work

Approximately 150 hours in each of years 1, 2 and 3, 100 hours in year 4, and practical work extending over 6 months in year 5.

Student Progress After Year 3

Continuation in this curriculum is subject to achievement in degree examinations of a good enough level of performance for the purpose. Students who fail to reach the required level of performance may be transferred at the sole discretion of the Head(s) of Department(s) to the Honours or Ordinary Degree curriculum in Electronics and Electrical Engineering or in Microcomputer Systems Engineering. Students making this transfer will be required to take course(s) totalling at least 20 credits from List 1E in Year 4.

Prerequisites

Students may only take more advanced courses for which they have passed the necessary prerequisite course(s). This condition applies to *all* courses, including those taught by the Department of Computing Science.

MEng in Avionics

This course is administered by the Department of Aerospace Engineering.

MEng (European) in:

Electronics and Electrical Engineering
Microcomputer Systems Engineering
Electrical Power Engineering
Electronics with Music
Avionics
Electronic and Software Engineering
Electronic Engineering and Physics

Years 1, 2 and 3

These follow the appropriate curriculum for the degree of Bachelor of Engineering in Electronics and Electrical Engineering, or Microcomputer Systems Engineering, or Electrical Power Engineering, or Electronics with Music, or Avionics, or Electronic and Software Engineering, or Electronic Engineering and Physics. The courses chosen in years 2 or 3 must not include: Managerial and Organisational Context E1 or Marketing E1.

	<i>Credits</i>
<i>Year 4</i>	130
The curriculum for Year 4 of the appropriate degree of Bachelor of Engineering except that the components:	
Individual Project EE4	40
<i>and</i> courses totalling at least 20 credits selected from List 1E, where required	20
are replaced by:	
Individual Project Design and Management 4	10
Language Course 4	20
Supply Chain Logistics and Behaviour E4	20
<i>Year 5</i>	140
Industrial Management EE5	50
Marketing E1	10
Managerial and Organisational Context E1	10
Industrial Project (European) EE5	70

Practical Work

Approximately 150 hours in each of years 1, 2 and 3, 100 hours in year 4, and practical work extending over 6 months in year 5.

Student Progress After Year 3

Continuation in this curriculum is subject to achievement in degree examinations of a good enough level of performance for the purpose. Students who fail to reach the required level may be transferred at the sole discretion of the Head(s) of the relevant Department(s) to any one of the BEng or BSc curricula.

Prerequisites

Students may only take more advanced courses for which they have passed the necessary prerequisite course(s). This condition applies to *all* courses, including those taught by the Department of Computing Science.

Accelerated entry to MEng and MEng (European) in:

Electronics and Electrical Engineering
Audio and Video Engineering
Electrical Power Engineering

Accelerated, direct entry is offered to the second year of the above MEng curricula for suitably well-qualified candidates.

	<i>Credits</i>
<i>Year 2</i>	130
Fast Track MEng Matching Course 2	10
Analogue Electronics 2	10
Computer Architecture 2	10
Digital Electronics 2	10
Electrical Circuits 2X	10
Electrical Circuits 2Y	10
Electronic Design Project 2	10
Electronic Devices 2	10
Embedded Processors 2	10
Engineering Electromagnetics 2	10
Engineering Mathematics EE2X	10
Engineering Mathematics EE2Y	10
Introductory Programming EE1	10

Subsequent years follow the MEng curriculum in the chosen speciality.

BEng (Honours) in Electronics and Electrical Engineering*Years 1, 2 and 3*

These follow the curriculum for the degree of Master of Engineering in Electronics and Electrical Engineering.

	<i>Credits</i>
<i>Year 4</i>	140
Individual Project EE4	40
Courses totalling at least 80 credits selected from Lists 4E and 4CS	80
Course(s) totalling at least 20 credits selected from List 1E	20
Note: Students are required to take 20 credits from List 1E in Year 4 even if course(s) from this list have been taken in earlier year(s).	

Practical Work

Approximately 150 hours in each of years 1, 2 and 3 and 300 hours in year 4.

Transfer to MEng Degree

Students who have achieved a satisfactory performance for the purpose in both examinations and other course work may transfer, at the sole discretion of the Head of Department, to *either* the MEng Degree *or* the MEng (European) Degree in Electronics and Electrical Engineering at the end of either year 1, or year 2 or year 3 of the curriculum.

BEng (Honours) in Audio and Video Engineering*Years 1, 2 and 3*

These follow the curriculum for the degree of Master of Engineering in Audio and Video Engineering.

	<i>Credits</i>
<i>Year 4</i>	140
Individual Project EE4	40
Courses totalling at least 40 credits selected from:	40
Acoustics and Audio Technology 4	20
Audio Programming and Signal Processing 4	20
Computer Architecture and Communications 4	20
Digital Communications 4	20
Image and Data Processing 4	20

	<i>Credits</i>
Further courses totalling at least 40 credits selected from Lists 4E and 4CS	40
Course(s) totalling at least 20 credits selected from List 1E	20

Note: Students are required to take 20 credits from List 1E in Year 4 even if course(s) from this list have been taken in earlier year(s).

Practical Work

Approximately 150 hours in each of years 1, 2 and 3 and 300 hours in year 4 (including the project).

Transfer to MEng Degree

Students who have achieved a satisfactory performance for the purpose in both examinations and other course work may transfer, at the sole discretion of the Head of Department, to *either* the MEng Degree *or* the MEng (European) Degree in Audio and Video Engineering at the end of either year 1, year 2, or year 3 of the curriculum.

Prerequisites

Students may only take more advanced courses for which they have passed the necessary prerequisite course(s). This condition applies to *all* courses, including those taught by the Department of Computing Science.

B.Eng (Honours) in Microcomputer Systems Engineering

Years 1, 2 and 3

These follow the curriculum for the degree of Master of Engineering in Microcomputer Systems Engineering.

	<i>Credits</i>
<i>Year 4</i>	140
Individual project EE4	40
Computer Architecture and Communications 4	20
Further courses totalling at least 60 credits selected from Lists 4E and 4CS	60
Course(s) totalling at least 20 credits selected from List 1E	20
<i>Note:</i> Students are required to take 20 credits from List 1E in Year 4 even if course(s) from this list have been taken in earlier year(s).	

Practical Work

Approximately 150 hours in each of years 1, 2 and 3 and 300 hours in year 4.

Transfer to MEng Degree

Students who have achieved a satisfactory performance for the purpose in both examinations and other course work may transfer, at the sole discretion of the Head of Department, to *either* the MEng Degree *or* the MEng (European) Degree in Microcomputer Systems Engineering or Electronics and Electrical Engineering at the end of either year 1, or year 2 or year 3 of the curriculum.

BEng (Honours) in Electrical Power Engineering

Years 1, 2 and 3

These follow the curriculum for the degree of Master of Engineering in Electrical Power Engineering.

	<i>Credits</i>
<i>Year 4</i>	140
Individual project EE4	40
Electric Drives and Power Electronics 4	20
Power Systems 4	20
Further courses totalling at least 40 credits selected from List 4E	40
Course(s) totalling at least 20 credits selected from List 1E	20
Note: Students are required to take 20 credits from List 1E in Year 4 even if course(s) from this list have been taken in earlier year(s).	

Practical Work

Approximately 150 hours in each of years 1, 2 and 3 and 300 hours in year 4. Students must select their Final Year Project from an approved list of Electrical Power Engineering topics.

Transfer to MEng Degree

Students who have achieved a satisfactory performance for the purpose in examinations and other course work may transfer, at the sole discretion of the Head of Department, to *either* the MEng Degree *or* the MEng (European) Degree in Electrical Power Engineering or Electronics and Electrical Engineering at the end of either year 1, or year 2 or year 3 of the curriculum.

BEng (Honours) in Avionics

This course is administered by the Department of Aerospace Engineering.

BEng (Honours) in Electronic and Software Engineering*Years 1, 2 and 3*

These follow the curriculum for the degree of Master of Engineering in Electronic and Software Engineering.

	<i>Credits</i>
<i>Year 4</i>	130
Electronics and Electrical Engineering:	
Computer Architecture and Communications 4	20
At least 20 credits selected from List 4E	20
Computing Science:	
Software Engineering Work Placement (Computer Science 3Z)	10
An approved 20 credits selected from:	20
Distributed Algorithms and Systems 4	10
Formal Methods 4	10
Modelling Reactive Systems 4	10
Requirements Engineering and Re-Engineering 4	10
Real-Time and Embedded Systems 4	10
Safety Critical Systems 4	10
Software Engineering Tools and Processes 4	10
A further approved 20 credits selected from List 4CS	20
Joint:	
Final Year Project ESE4 (including Professional Issues 4)	40

Practical Work

Approximately 150 hours in each of Years 1, 2 and 3, and 300 hours in year 4 (including project).

Student Progress

Continuation in this curriculum is subject to achievement in degree examinations of a good enough level of performance for the purpose. Students who fail to reach the required level of performance may be transferred at the sole discretion of the Head of Department to the Honours or Ordinary Degree curriculum in Electronics and Electrical Engineering or in Microcomputer Systems Engineering. Students making this transfer will be required to take course(s) totalling at least 20 credits from List 1E in Year 4.

Prerequisites

Students may only take more advanced courses for which they have passed the necessary prerequisite course(s). This condition applies to *all* courses, including those taught by the Department of Computing Science.

BEng (Honours) in Electronic Engineering and Physics

	<i>Credits</i>
<i>Year 1</i>	120
Electronic Engineering 1X	20
Electronic Engineering 1Y	20
Engineering Mathematics EE1X	20
Engineering Mathematics EE1Y	20
Physics 1X	20
Physics 1Y	20
 <i>Year 2</i>	 140
Analogue Electronics 2	10
Digital Electronics 2	10
Electrical Circuits 2X	10
Electrical Circuits 2Y	10
Electronic Design Project 2	10
Mathematics 2X	10
Mathematics 2Y	10
Physics 2X	30
Physics 2Y	30
<i>Either</i>	10
Mathematics 2W	10
<i>or:</i>	
Mathematics 2R	10
 <i>Year 3</i>	 140
Communication Systems 3A	10
Electronic Circuit Design 3	10
Electronic System Design 3	20
Physics EE3	70
Silicon Devices and Technology 3	20
Team Design Project EE3	10
 <i>Year 4</i>	 120
Individual Project EE4	40
Physics EE4	40
Courses totalling at least 40 credits selected from List 4E	40

Practical Work

Approximately 150 hours in Year 1, 135 hours in Year 2, 220 hours in Year 3 and 300 hours in Year 4.

Student Progress after Year 1

Continuation in this curriculum is subject to achievement in degree examinations of a good enough level of performance for the purpose. Students who fail to reach the required level of performance may be transferred, at the sole discretion of the Head of Department, to the Honours or Ordinary Degree curriculum in Electronics and Electrical Engineering or in Microcomputer Systems Engineering.

Students who have satisfactorily completed the 3rd Year of this curriculum and then transfer to the Honours curriculum in Electronics and Electrical Engineering will be required to take course(s) totalling at least 20 credits from List 1E in Year 4.

Prerequisites

Students may only take more advanced courses for which they have passed the necessary prerequisite course(s). This condition applies to *all* courses, including those taught by the Department of Computing Science.

BEng (Honours) in Electronics with Music

	<i>Credits</i>
<i>Year 1</i>	120
Electronic Engineering 1X	20
Electronic Engineering 1Y	20
Engineering Mathematics EE1X	20
Engineering Mathematics EE1Y	20
Music E1	40
<i>Year 2</i>	140
Analogue Electronics 2	10
Computer Architecture 2	10
Digital Electronics 2	10
Electrical Circuits 2X	10
Electrical Circuits 2Y	10
Electronic Design Project 2	10
Engineering Mathematics EE2X	10
Engineering Mathematics EE2Y	10
Introductory Programming EE1	10
Music E2	40
<i>Either:</i>	10
Embedded Processors 2	10
<i>or:</i>	
Engineering Electromagnetics 2	10

	<i>Credits</i>
<i>Year 3</i>	130
Communication Systems 3A	10
Electronic Circuit Design 3	10
Electronic System Design 3	20
Engineering Career Skills 3	10
Engineering Mathematics EE3	10
Music E3	40
Team Design Project EE3	10
Courses totalling at least 20 credits selected from:	20
Communication Systems 3B	10
Control EE3A	10
Electromagnetic Compatibility 3	10
Real Time Computer Systems 3	10
 <i>Year 4</i>	 140
Individual project EE4	40
Acoustics and Audio Technology 4	20
Music E4A	40
<i>Either:</i>	20
Course(s) totalling at least 20 credits selected from List 4E	20
<i>or:</i>	
Music E4B	20
Course(s) totalling at least 20 credits selected from List 1E	20
Note: Students are required to take 20 credits from List 1E in Year 4 even if course(s) from this list have been taken in earlier year(s).	

Practical Work

Approximately 150 hours in each of Years 1, 2 and 3 and 300 hours in Year 4.

Student Progress

Students may transfer, at the sole discretion of the Head of Department, to the Honours or Ordinary curriculum in Electronics and Electrical Engineering or in Microcomputer Systems Engineering at the end of Year 1 or at the end of Year 2. Students making this transfer will be required to take course(s) totalling at least 20 credits from List 1E in Year 4.

BSc (Ordinary) in Electronics and Electrical Engineering*Credits**Year 1**Either*

Electronic and Electrical Engineering 1 40

Engineering Mathematics EE1 50

Or (from 2001/2002 onwards)

Electronic Engineering 1X 20

Electronic Engineering 1Y 20

Engineering Mathematics EE1X 20

Engineering Mathematics EE1Y 20

Year 2

A minimum of 40 credits from: 40

Digital Systems 2 20

Electrical Circuits 2 20

Electronics 2 20

Analogue Electronics 2 10

Computer Architecture 2 10

Digital Electronics 2 10

Electrical Circuits 2X 10

Electrical Circuits 2Y 10

Embedded Processors 2 10

Year 3

A minimum of 80 credits selected from: 80

Communication Systems 3A 10

Communication Systems 3B 10

Control EE3A 10

Control EE3B 10

Electromagnetic Compatibility 3 10

Electronic Circuit Design 3 10

Electronic System Design 3 20

Engineering Career Skills 3 10

Engineering Mathematics EE3 10

Optical & Quantum Electronics 3 20

Power Engineering 3 20

Real Time Computer Systems 3 10

Silicon Devices and Technology 3 20

Simulation of Engineering Systems 3 10

Team Design Project EE3 10

Selected Courses

Courses approved by the Adviser of Studies to bring the total of the curriculum to at least 420 credits. The courses must be selected from lists 1E, 3E and 4E and any course(s) available in the University of Glasgow which does/do not repeat the syllabus any other course taken in the student's curriculum. A minimum of 20 credits must be derived from List 1E.

Practical Work

As for Honours in Electronics and Electrical Engineering.

BSc (Ordinary) in Microcomputer Systems Engineering

Years 1 and 2

As for the Ordinary Curriculum in Electronics and Electrical Engineering in Years 1 and 2.

Credits

Year 3

Real Time Computer Systems 3	10
Advanced Programming 3 (Computing Science)	10
<i>Either:</i>	10
Network Systems Architecture 3 (Computing Science)	10
<i>or:</i>	
Operating Systems 3 (Computing Science)	10
A minimum of 50 credits selected from:	50
Communication Systems 3A	10
Communication Systems 3B	10
Control EE3A	10
Control EE3B	10
Electromagnetic Compatibility 3	10
Electronic Circuit Design 3	10
Electronic System Design 3	20
Engineering Career Skills 3	10
Engineering Mathematics EE3	10
Optical & Quantum Electronics 3	20
Power Engineering 3	20
Silicon Devices and Technology 3	20
Simulation of Engineering Systems 3	10
Team Design project EE3	10

Selected Courses

Courses approved by the Adviser of Studies to bring the total of the curriculum to at least 420 credits. The courses must be selected from lists 1E, 3E and 4E

and any course(s) available in the University of Glasgow which does/do not repeat the syllabus any other course taken in the student's curriculum. A minimum of 20 credits must be derived from List 1E.

Student Progress

Students may transfer, if they wish, to the Ordinary curriculum in Electronics and Electrical Engineering at the end of Year 3.

Practical Work

As for Honours in Electronics and Electrical Engineering.

Prerequisites

Students may only take more advanced courses for which they have passed the necessary prerequisite course(s). This condition applies to *all* courses, including those taught by the Department of Computing Science.

BSc (Ordinary) in Electronics with Music

	<i>Credits</i>
<i>Year 1</i>	
<i>Either</i>	
Electronics and Electrical Engineering 1	40
Engineering Mathematics EE1	50
<i>Or (from 2001/2002 onwards)</i>	
Electronics and Electrical Engineering 1X	20
Electronics and Electrical Engineering 1Y	20
Engineering Mathematics EE1X	20
Engineering Mathematics EE1Y	20
Music E1	40
 <i>Year 2</i>	
A minimum of 40 credits from:	40
Electrical Circuits 2	20
Electronics 2	20
Analogue Electronics 2	10
Digital Electronics 2	10
Electrical Circuits 2X	10
Electrical Circuits 2Y	10
and	
<i>Music EE2</i>	40
 <i>Year 3</i>	
Music E3	40

	<i>Credits</i>
A minimum of 40 credits selected from:	40
Communication Systems 3A	10
Communication Systems 3B	10
Control EE3A	10
Electronic Circuit Design 3	10
Electronic Systems Design 3	20
Engineering Career Skills 3	10
Engineering Mathematics EE3	10
Real Time Computer Systems 3	10
Team Design Project EE3	10

Selected Courses

Courses approved by the Adviser of Studies to bring the total of the curriculum to at least 420 credits. The courses must be selected from lists 1E, 3E and 4E, Music EIVA (40) and Music EIVB (20) and any course(s) available in the University of Glasgow which does/do not repeat the syllabus any other course taken in the student's curriculum. A minimum of 20 credits must be derived from List 1E.

Practical Work

As for Honours in Electronics with Music.

Lists of Selected Courses

List 1E (Non-Engineering courses)

Any course available in the University of Glasgow that does not repeat the syllabus of any other course taken in the student's curriculum and is approved by the Adviser of Studies. Some suggestions are listed below.

	<i>Credits</i>
Management etc.	
Managerial Accounting and Finance 1 <i>(similar to previous course Financial Management E1)</i>	20
Business Reporting and Financial Management 1	20
Macroeconomics E1	10
Managerial and Organisational Context E1	10
Marketing E1	10
Microeconomics E1	10
Operations Management E1	10
Structure of Industry 1	10
Languages	
German for Engineers 1 (Beginners)	20
German Language 1A (Engineering) (More advanced)	20
French for Engineers 1 (Beginners)	20

	<i>Credits</i>
French Language 1A (Engineering) (More advanced)	20
Spanish Language 1B (Engineering) (Beginners)	20
Spanish Language 1A (Engineering) (More advanced)	20
Italian Language 1B (Engineering) (Beginners)	20
Italian Language 1A (Engineering) (More advanced)	20
Others	
Introduction to Assistive Technology 2	10
Astronomy 1X	20
Astronomy 1Y	20
Exploring the Cosmos 1X	20
Exploring the Cosmos 1Y	20
Science Communication	10

(List 2E is no longer used.)

List 3E (Additional Courses for B. Sc (Ordinary) Degrees)

Computing Science EE1 (no longer offered)	20
Computing Science 1P	20
Introductory Programming EE1	10
Introductory Programming 1 (no longer offered)	10
Application Software EE1	10
Application Software Development 1 (no longer offered)	10
Further Programming 1 (no longer offered)	10
Engineering Physics EE1	20
Computer Architecture 2	10
Embedded Processors 2	10
Electronic Devices 2	10
Engineering Electromagnetics 2	10
Engineering Mathematics EE2 (pre 1999/2000) (no longer offered)	10
Engineering Mathematics EE2 (1999/2001) (no longer offered)	20
Engineering Mathematics EE2X	10
Engineering Mathematics EE2Y	10
Mathematical Modelling EE2 (no longer offered)	20

List 4E (Electronics and Electrical Engineering level 4 options)

Acoustics and Audio Technology 4	20
Avionic Systems 4	20
Bioelectronics 4	20
Computer Architecture and Communications 4	20
Control EE4	20
Digital Communication 4	20
Electronic Circuit Design 4	20
Electric Drives and Power Electronics 4	20
Image and Data Processing 4	20
Microwave, Electronic and Opto-electronic Devices 4	20

	<i>Credits</i>
Mathematics E4	20
Microwaves and Optical Transmission Systems 4	20
Power Systems 4	20
Robotics 4	20
VLSI Design 4	20

List 4CS (Computing Science level 4 options)

Advanced Communications 4	10
Artificial Intelligence 4	10
Computer Architecture 4	10
Distributed Algorithms and Systems 4	10
Formal Methods 4	10
Information Retrieval 4	10
Modelling Reactive Systems 4*	10
Network Communications Technology 4	10
Neural Computing 4	10
Parallel Algorithms and Systems 4	10
Real-Time and Embedded Systems 4*	10
Requirements Engineering and Re-engineering 4	10
Safety Critical Systems 4	10
Software Engineering Tools and Processes 4	10

**These courses cannot be selected if a student plans to take Reactive Software Systems 5*

Students are responsible for ensuring that they satisfy the prerequisites for Computing Science courses, and must attend the enrolment meeting at the beginning of the session.

List 5E (level 5 MEng options)

Advanced Control Systems Engineering 5	20
Computer Architecture and Communications 5	20
Data Visualization and Multi-media Technology 5	20
Electronic and Opto-electronic Devices 5	20
Microwave and Opto-electronics Engineering 5	20
Reactive Software Systems 5 (Computing Science)	20
Renewable Energy Systems and Power Electronics Control 5	20
Signal Processing 5	20
VLSI Design 5	20

Not all the courses shown in these lists will necessarily be available in each year; the choice of a curriculum will be subject to this limitation and also to that imposed by timetable constraints.

Communication Skills

The following activities and courses are intended to enable students following degree programmes in the Department of Electronics and Electrical Engineering to develop their oral and written skills in the preparation, presentation and dissemination of information.

Year 1

IT induction course. Lecture by Staff from the Department of English as a Foreign Language; laboratory report assessed for technical content (Staff from Electronics and Electrical Engineering) and for standard of English (Staff from EFL). Laboratory record books and reports.

Year 2

- (a) Written report for Electronic Design Project 2.
- (b) Laboratory record books and reports.

Year 3

- (a) Presentations, and conduct of and participation in meetings in Team Design Project 3.
- (b) Engineering Career Skills 3; group and individual presentations in written, poster and oral form; discussions within teams; structured document developed into a technical essay (assessed at the beginning of year 4).
- (c) Laboratory record books and reports.

Years 4 (BEng/BSc)

- (a) Technical essay.
- (b) Individual Project EE4: assessment by oral presentation, demonstration and written report.

Years 4 (MEng)

- (a) Technical essay.
- (b) Entrepreneurship and Technology Venturing 4.
- (c) Individual Project Design and Management 4.

Year 5 (MEng and MEng (European))

- (a) Industrial Project: assessment by oral presentation and written report.

IX ENGINEERING MANAGEMENT

Candidates will be regarded as having specialised in Engineering Management if they have:

- (a) completed a graduating curriculum under the foregoing rules in any branch;
- (b) included in their graduating curriculum an approved minimum of 80 credits, all completed at a minimum of Band D level, from the following list of Selected Subjects:

	<i>Credits</i>
Construction Management 3	20
Financial Management E1	20
Macroeconomics E1	10
Managerial and Organisational Context E1	10
Marketing E1	10
Microeconomics E1	10
Operations Management E1	10
Professional Studies 4 (not in Department of Civil or Electronics and Electrical Engineering)	10
Structure of Industry 1	10

X USE IN EXAMINATIONS OF ELECTRONIC CALCULATORS

For the purpose of degree examinations in subjects taught by the Engineering departments, candidates are expected to possess electronic calculators able to perform specified functions. A statement of the rules governing use in examinations of electronic calculators and specifying the functions the calculator should be able to perform is made available early in each session.

XI DEGREES OF BACHELOR OF TECHNOLOGICAL EDUCATION & BACHELOR OF TECHNOLOGY STUDIES

The provisions of the Resolution governing the Degrees of Bachelor of Technological Education and Bachelor of Technology Studies are as follows:

1. The following degrees may be conferred by the University of Glasgow:

Bachelor of Technological Education (B Tech Ed)
Bachelor of Technology Studies (B Tech S)

The following may also be conferred as other qualifications:

Diploma of Higher Education (Technology Studies)
Certificate of Higher Education (Technology Studies)

2. The Degree of Bachelor of Technological Education may be conferred as a degree with Honours or with a Pass or as an Ordinary degree as prescribed by regulation.

The Degree of Bachelor of Technology Studies may be conferred either as a degree with Honours or with a Pass in such single subjects or pairs of subjects as may be prescribed by regulation.

The Degree of Bachelor of Technology Studies in General Technology may be conferred as a degree as may be prescribed by regulation.

3. The minimum period of study for the degrees and other qualifications shall normally be as follows:

- (a) Bachelor of Technological Education – four sessions of full-time study or two sessions of full-time study preceded by at least three sessions of part-time study.
- (b) Bachelor of Technology Studies with Honours – four sessions of full-time study or two sessions of full-time study preceded by at least three sessions of part-time study.
- (c) Bachelor of Technology Studies in General Technology – three sessions of full-time study or at least four sessions of part-time study.

Exceptionally, other combinations of full-time and part-time study may be approved by the Senate in individual cases.

- (d) Diploma of Higher Education (Technology Studies) – two sessions of full-time or at least three sessions of part-time study.
- (e) Certificate of Higher Education (Technology Studies) – one session of full-time or two sessions of part-time study.

4. A candidate who has not met the particular requirements for one of the following degrees or other qualifications:

- (i) Bachelor of Technological Education with Honours *or*
- (ii) Bachelor of Technology Studies with Honours *or*
- (iii) Bachelor of Technological Education *or*
- (iv) Bachelor of Technology Studies in General Technology *or*
- (v) Diploma of Higher Education (Technology Studies) *or*
- (vi) Certificate of Higher Education (Technology Studies) *or*

who at any stage of the curriculum is judged unlikely to meet the requirements, may be required to transfer to the curriculum for another degree or another qualification lower in order in the above list.

A candidate making adequate progress in the curriculum for which he or she is enrolled may be permitted to transfer to the curriculum for another degree or another qualification lower in order in the above list than the degree or diploma for which the candidate is currently enrolled.

A candidate who transfers between curricula for degrees or other qualifications may be exempted in whole or in part from the examinations

prescribed for the degree or other qualification to which the candidate has transferred, dependent upon results gained in the previous curriculum.

5. (a) Candidates may be exempted from part of the curriculum in accordance with the Regulations paragraph 12 made under this resolution. Candidates so exempted but not falling within the provision of (b) below must spend a minimum of one year in an approved course of study in the University of Glasgow qualifying towards the degree of Bachelor of Technology Studies in General Technology or the Diploma in Higher Education (Technology Studies) or a minimum of two years in an approved course of study in the University of Glasgow qualifying towards the degree of Bachelor of Technological Education or the Honours degree of Bachelor of Technology Studies. In all cases the final year of the programme of study for the above degrees must be spent in an approved curriculum within the University of Glasgow.
- (b) A candidate may be admitted from overseas or may be permitted to study overseas within the provisions of an international credit transfer programme approved by Senate and may be allowed to count courses attended and formally examined abroad but not forming part of a curriculum for a Glasgow University degree as qualifying towards the degree of Bachelor of Technological Education or the Honours degree of Bachelor of Technology Studies.
- (c) In the case of candidates falling within the provisions of (b) examinations furth of Glasgow may constitute part of the Honours diet.
6. The Senate with the approval of the University Court may from time to time make regulations:
 - (a) determining the subjects of study and the course of instruction;
 - (b) determining the subjects for examination and the number of divisions in which the examinations for the degrees shall be arranged.
7. The provision of this Resolution shall apply to all candidates. However, where it is to a candidates advantage, candidates admitted before October 1998, will be permitted to be assessed under the provision of Resolution No 399 in the case of the degree of Bachelor of Technological Education.
8. Resolution No 399 of the University Court of the University of Glasgow is hereby repealed, except in the case of candidates who enter into the curriculum of the first year level before October 1998.

REGULATIONS

1. Curricula, Courses and Credits

The curricula for the degrees shall be made up in accordance with the appended Regulations for Courses which show:

- (a) Single subjects and combinations of subjects in which the degree may be awarded
- (b) Courses forming components of the degree curriculum in each subject or subject combination.

The Regulations for Courses specify the names and levels of these courses, their worth in credits, their admission requirements and their assessment methods.

Each course shall be worth the number of credits specified in its course entry in the Regulations for Courses. The number of credits shall be a multiple of 10 and shall reflect the quantity of work each course requires in relation to the total quantity of work required to complete a full year of academic study. The normal minimum full-time workload will be between 120 and 160 credits per session. Each candidate shall be awarded the specified number of credits on completion of the course.

2. Curriculum of an Individual Student

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 by an Adviser of Studies.

Each full-time candidate shall enrol for courses as prescribed under the Regulations for Courses but normally totalling a minimum of 120 credits in each session.

Each part-time candidate shall enrol for courses totalling a maximum of 90 credits in each session.

A candidate may include in the curriculum any course not prescribed as part of the degree curriculum the candidate is following, subject in each case to the approval of the Adviser of Studies and subject also, where the course is from outside the Faculty of Engineering, to the approval of and to any conditions prescribed by the other Faculty and Department concerned.

3. Availability of Courses and Requirements for Admission and Readmission to Courses

(a) Availability of Courses

All the courses listed in the Regulations for Courses will not necessarily be available in each year; The choice of a curriculum will be subject to this limitation and also to that imposed by timetables.

(b) Admission Requirements

Each course may have admission requirements, which shall be specified in its entry in the Course Documentation.

Admission to a course is normally open only to candidates who satisfy all its admission requirements.

(c) *Prerequisites and Corequisites*

Each course may have a prerequisite or corequisite course or courses. To be admitted to the course:

- (i) The candidate must have completed each prerequisite course, normally at either grade D or above. If the course follows a prerequisite course in the same session, however, it shall be sufficient for the candidate to have attended the prerequisite course.
- (ii) The candidate must either have attended, or be concurrently attending, each corequisite course.

(d) *Readmission*

Subject to compliance with progress requirements a candidate who has previously completed a course with a grade of E or below, or who has not completed the course, may be readmitted to attend the course. A candidate who has previously completed a course with a Grade E or below may alternatively, be permitted during the following session only to sit the examinations in the course (normally during a period of suspension from full-time study) without reattendance at classes therein.

4. Departmental Instructions

Candidates shall be required to comply with such departmental instructions as are prescribed by the Head(s) of Department(s) concerned. Such instructions may require candidates: to attend specified lectures, tutorials, laboratory or practical sessions, field trips, examinations, and other meetings: to provide themselves with books, equipment, and other materials as are necessary for the course concerned: to submit items of work, including essays, reports, and dissertations, by such dates as may be instructed. All such instructions shall be communicated to the candidates in writing at the start of the course concerned. Reasonable notice of any alteration to such instructions shall be given. Under the provisions of Regulation 5(b), a candidate who fails to comply with departmental instructions may be deemed not to have met the requirement for the award of credits.

5. Assessment

(a) *Assessment Methods*

A course may be assessed by examination paper(s), by dissertation, by coursework (including practical work, reports, and essays), by any other method approved by the Faculty, or by any combination of these methods. The assessment method(s), and the weight accorded to each component of the assessment, shall be specified in the Course Documentation.

(b) *Minimum Requirement for the Award of Credits*

The minimum requirement for the award of credits for a course shall be specified by a department and given to students in writing at the beginning of the course (module). This requirement shall normally include a specified minimum level of compliance with departmental instructions in terms of attendance and completion of work and a specified minimum level of performance in assessed work and examinations including the end-of-course examination (if any). Normally no grade or credits shall be awarded to a candidate who does not meet this minimum requirement. A candidate shall be refused admission to an end-of-course examination only if his or her level of compliance with departmental instructions and level of performance in assessed work and examinations prior to the end-of-course examination is such that the candidate could not be awarded at least a grade G for the course (module) whatever the level of performance in the end-of-course examination.

(c) *Exemption from the End-of-Course Examination*

For courses where there is an end-of-course examination, departments may specify that students who have attained the specified minimum level of compliance with departmental instructions in terms of attendance and completion of work and a specified level of performance in assessed work and examinations other than the end-of-course examination, may be exempted from the end-of-course examination and awarded a grade on the basis of the work and examinations completed.

(d) *Grades*

Each candidate who has satisfied the minimum requirement for the award of credits for a course shall be awarded a grade. He or she shall earn the specified number of credits for the course, and a number of grade points which shall be the product of the number of credits and the grade points per credit according to the following table.

Each candidate who has not satisfied the minimum requirement for the course shall earn nothing.

The meaning of each grade and the corresponding number of grade points shall be as follows:

<i>Grade</i>	<i>Grade Descriptor</i>	<i>Grade points (per credit)</i>
A++	Excellent	20
A+	Excellent	18
A	Excellent	16
B	Very Good	14
C	Good	12
D	Satisfactory	10
E	Fair	8
F	Poor	6
G	Very Poor	2

The grades of A++ and A+ are awarded only in courses of Level 3 and above and are not used in Levels 1 and 2.

(e) *Grade Point Averages*

Each candidate's grade point average is defined to be the ratio of total grade points to total credits, calculated over all graded courses completed by the candidate; excepting that for the purposes of computing the grade point average, a candidate shall be entitled to discount any courses that are surplus to requirements.

(f) *Resit Examinations*

Candidates shall normally be required to sit any end-of-course (module) examination for a course (module) at Level 1, Level 2 or Level 3 at the first available diet after completion of the course. A candidate who does not attend that examination at the first diet, without good cause, shall for the purposes of these regulations have the same entitlement as a student who attends the examination and is awarded a zero mark.

A candidate who is awarded a Grade A, B, C or D after the first diet of the end-of-course (module) examination for a course (module) at Level 1, Level 2 or Level 3 will not normally be allowed to resit the examination. Any other candidate entitled to sit the end-of-course examination shall be entitled to resit the examination, both at the next available diet if any in the same session and at all available diets in the subsequent session provided that he or she does not embark upon a course for which the course in which he or she wishes to resit the examination is a prerequisite. Any grade may be awarded at the resit examination provided that it is no lower than the original result.

6. Honours Degrees of Bachelor of Technological Education & Bachelor of Technology Studies

(a) *General Requirements*

Candidates for the Degrees of Bachelor of Technological Education with Honours and of Bachelor of Technology Studies with Honours must complete courses totalling at least 480 credits as prescribed under the Regulations for Courses. The single subject or subject combinations in which the degrees may be awarded and the prescribed programme of courses for the degrees in these subjects or subject combinations shall be stated in the Regulations for the Courses.

Candidates for the Degree of Bachelor of Technological Education with Honours must complete the prescribed programme of courses for the degree as shall be stated in the Regulations for the Course.

(b) *Progression in an Honours Curriculum*

In each of years 1 and 2 the requirements for progression in an Honours curriculum are achievement of a grade point average of at least 10 together with minimum grade of E in every subject. For progression into the 4th

year Honours curriculum a good enough level of performance in the degree examinations has to be achieved – see Regulations for individual degrees. Any student who does not meet this standard of performance may apply to the department and if the department judges that the student's previous performance offers a reasonable prospect of the student reaching the standard required in the Honours curriculum, then the student will be permitted to continue in the Honours curriculum. A student may appeal to the Faculty Appeals Committee against refusal of continuation in an Honours Curriculum or in the case Joint Degrees with another Faculty a Joint Appeals Committee.

(c) *Classes of Honours*

There shall be three classes of Honours as follows for the Degrees of Bachelor of Technological Education and of Bachelor of Technology Studies to be called the First, Second and Third Classes, respectively. The Second Class of Honours shall be divided into two divisions. The names of the candidates placed in each class or division as the case may be, shall be arranged in alphabetical order. Any of the degrees may be awarded as an unclassified Honours degree.

(d) *Award of Honours*

The Board of Examiners will award a class of Honours based on a weighted average of marks normally comprising those for the courses of Years 3 and 4 of the Degree of Bachelor of Technological Education and of the Degree of Bachelor of Technology Studies with a higher weighting normally being given to the final year. The weighting for each Degree curriculum will be published in the appropriate Course Handbook. In making the award, the Board of Examiners may also have regard to the candidate's performance throughout the curriculum. The examination marks used in calculating the weighted average will normally be those achieved at the first available diet of examinations. In the case of Joint Honours the Joint Board of Examiners shall be entitled to set a minimum standard in either of the combined subjects to qualify the candidate for a particular class of Honours.

In assessing the merit of a candidate for the Degree with Honours the Board of Examiners may have regard to the candidate's performance not only in the Honours examination but also in all the other subjects of the curriculum.

(e) *Deferment of Honours Examination*

A candidate for the degree with Honours shall normally present himself or herself for examination immediately upon completion of the prescribed courses. However, a Head of Department may, at his or her discretion and on grounds of illness or other good cause shown, permit a candidate to delay taking his or her final Honours examination for not more than one year.

(f) *Absence from Honours Final Examination*

If a candidate, having duly completed the work of the Honours classes, is prevented by illness medically certified or other good cause from attending the Honours examination, or, having begun it, from completing *either*:

- (i) if at least two-thirds of the prescribed formal Honours examination, which may include an oral examination, has been completed, the examiners, having imposed, if they think fit, a test or tests, written or oral, alternative to the uncompleted part of the written examination, and having considered all the evidence available to them, may recommend that the candidate be placed in the appropriate class of Honours or be awarded the Pass Degree or the Ordinary Degree;

or

- (ii) if a lesser part or no part of the prescribed formal Honours examination has been completed, provided that in the opinion of the examiners the candidate would have reached at least the standard expected of students who obtain Second Class Honours, the examiners, who shall receive reports on the candidate's class work and shall consider all the evidence available to them, may recommend that the candidate be awarded an unclassified Honours Degree. If in their opinion the candidate would not have reached that standard the examiners may recommend the award of the Ordinary or Pass Degree. The consent of the candidate to the award of either the aegrotat, Ordinary or Pass Degree shall be required on the first occasion only. If the candidate refuses the recommended award on the first occasion, or if the examiners recommend neither an unclassified Honours nor an Ordinary or Pass Degree, then the candidate will be deemed not to have presented himself or herself for examination.

7. Degree of Bachelor of Technological Education (Ordinary)

A candidate for the Degree of Bachelor of Technological Education (Ordinary) must complete courses totalling at least 400 credits as prescribed under the Regulations for the courses.

A candidate who in the opinion of the Board of Examiners has shown special merit may be awarded the Degree of Bachelor of Technological Education with Commendation.

8. Degree of Bachelor of Technology Studies in General Technology

The Degree of Bachelor of Technology Studies in General Technology may be awarded in accordance with the following requirements:

(a) *General Requirements*

A candidate for the degree of Bachelor of Technology Studies in General Technology must have completed courses satisfying all of the following requirements:

- (i) at least 360 credits or, if exempted from Year 1, courses totalling at least 240 credits or, if exempted from Year 1 and Year 2, courses totalling at least 120 credits.
- (ii) at least 240, 180 or 80 credits respectively at grade D or better
- (iii) have a Grade Point Average of at least 10 or better in the best 360, 240 and 120 credits respectively of courses which may include part of the credits for a course if this is necessary to bring the total credits to exactly 360, 240 or 120 respectively
- (iv) at least 120 credits above level 1
- (v) at least 80 credits above level 1 at grade D or better
- (vi) a Grade Point Average of 10 or better in the best 120 credits of courses above level 1 which may include part of the credits for a course if this is necessary to bring the total credits to exactly 120
- (vii) have completed Technology courses which shall be designated as such in the Regulations for Courses, totalling a minimum of 180 credits.
- (viii) at least 120 credits of Technology courses at grade D or better
- (ix) have a Grade Point Average of 10 or better in the best 180 credits of Technology courses which may include part of the credits for a course if this is necessary to bring the total credits to exactly 180
- (x) at least 80 credits of Technology courses at Level 2 or above.
- (xi) at least 60 credits of Technology courses above Level 1 at grade D or above.

(b) *Award of Degree with Merit or Distinction*

The Degree of Bachelor of Technology Studies in General Technology shall be awarded with merit if the candidate has a grade point average in requirements (iii), (vi) and (ix) of at least 12 or with distinction if the candidate has a grade point average of at least 14 or as otherwise determined by the Board of Examiners.

9. Diploma of Higher Education (Technology Studies)

To qualify for the Diploma of Higher Education (Technology Studies), the candidate must satisfy the following requirements:

- (i) the candidates must have completed courses totalling at least 240 credits, or if exempted from year 1, at least 120 credits, including in both cases at least 60 credits above Level 1.

- (ii) at least 120 credits must be in courses in Technology subjects, or if exempted from year 1 60 credits in Technology subjects.
- (iii) the candidate must have a Grade Point Average of at least 8.5.

10. Certificate of Higher Education (Technology Studies)

To qualify for the Certificate of Higher Education (Technology Studies), the candidate must satisfy the following requirements:

- (i) the candidates must have completed courses totalling at least 120 credits.
- (ii) at least 60 credits must be in courses in Technology subjects.
- (iii) the candidate must have a Grade Point Average of at least 8.5.

11. Progress Requirements

- (a) Students progress is reviewed annually
- (b) Students who fail to satisfy the progress requirements for the degree for which they are registered will also have their progress reviewed in terms of the progress regulations for other degrees under this Resolution; and may, in the light of this review, be transferred from one degree programme to another (e.g. Bachelor of Technological Education to Bachelor of Technology Studies).
- (c) Full-time students admitted to the first year will normally cease to be candidates for any degree in the Faculty of Engineering if they have not:
 - (i) within one year of the date of their admission achieved at least a grade D in 50% of the credits. The following courses must be completed with grades of D or better unless otherwise stated:

For students on the degree of Bachelor of Technological Education

Professional Studies (Education) T1

School Experience T1

For students on the degree of Bachelor of Technology Studies in Technology and a Designated Subject

Designated Subject Level 1

- (ii) within two years of the date of admission have completed all courses of the first year and achieved at least a grade of D for 50% of course credits. The following courses must be completed with a grade of D or better unless otherwise stated:

For students on the degree of Bachelor of Technological Education

Professional Studies (Education) T2

School Experience T2

For students on the degree of Bachelor of Technology Studies in Technology and a Designated Subject

Designated Subject Level 2 (see Regulations for the Course)

- (iii) within three years of the date of admission have completed all courses of the second year and achieved at least a grade of D in 50% of course credits and a minimum of grade E for all first, second and third year courses. The following courses must be completed with a grade of D or better unless otherwise stated:
- For students on the degree of Bachelor of Technological Education*
- Professional Studies (Education) T3
School Experience T3
- (iv) in any year of full-time study after the first achieved a grade of D in 50% of course credits.
- (d) Full-time students admitted directly to the second year will normally cease to be candidates for the degrees if they have not:
- (i) within one year of the date of admission achieved a grade of D in 50% of course credits. The following courses must be completed with a grade of D or better unless otherwise stated:
- For students on the degree of Bachelor of Technological Education*
- Professional Studies (Education) T2
School Experience T2
- (ii) within two years of the date of admission have completed all courses of the second year and achieved at least a grade of D in 50% of course credits and a minimum of grade E for all second and third year courses. The following courses must be completed with a grade of D or better unless otherwise stated:
- For students on the degree of Bachelor of Technological Education*
- Professional Studies (Education) T3
School Experience T3
- (e) Part-time students will normally cease to be candidates for the degrees, if in any year of study, they have achieved a Grade Point Average of at least 6.
- (f) Students who have been permitted to study part-time on an interim basis will normally cease to be candidates for the degree of the Bachelor of Technology Studies with Honours if, in any year of study, they have not achieved a Grade Point Average of 10 in all their subjects of study in that year or in subjects equivalent to at least 50 course credits, whichever is least.
- (g) Students in any year of study, whether it be full-time or part-time or of enrolment for examinations only or any combination thereof, will normally cease to be candidates if they have not passed all subjects of repeated study in that year.
- (h) Nothing in the foregoing regulations shall be taken as superseding Paragraph 5 of the Resolution and paragraph 6(b) of the Schedule.

- (i) A student may be required to attend an oral examination by the Board of Examiners if he or she has partially failed a School Experience assessment.

12. Exemption from Courses on the Basis of Previous Study

A student may be admitted directly into the second year, and be exempted from second and/or third year courses in whose curriculum he or she is already qualified or experienced, if

- (i) he or she has obtained 120 appropriate credits or equivalent
- (ii) it is possible to arrange for him or her to complete those parts of the first year curriculum which he or she has not already covered, by attending first year classes in the subjects mentioned above, by private study.

Candidates for the Bachelor of Technological Education must complete a Direct Entry Bridging Course specially arranged by the Faculty of Education

REGULATIONS FOR COURSES

Regulations for the Course Leading to the Degree of Bachelor of Technological Education

Curricula for the Honours and Ordinary Degree of Bachelor of Technological Education are available, though the Degree is normally awarded as an Honours degree. Exceptionally the Examiners may recommend the award of the Degree as a Pass Degree to candidates who have completed the Honours curriculum, but who have failed, in the final Honours assessment, to reach the standard required for Honours.

Course of Study

The degree course has a fixed curriculum in its first three years.

Honours and Ordinary

<i>Year 1</i>	<i>Credits</i>
<i>Compulsory Courses</i>	
Technology courses comprising:	
Electricity and Electronics T1	20
Mathematics T1	30
Technology Design Workshop T1	40
Engineering Craft Workshops T1	30
Education courses comprising:	
Professional Studies (Education) T1	10
School Experience T1	10

Student Progress after Year 1

Students may not progress to year 2 of the curriculum until they have achieved at least a grade D in Professional Studies (Education) T1 and School Experience T1 together with a grade point average of 10 and a minimum of grade E in all courses.

Students who have achieved a grade point average of at least 10 and a minimum of grade E in all courses (except Professional Studies (Education) T1 and School Experience T1) may transfer to the Bachelor of Technology Studies Degree.

Honours and Ordinary

<i>Year 2</i>	<i>Credits</i>
<i>Compulsory Courses</i>	
Technology courses comprising:	
Mechanics T2	20
Electronics T2	20
Materials T2	20
Technology Design Workshop T2	20
Engineering Craft Workshop T2	30
Industrial Experience ¹⁰	20
Education courses comprising:	
Professional Studies (Education) T2	20
School Experience T2	20
Direct Entrants' Bridging Course ¹¹	10
Optional course	
Religious Education (Catholic) ¹²	

Student Progress after Year 2

Students may not progress to Year 3 of the curriculum until they achieved at least a grade D in Professional Studies (Education) T2 and School Experience T2, together with a grade point average of at least 10 and a minimum of grade E in all courses from years 1 and 2.

All candidates must, explicitly, have performed satisfactorily during their periods of School Experience.

Students who have achieved a grade point average of at least 10 and a minimum of grade E in all courses (except Professional Studies (Education) T2 and School Experience T2) may transfer to the Bachelor of Technology Studies Degree.

¹⁰ Industrial Experience may completed at the end of year 2 or year 3.

¹¹ Direct Entrants' Bridging Course is compulsory only for direct entrants into second year.

¹² For students wishing to have the Catholic Teaching Certificate, and must be satisfactorily completed by the end of year 4.

Honours and Ordinary

<i>Year 3</i>	<i>Credits</i>
<i>Compulsory Courses</i>	
Technology courses comprising:	
Electronic Materials and Devices T3	10
Understanding Energy T3	20
Engineering Systems and Robotics T3	20
Technology Design Workshop T3	30
Technology and Society T3	10
Industrial Experience ¹³	20
Education courses comprising:	
Professional Studies (Education) T3	20
School Experience T3	30

Progression to the Honours degree

Students may not progress to the Honours curriculum in Year 4 until they have achieved a grade point average of at least 10 and a minimum of grade D in all courses in year 3. No candidate will be admitted to Honours who fails to comply with this progress requirement within four academic Sessions after entry to the first year of the course, including periods of part-time study and suspension from study permitted by Paragraph 3 of the Regulations for the Degree, except at the discretion of the Examiners.

Progression to the Ordinary degree

Students who have achieved a grade point average of at least 10 and a minimum of grade E in all courses in years 1 and 2 but who have obtained Grades E, F or G in subjects of Year 3 may, at the discretion of the Examiners, be admitted to the Ordinary Curriculum of Year 4. Candidates for the Ordinary degree curriculum must, normally have completed the requirements for Technology Design Workshop T3 and Industrial Experience and have performed satisfactorily in School Experience T3. They may not, normally, carry forward more than one element of Professional Studies (Education) T3 and more than thirty (30) credits in total of the elements of Technology T3.

¹³ Industrial Experience may be completed at the end of year 2 or year 3.

Honours

<i>Year 4</i>	<i>Credits</i>
<i>Compulsory Courses</i>	
Project	
a combined technology and teaching research project	40
<i>or</i>	
a technology project	20
a teaching research project	20
Professional Studies (Education) T4	20
School Experience T4	40
<i>Special Courses – 30 credits chosen from:</i>	
Highway Planning and Design T4	10
Electronics Education Equipment T4	10
Sustainable Resources and the Environment T4	10
Operations Management T4	10
Application of Microprocessors to Consumer Products T4	10
Managerial and Organisational Contexts T4	10
Product Design Case Study T4	20
Technology Projects in Primary Schools T4	20

Note: this list of courses may vary from year to year.

Ordinary

<i>Year 4</i>	<i>Credits</i>
<i>Compulsory Courses</i>	
Project	
a combined technology and teaching research project	20
<i>or</i>	
a technology project	10
a teaching research project	10
Professional Studies (Education) T4	20
School Experience T4	40
<i>Special Courses (Optional)</i>	
Technology T4, comprising not more than 20 credits chosen from	
Highway Planning and Design T4	10
Electronics Education Equipment T4	10
Sustainable Resources and the Environment T4	10
Operations Management T4	10
Application of Microprocessors to Consumer Products T4	10
Managerial and Organisational Contexts T4	10
Product Design Case Study T4	20

Note: this list of courses may vary from year to year

Regulations for the Course Leading to the Degree of Bachelor of Technology Studies in Technology and Management

Curricula for the General and Honours Degree of Bachelor of Technology Studies in Technology and Management are available depending on whether the period of study is for three or four years. Exceptionally the Examiners may recommend the award of the Degree as a Pass Degree to candidates who have completed the Honours curriculum, but who have failed, in the final Honours assessment, to reach the standard required for Honours.

Course of Study

The degree has a mixed curriculum comprising of compulsory and optional subjects which may be followed according to the regulations below.

Honours and General

Year 1 *Credits*

Level 1 courses must be taken to a total of at least 120 credits

Compulsory Courses (Level 1)

Technology Courses comprising:

Electricity and Electronics T1 20

Technology Design Workshop T1 40

Management Courses comprising:

Management 1 40

Optional Courses (Level 1)

Students may take any courses for which they are eligible up to a value of at least 20 credits. However under normal circumstances students will be encouraged to consider Economics 1, Accountancy 1 or a similar related course.

Student Progress after Year 1

Students may not progress to year 2 of the curriculum unless they have achieved at least a grade D in all the compulsory courses of year 1, together with a grade point average of 10 and a minimum of grade E in all courses.

Honours and General

Year 2 *Credits*

Level 2 courses must be taken totalling 120 credits plus one other Level 1 course of 20 credits

Compulsory Courses (Level 2)

Technology Courses comprising:

Electronics T2 20

<i>Year 2</i>	<i>Credits</i>
Materials T2	20
Technology Design Workshop T2	20
Management Courses comprising of:	
Management 2	60
<i>Optional Courses (Level 1)</i>	
Mechanics T2	20

Student progress after Year 2

Students may not progress to year 3 of the Honours curriculum unless they have achieved at least a grade D in all the Technology courses of year 2 and a grade B in Management 2, together with a grade point average of 10 and a minimum of grade E in all courses. Students who fail to meet the requirements for Honours may be eligible to transfer to the Bachelor of Technology Studies degree or can select courses from the Technology curriculum to complete the required credits for a degree in Technology Studies in General Technology.

Years 3 & 4

Technology courses selected from the following:

	<i>Credits</i>
Understanding Energy	20
Technology and Society	10
Sustainable Resources and the Environment (year 4 only)	10
Electronic Materials and Devices	10
Engineering Systems and Robotics	20
Technology Design Workshop	30
Product Design Case Study	20
Design Evaluation	20
Materials Forming and Selection	20
Technology Project (year 4 only)	40

The above list may vary. A choice of the above courses may be made totalling 60 credits in each year, with the proviso that the Technology Project should be carried out in the final year and if both energy options are chosen they should be done in sequence. Also students must choose either Technology Design Workshop and/or the Technology Project.

Management courses as detailed below:

Four courses to be taken (two per year) from the following:

Comparative Organisational Behaviour
Human Resource Management

International Management
 Managing Work and Employee Relations
 International Marketing and Strategy
 Marketing Communications
 Strategic Marketing
 Business Strategy
 Financial Management
 Management of Information Systems
 Supply Chain Logistics and Behaviour
 Understanding Business Process
 Applied Managerial Psychology
 Art of Influencing
 Small Business Placement

All Honours Courses are 30 credit courses and are subject to availability.

Regulations for the Course Leading to the Degree of Bachelor of Technology Studies with Honours in Technology with a Designated Subject (Management or Economics)

Curricula for the Degree of Bachelor of Technology Studies with Honours in Technology with a Designated Subject are available. Exceptionally the Examiners may recommend the award of the Degree as a Pass Degree to candidates who have completed the Honours curriculum, but who have failed, in the final Honours assessment, to reach the standard required for Honours.

Course of Study

The degree course has a flexible curriculum comprising of compulsory and optional courses which may be followed according to the regulations below.

Year 1

Credits

Level 1 courses to the value of at least 120 credits must be taken.

Compulsory Courses

Technology Courses comprising:

Electricity and Electronics T1	20
Mathematics T1	30
Technology Design Workshop T1	40

Optional Courses

Engineering Craft Workshops T1	30
--------------------------------	----

Educational Courses comprising:

Professional Studies (Education) T1	10
School Experience T1	10

Other Courses

Students may take any courses for which they are eligible to a value of at least 30 credits as agreed with the Adviser of Studies.

Student Progress after Year 1

Students may not progress to year 2 of the curriculum until they have achieved at least a grade of C in Technology Design Workshop T1 and Mathematics T1, together with a grade point average of 10 and a minimum of grade E in all courses.

If a student has achieved grade D in both Professional Studies (Education) T1 and School Experience T1 they may be eligible for transfer to the B Tech Ed degree.

Year 2 *Credits*

Level 2 courses to the value of at least 60 credits must be taken. At least 120 credits must be taken for the year.

*Compulsory Courses**Level 2 Courses*

Technology Courses comprising:

Electronics T2	20
Materials T2	20
Technology Design Workshop T2	20

Level 1 Courses

Mechanics T2	20
Designated Subject	
Management 1	40
<i>or</i>	
Economics 1	40

Student Progress after Year 2

Students may not progress to Honours unless they have achieved at least a grade of D in all the compulsory courses of Years 1 and 2 together with a grade point average of at least 10 and a minimum of grade E in all courses.

Year 3 *Credits**Compulsory Courses*

Management 2 60

or

Economics Intermediate 2 60

and

Courses to the value of 60 credits from the list of Technology courses.

Student Progress after Year 3

Students may not progress to year 4 of the curriculum unless they have achieved at least a grade D in all their courses and a grade B in Management 2 or a grade C in Economics Intermediate 2. Students who fail to achieve these progress requirements may transfer to the Bachelor of Technology Studies degree with Honours if they have achieved a grade D in all their subjects or they may graduate with Bachelor of Technology Studies in General Technology after three years if they have satisfied Regulation 8.

Students will choose courses to the value of 60 credits from the list of Technology options and 60 credits from the Management or Economic options.

<i>Year 4</i>	<i>Credits</i>
<i>Technology Courses</i>	
Understanding Energy	20
Sustainable Resources and the Environment (year 4 only)	10
Technology and Society	10
Electronic Materials and Devices	10
Application of Microelectronics in Consumer Products	10
Engineering Systems and Robotics	20
Technology Design Workshop	30
Product Design Case Study	20
Design Evaluation	20
Materials Forming and Selection	20
Technology Project (compulsory in year 4)	40

The above may vary from year to year.

‘Understanding Energy’ is a prerequisite for ‘Sustainable Resources and the Environment’ so if both subjects are to be taken one must be done in year 3 and the other in year 4. Otherwise ‘Understanding Energy’ may be taken in year 4.

Regulations for the Course Leading to the Degree of Bachelor of Technology Studies with Honours and Bachelor of Technology Studies in General Technology

Curricula for the General and Honours Degree of Bachelor of Technology Studies are available depending on whether the period of study is for three or four years. Exceptionally the Examiners may recommend the award of the Degree as a Pass Degree to candidates who have completed the Honours curriculum, but who have failed, in the final Honours assessment, to reach the standard required for Honours.

Course of Study

The degree course has a flexible curriculum comprising of compulsory and optional courses which may be followed according to the regulations below.

*Honours and General**Year 1**Credits*

Level 1 courses to the value of at least 120 credits must be taken.

Compulsory Courses

Technology Courses comprising:

Electricity and Electronics T1	20
--------------------------------	----

Mathematics T1	30
----------------	----

Technology Design Workshop T1	40
-------------------------------	----

Optional Courses

Engineering Craft Workshops T1	30
--------------------------------	----

Educational Courses comprising:

Professional Studies (Education) T1	10
-------------------------------------	----

School Experience T1	10
----------------------	----

Other Courses

Students may take any courses for which they are eligible to a value of at least 30 credits as agreed with the Adviser of Studies.

Student Progress after Year 1

Students may not progress to year 2 of the curriculum until they have achieved at least a grade of E in all courses, together with a grade point average of 10.

Students who wish to transfer to the Bachelor of Technology Studies in Technology with a Designated Subject must achieve at least a grade of C in Technology Design Workshop T1 and Mathematics T1.

If a student has achieved grade D in both Professional Studies (Education) T1 and School Experience T1 they may be eligible for transfer to the B Tech Ed degree.

If a student has achieved at least a grade D in Level 1 of a course they may be eligible to continue with Level 2 of the course.

*Honours and General**Year 2**Credits*

Level 2 courses to the value of at least 60 credits must be taken. At least 120 credits must be taken for the year.

<i>Year 2</i>	<i>Credits</i>
<i>Compulsory Courses</i>	
Level 2 Courses	
Technology Courses comprising:	
Electronics T2	20
Materials T2	20
Technology Design Workshop T2	20
Level 1 Course	
Mechanics T2	20
 <i>Optional Courses</i>	
Technology Courses comprising:	
Engineering Craft Workshop T2	30
Industrial Experience	20
 <i>Educational Courses</i> comprising:	
Professional Studies (Education) T2	20
School Experience T2	20

Other Courses

Students may take any courses for which they are eligible to a value of at least 40 credits as agreed with the Adviser of Studies.

Student Progress after Year 2

Students may not progress to Honours unless they have achieved at least a grade of D in all the compulsory courses of Years 1 and 2 together with a grade point average of at least 10 and a minimum of grade E in all courses.

Students who have achieved at least a grade D in Professional Studies (Education) T2 and School Experience T2 may be eligible for transfer to the B Tech Ed.

Years 3 and 4 of the course

Years 3 and 4 of the course are put together by choosing from List A and List B (both may vary from year to year) below to at least 120 credits in each year. A number of restrictions follow which must be observed when choosing options for the degree programme.

1. Normally at least 90 credits must be taken from List A in each year of the course.
2. The Technology Project is compulsory for the final year of the course.
3. 'Understanding Energy' is a prerequisite for 'Sustainable Resources and the Environment' so if both subjects are to be taken one must be done in

year 3 and the other in year 4. Otherwise 'Understanding Energy' may be taken in year 4.

4. Students may study a language, if they wish, in either year 3 or 4. The languages on offer are French, German, Italian and Spanish. Each course is worth 20 credits and would be studied instead of subjects in List B.
5. In years 3 and 4 instead of choosing subjects from List B, students may choose subjects from another Faculty. If this increases the students workload significantly a pro rata reduction in credits from the List A may be acceptable.
6. After completion of year 3 students may graduate with a degree in Bachelor of Technology Studies in General Technology, providing they have successfully completed 360 credits, with at least 120 credits being Level 2 courses or above and have satisfied Regulations, paragraph 8.

List A

Honours and General

	<i>Credits</i>
Understanding Energy ¹⁴	20
Sustainable Resources and the Environment (year 4 only)	10
Technology and Society	10
Electronic Materials and Devices	10
Application of Microelectronics in Consumer Products	10
Engineering Systems and Robotics	20
Technology Design Workshop	30
Product Design Case Study	20
Design Evaluation	20
Materials Forming and Selection	20
Technology Project (compulsory in year 4)	40

List B

Honours and General

	<i>Credits</i>
Managerial and Organisational Contexts	10
Structure of Industry	10
Macroeconomics	10

¹⁴ Year 3 and Year 4 see note 3 above.

	<i>Credits</i>
Microeconomics	10
Marketing	10
Operations Management	10
Professional Studies (Engineering)	10
Financial Management	20

Students progress After Year 3

Students may not progress to the Honours curriculum in Year 4 unless they have achieved a grade point average of at least 10 and a grade D in all examinable courses in year 3. Students who are studying courses from other Faculties and wish to continue with these must satisfy the requirements of the departments concerned.

XII DEGREE OF BACHELOR OF SCIENCE IN NAUTICAL SCIENCE

These regulations apply to students who commenced study prior to October 2001.

Revised regulations will apply to students commencing study from October 2001. Details are available from the Faculty Office, University of Glasgow.

The Degree of Bachelor of Science in Nautical Science will be governed by a Resolution of the University Court, which at the date of going to press has yet to come into effect. The provisions of the Resolution and Regulations as follows, are subject to approval by the University Court.

1. The following degree may be conferred by the University of Glasgow:

Bachelor of Science in Nautical Science

The following may also be conferred as alternative qualifications:

Diploma in Higher Education (Nautical Science)

Certificate in Higher Education (Nautical Science)

2. The Degree of Bachelor of Science in Nautical Science may be conferred as a degree as may be prescribed by regulation. The curriculum for this degree shall include courses of instruction both in the University of Glasgow and in the Glasgow College of Nautical Studies.
3. The minimum period of study for the degree and other qualifications shall normally be as follows:
 - (a) Degree of Bachelor of Science in Nautical Science – three sessions of full-time study or two sessions of full-time study preceded by at least three sessions of part-time study.

- (b) Diploma in Higher Education (Nautical Science) – two sessions of full-time or at least three sessions of part-time study.
- (c) Certificate in Higher Education (Nautical Science) – one session of full-time or two sessions of part-time study.

Exceptionally, other combinations of full-time and part-time study may be approved by the Senate in individual cases.

The period of study may be reduced by not more than the equivalent of one year in respect of study undertaken for another degree of the University of Glasgow or in another university or institution of higher or further education or in respect of study equivalent to this, recognised for the purpose by the University Court.

4. A candidate who has not met the particular requirements for the following degree or other qualifications:
 - (i) Bachelor of Science in Nautical Science
 - (ii) Diploma in Higher Education (Nautical Science) or
 - (iii) Certificate in Higher Education (Nautical Science)

or who at any stage of the curriculum is judged unlikely to meet the requirements, may be required to transfer to the curriculum for another qualification lower in order in the above list. A candidate making adequate progress in the curriculum for which he or she is enrolled may be permitted to transfer to the curriculum for another qualification lower in order in the above list than the degree or diploma for which the candidate is currently enrolled.

5. It shall be the duty of the Joint Board of Management for the Degree in Nautical Science to consider annually the curriculum for the degree and such other matters as may be remitted to it by the Senatus, and to report to the Senatus thereon.
6. It shall be competent for the University Court on the recommendation of the Senatus to recognise as teachers of the University for the purposes of the degrees such lecturers and other officers of Glasgow College of Nautical Studies having responsibilities for courses qualifying for the degree as may be proposed for such recognition by the Joint Board, and the University Court shall be associated with the College in the appointment of any lecturer or officer of the College in respect of whom such recognition may be proposed.
7. The University Court may appoint as an examiner for the degree, but not as external examiner, any teacher recognised in accordance with section 6 hereof.
8. The examiners shall be drawn from the Professors, Readers and Lecturers

in the University of Glasgow and the Glasgow College of Nautical Studies, whose subjects qualify for graduation in pursuance of section 5, such examiners as are appointed in pursuance of section 7 and such external examiners as may be appointed by the University Court, on the recommendation of the Joint Board.

9. It shall be competent for the Senatus on the recommendation of the Joint Board to constitute a Board of Examiners, which shall have power to receive and to assess reports from individual examiners for transmission to the Senatus.
10. The Senatus with the approval of the University Court may from time to time make regulations:
 - (a) determining the subjects of study and the course of instruction;
 - (b) determining the subjects for examination and the number of divisions in which the examinations for the degrees shall be arranged.
11. The provisions of this Resolution shall apply to all candidates.

SCHEDULE

1. CURRICULUM, COURSES AND CREDITS

The curriculum for the degree shall consist of those courses listed under Subjects of Study in this Schedule.

Each course shall be worth the number of credits specified in its course entry under Subjects of Study. The number of credits shall be a multiple of 10 and shall reflect the quantity of work each course requires in relation to the total quantity of work required to complete a full year of academic study. The normal minimum full-time workload will be 120 credits per session. Each candidate shall be awarded the specified number of credits on being awarded Grade G or above for the course.

2. CURRICULUM OF AN INDIVIDUAL STUDENT

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 by an Adviser of Studies.

Each full-time candidate shall enrol for courses as prescribed under the Schedule of Courses but normally totalling a minimum of 120 credits in each session.

Each part-time candidate shall enrol for courses totalling a maximum of 90 credits in each session.

A candidate may include in the curriculum any course not prescribed as part of the degree curriculum the candidate is following, subject in each case to the approval of the Adviser of Studies and subject also, where the course is from outside the Faculty of Engineering, to the approval of and to any conditions prescribed by the other Faculty and Department concerned.

3. REQUIREMENTS FOR ADMISSION AND READMISSION TO COURSES

(a) *Admission Requirements*

Each course may have admission requirements, which shall be specified in its entry in the Course Documentation.

Admission to a course is normally open only to candidates who satisfy all its admission requirements.

(b) *Prerequisites and Corequisites*

Each course may have a prerequisite or corequisite course or courses. To be admitted to the course:

- (i) The candidate must have completed each prerequisite course, normally at either grade D or above. If the course follows a prerequisite course in the same session, however, it shall be sufficient for the candidate to have attended the prerequisite course.
- (ii) The candidate must either have attended, or be concurrently attending, each corequisite course.

(c) *Readmission*

Subject to compliance with progress requirements, a candidate who has previously completed a course with a grade of E or below, or who has not completed the course, may be readmitted to attend the course. A candidate who has previously completed a course with a grade E or below may alternatively, be permitted during the following session only to sit the examinations in the course (normally during a period of suspension from full-time study) without reattendance at classes therein.

4. DEPARTMENTAL INSTRUCTIONS

Candidates shall be required to comply with such departmental instructions as are prescribed by the Head(s) of Department(s) concerned. Such instructions may require candidates:

- (a) to attend specified lectures, tutorials, laboratory or practical sessions, field trips, examinations, and other meetings
- (b) to provide themselves with books, equipment, and other materials as are necessary for the course concerned
- (c) to submit items of work, including essays, reports, and dissertations, by such dates as may be instructed.

All such instructions shall be communicated to the candidates in writing at the start of the course concerned. Reasonable notice of any alteration to such instructions shall be given. Under the provisions of Regulation 5(b), a candidate who fails to comply with departmental instructions may be deemed not to have met the requirement for the award of credits.

5. ASSESSMENT

(a) *Assessment Methods*

A course may be assessed by examination paper(s), by dissertation, by coursework (including practical work, reports, and essays), by any other method approved by the Faculty, or by any combination of these methods.

The assessment method(s), and the weight accorded to each component of the assessment, shall be specified in the Course Documentation.

(b) *Minimum Requirement for the Award of Credits*

The minimum requirement for the award of credits for a course shall be specified by a department and given to students in writing at the beginning of the course (module). This requirement shall normally include a specified minimum level of compliance with departmental instructions in terms of attendance and completion of work and a specified minimum level of performance in assessed work and examinations including the end-of-course examination (if any). Normally no grade or credits shall be awarded to a candidate who does not meet this minimum requirement. A candidate shall be refused admission to an end-of-course examination only if his or her level of compliance with departmental instructions and level of performance in assessed work and examinations prior to the end-of-course examination is such that the candidate could not be awarded at least a grade G for the course (module) whatever the level of performance in the end-of-course examination.

(c) *Exemption from the end-of-course Examination*

For courses where there is an end-of-course examination, departments may specify that students who have attained the specified minimum level of compliance with departmental instructions in terms of attendance and completion of work and a specified level of performance in assessed work and examinations other than the end-of-course examination, may be exempted from the end-of-course examination and awarded a grade on the basis of the work and examinations completed.

(d) *Grades*

Each candidate who has satisfied the minimum requirement for the award of credits for a course shall be awarded a grade. He or she shall earn the specified number of credits for the course, and a number of grade points which shall be the product of the number of credits and the grade points per credit according to the following table.

Each candidate who has not satisfied the minimum requirement for the course shall earn nothing.

The meaning of each grade and the corresponding number of grade points shall be as follows:

<i>Grade</i>	<i>Grade Descriptor</i>	<i>Grade points (per credit)</i>
A++	Excellent	20
A+	Excellent	18
A	Excellent	16
B	Very Good	14
C	Good	12
D	Satisfactory	10
E	Fair	8
F	Poor	6
G	Very Poor	2

The grades of A++ and A+ are awarded only in courses of Level 3 and above and are not used in Levels 1 and 2.

(e) *Grade Point Averages*

Each candidate's grade point average is defined to be the ratio of total grade points to total credits, calculated over all graded courses completed by the candidate.

(f) *Resit Examinations*

Candidates shall normally be required to sit any end-of-course (module) examination for a course (module) at Level 1, Level 2 or Level 3 at the first available diet after completion of the course. A candidate who does not attend that examination at the first diet, without good cause, shall for the purposes of these regulations have the same entitlement as a student who attends the examination and is awarded a zero mark.

A candidate who is awarded a Grade A, B, C or D after the first diet of the end-of-course (module) examination for a course (module) at Level 1, Level 2 or Level 3 will not normally be allowed to resit the examination. Any other candidate entitled to sit the end-of-course examination shall be entitled to resit the examination at the next available diet. He or she shall be awarded the higher of the two grades resulting from the first sitting of the examination and the resit examination.

6. DEGREE OF BACHELOR OF SCIENCE IN NAUTICAL SCIENCE

(a) *General Requirements*

A Candidate for the Degree of Bachelor of Science in Nautical Science must have completed the courses as prescribed in the Regulations for Courses and satisfied all of the following requirements:

- (i) 360 credits or, if exempted from Year 1, courses totalling at least 240 credits;

- (ii) at least 240, or 180 credits respectively at grade D or better;
- (iii) a Grade Point Average of at least 10 or better in the 360 or 240 credits respectively of courses;
- (iv) a Grade Point Average of 10 or better in the best 120 credits of courses above Level 1.

(b) *Award of Degree with Merit or Distinction*

The Degree of Bachelor of Science in Nautical Science shall be awarded with merit if the candidate has a grade point average in requirements (iii), and (iv) above of at least 12 or with distinction if the candidate has a grade point average of at least 14 or as otherwise determined by the Board of Examiners.

(c) *Continuation in the Curriculum*

In each of Years 1 and 2 the requirements for continuation in the curriculum are achievement of a grade point average of at least 10 together with minimum grade of E in every subject. A minimum grade D is required in all prerequisite courses to progress to the next stage of the course.

7. DIPLOMA IN HIGHER EDUCATION (NAUTICAL SCIENCE)

To qualify for the Diploma in Higher Education (Nautical Science), the candidate must satisfy the following requirements:

- (i) the candidate must have completed courses totalling at least 240 credits, or if exempted from year 1, at least 120 credits, including in both cases at least 60 credits above Level 1.
- (ii) the candidate must have a Grade Point Average of at least 8.5.

8. CERTIFICATE IN HIGHER EDUCATION (NAUTICAL SCIENCE)

To qualify for the Certificate in Higher Education (Nautical Science), the candidate must satisfy the following requirements:

- (i) the candidate must have completed courses totalling at least 120 credits.
- (ii) the candidate must have a Grade Point Average of at least 8.5.

9. PROGRESS REQUIREMENTS

- (a) Students progress is reviewed annually.
- (b) Full-time students admitted to the first year will normally cease to be candidates for the degree if they have not:
 - (i) within one year of the date of their admission achieved at least a grade of D for 50% of the course credits for that year;
 - (ii) within two years of the date of admission have completed all courses of the first year and achieved at least a grade of D for 50% of the course credits for that year;

- (iii) within three years of the date of admission have completed all courses of the second year and achieved at least a grade of D for 50% of the course credits for that year and a minimum of grade E for all first, and second year courses;
 - (iv) in any year of full-time study after the first achieved a grade of D in 50% of course credits.
- (c) Full-time students admitted directly to the second year will normally cease to be candidates for the degree if they have not:
- (i) within one year of the date of admission achieved a grade of D for 50% of course credits for that year;
 - (ii) within two years of the date of admission have completed all courses of the second year and achieved at least a grade of D for 50% of the course credits for that year and a minimum of grade E for all second year courses.
- (d) Part-time students will normally cease to be candidates for the degree, if in any year of study, they have achieved a Grade Point Average of less than 6.
- (e) Every candidate must normally obtain the Certificate of Basic IT Competence in his or her first year of study in order to progress to subsequent years.
- (f) Students in any year of study, whether it be full-time or part-time or of enrolment for examinations only or any combination thereof, will normally cease to be candidates if they have not passed all subjects of repeated study in that year.

10. EXEMPTION FROM COURSES ON THE BASIS OF PREVIOUS STUDY

A student may be admitted directly into the second year, and exceptionally be exempted from second and/or third year courses in whose curriculum he or she is already qualified or experienced, if:

- (i) he or she has obtained 120 appropriate credits from study at Glasgow University or another University or Institute of Higher Education or equivalent;
- (ii) it is possible to arrange for him or her to attend and be examined in those courses of the first year curriculum in which he or she is not already qualified.

SUBJECTS OF STUDY

Those subjects taught at the Glasgow College of Nautical Studies are marked with an asterisk (*).

*Credits**Year 1**Compulsory Courses*

Introduction to Marine Engineering 1 *	10
Introduction to Shipping 1 *	10
Macroeconomics E1	10
Marine Design Concepts 2	10
Marine Navigation 1 *	20
Mathematics E1P	10
Mathematics E1Q	10
Naval Architecture & Marine Vehicles 1	10
Professional Studies 1 *	10
Shipboard Operations 1 *	20
Total credits in Year 1	120

In addition all students must gain the Certificate of Basic IT Competence in their first year of attendance.

*Credits**Year 2**Compulsory Courses:*

Electronic Navigation Systems 2 *	10
Hydrostatics & Stability 2A	10
Hydrostatics & Stability 2B	10
Legislative Aspects of Merchant Shipping 2 *	20
Marine Environment 2 *	10
Marine Management 2 *	10
Mathematics E1R	10
Mathematics E1T	10
Naval Architecture Design Projects 2	10
Shipboard Operations 2 *	20
Total credits in Year 2	120

*Year 3**Compulsory Courses:*

Marine Engineering Systems 3	10
Maritime Economics 2 *	10
Maritime Law 3 *	10
Operational Aspects of Ship Stability & Strength 3	20
Port Operations 3 *	10

	<i>Credits</i>
Project & Dissertation 3	30
Ship Safety Management 3 *	10
Voyage Planning 3 *	20
 Total credits in Year 3	 120

XIII CODE OF PROCEDURE FOR APPEALS IN NAUTICAL SCIENCE

1. Preamble

The Senatus of the University of Glasgow has agreed with the Principal of Glasgow College of Nautical Studies that a joint procedure be established to dispose of appeals by students following courses which are taught wholly or partly in Glasgow College of Nautical Studies, and which lead to the awards of the University of Glasgow. The validity of this procedure has been accepted by the Senatus of the University and the Academic Board of the College.

2. Composition of Joint Appeals Committee

1. The Academic Board of Glasgow College of Nautical Studies shall establish a Joint Glasgow College of Nautical Studies/University of Glasgow Appeals Committee (hereafter referred to as the Committee).
2. Full powers for deciding appeals are vested in the Committee.
3. The Committee shall consist of the Academic Registrar (Convener) of Glasgow College of Nautical Studies or his or her nominee, the Head of Faculty of Maritime Studies or his or her nominee, the Dean of the Faculty of Engineering or her/his nominee, Heads of appropriate Schools or Departments, and members of the Joint Board for Nautical Science. Exceptionally, the Committee shall have powers to co-opt up to one member of Senate and one member of Academic Board. Where a case in question involves a course taught partly in the University, there shall be at least two University members serving on the Committee.
4. Where a member of the Committee has participated directly in the decision appealed against, that member shall not sit for the individual appeal. No member of the Senate Appeals Committee or of the University Court shall be entitled to serve on the Committee.
5. The quorum of the Committee shall be 5.

3. Grounds for Appeal

1. Assessment

Appeals will not be entertained against marks or decisions of examiners, or other matters of academic judgement, but only on grounds of unfair procedure or medical evidence, namely:

- (a) that there is new information that for good and proper reason was not available to the Board of Examiners at the time when it reached its decision on a particular student;
- (b) that the conduct of an assessment was not in accordance with the approved regulations for the course;
- (c) that the candidate was given misleading written information concerning the nature of an assessment and its requirements.

An appellant who wishes to appeal on grounds of medical or other adverse personal circumstances against a decision reached by a Board of Examiners is referred to The Incomplete Assessment and Good Cause section of the Code for Examinations, published in the Fees and General Information section of the University of Glasgow Calendar.

2. Progress

1. The Academic Standards Committee of Glasgow College of Nautical Studies and the Joint Board for Nautical Science have given authority to deal with student progress to the relevant Progress Sub-Committees. Any appeal by a student against the application of the published Progress Regulations shall be heard by the relevant Progress Sub-Committee.
2. An appellant who wishes to appeal on grounds of medical or other adverse personal circumstances against the application of published progress regulations, should obtain a medical report or a report on the other adverse circumstances and should submit it to Convener of the Progress Sub-Committee with the note of appeal.
3. Where a student whose progress has been found unsatisfactory by the Sub-Committee wishes to present new evidence which could not reasonably have been given earlier, the matter will be referred again to the Progress Sub-Committee.
4. The Joint Appeals Committee will entertain an appeal by a student against the decision of a Progress Sub-Committee only on the grounds that:
 - (a) there has been defective procedure at the level of the Progress Sub-Committee;
 - (b) the disposal by the Progress-Sub Committee was clearly unreasonable.

4. Lodging of an Appeal

1. An appeal by a student will not be entertained once that student has graduated; he or she is deemed to have accepted, by graduating, the recommendation of the Board of Examiners.
2. A student who wishes to appeal on progress must do so in writing to the Convener of the Progress Sub-Committee within fourteen days following the intimation or publication of the decision appealed against.

3. A student who wishes to appeal in respect of assessment must do so in writing to the Principal of Glasgow College of Nautical Studies, through the Academic Registrar, within fourteen days following the intimation or publication of the decision appealed against.
4. The note of appeal (to either the Convener of the Progress Sub-Committee or to the Principal) must include:
 - (a) the name, address and telephone number of the appellant;
 - (b) all the grounds on which the student considers that the decision should be changed (no other grounds will be admissible in the disposal of the appeal);
 - (c) the remedy, or remedies, which the student seeks;
 - (d) whether the student wishes to make oral representation at any hearing which may be held;
 - (e) whether the student intends to be assisted or represented by any person, the name and occupation of that person.

An appellant who wishes to appeal on medical grounds should obtain an appropriate medical certificate or medical report promptly and submit it with the note of appeal, and certainly no later than the date of the hearing.

5. Preliminary Disposal: Appeals in respect of Assessment

Upon receipt of a written appeal the Principal or her or her nominee, after consultation with two other members of the Joint Appeals Committee, may make a preliminary disposal which may result in:

- (a) dismissal of the appeal because the appeal is out of time, or provides no competent grounds for appeal;
- (b) referral of the appeal to a full meeting of the Joint Appeals Committee, whereupon the Convener may take such other interim action as he or she deems appropriate;
- (c) referral of the appeal to the relevant Progress Sub-Committee.

6. Consideration of an Appeal by the Joint Appeals Committee

1. The Committee will meet within twenty days after receipt of an adequate note of appeal, or as soon as possible thereafter.
2. The appellant shall be offered a hearing by the Committee if he or she so requests; otherwise there will not be a hearing unless the Convener decides that a hearing is desirable in the circumstances.
3. When there is to be a hearing the Academic Registrar shall:
 - (a) inform the appellant in writing of the date, time and place thereof;

- (b) request the appellant to name any person(s) from whom he or she wishes the Committee to take evidence. The Academic Registrar shall communicate the names of these persons to the Chairperson of the Board of Examiners or the Chairperson of the Progress Sub-Committee. The Academic Registrar will also inform all such persons of the arrangements for the hearing and invite their attendance.
4. Where the appeal is against a decision of the Board of Examiners, the Academic Registrar shall, on the instructions of the Convener, indicate to the Chairperson of that Board the nature of the appeal and offer the Board an opportunity to present evidence. Where this is to be done the appellant will be informed of the names of any persons appearing to present evidence.
5. The Committee may dispose of the case notwithstanding the failure of any person(s) concerned to appear.
6. The Academic Registrar shall, on the instructions of the Convener, ask the appropriate persons (eg the Chairperson of the Board of Examiners) for a statement of the grounds on which the decision appealed against was reached. It also should be made clear what evidence was available to the Board of Examiners in reaching its decision. If the Chairperson of the Board wishes any part of his or her submission to be regarded as confidential, then this should be submitted separately.
7. The Academic Registrar shall place before the Committee all reports relevant to the appeal. If there is a hearing, copies will be made available to the appellant unless any report is certified by the Convener as being confidential. The Committee may found its decisions upon a confidential report only if the substance thereof has been explored with the appellant, if present.

7. Procedure for the Hearing

1. The normal procedure at a hearing will be as described in the paragraphs which follow, but the Committee may adapt the procedure if it considers that an alternative arrangement would be more fitting in the circumstances.
2. The Committee shall examine the appellant and invite him or her to make an opening statement, or to have a statement made on his or her behalf. Thereafter the Committee shall:
 - (a) proceed to examine any person(s) called by the appellant and any person(s) who, in the view of the Convener, might contribute to the consideration of the appeal, and shall afford the appellant or his or her representative the opportunity to question, through the Committee, those persons;

- (b) consider all relevant reports and information;
 - (c) afford the appellant an opportunity to make a final statement, or to have one made on his or her behalf.
3. At any stage it shall be competent for the Committee to adjourn the hearing if it considers this to be necessary.

8. Disposal

1. The Committee shall decide the matter at the conclusion of its consideration of the appeal or as soon as possible thereafter.
2. It may decide by a majority.
3. If it upholds the appeal, the Committee shall order whatever remedy it deems appropriate in the circumstances.
4. The Academic Registrar, on the instructions of the Convener, shall intimate the decision in writing to the appellant and to the relevant Joint Board or Academic Standards Committee.
5. In its report to the Joint Board or Academic Standards Committee, the Committee may wish to include any recommendations related to the matter which has given rise to the appeal.

9. Further Review

An appellant who is dissatisfied with the decision of the Joint Appeals Committee shall have the right of further appeal to the University Senate. A copy of the Code of Procedure for Appeals to Senate can be found in the Fees and General Information section of the University of Glasgow Calendar.

The Senate Appeals Committee will entertain an appeal against the Joint Appeals Committee only on the grounds that:

- (a) new evidence has emerged which could not reasonably have been produced to the Committee;
- (b) there has been defective procedure at the Joint Appeals Committee level;
- (c) the disposal of the Joint Appeals Committee was clearly unreasonable.

© *University of Glasgow 2001*

*Typeset by AFS Image Setters Ltd, Glasgow
Printed by Bell & Bain Ltd, Thornliebank, Glasgow G46 7UQ*