

Calendar 2003-04



FACULTY OF ENGINEERING

DEAN: Professor John W Hancock BSc PHD

DATES OF SEMESTERS

Semester 1: 30th September 2003 - 23rd January 2004

Christmas Vacation: 22nd December 2003 - 9th January 2004

Semester 2: 26th January 2004 - 4th June 2004

Spring Vacation: 22nd March 2004 - 9th April 2004

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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 Student Recruitment and Admissions Service, University of Glasgow, Glasgow G12 8QQ, Scotland. Information is also available on the web at <http://www.gla.ac.uk/>.

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 AND BACHELOR OF SCIENCE IN ENGINEERING

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 Naval Architecture and Ocean Engineering (see *Calendar* section GSA and University of Strathclyde *Calendar* for Resolutions for these degrees).

The degrees of Master of Engineering (MEng), Bachelor of Engineering (BEng) and Bachelor of Science in Engineering (BSc) are governed by a Resolution of the University Court which at the date of going to press has not come into effect. The provisions of the Resolution are as follows:

1. The degrees of MEng, BEng and BSc Honours in Engineering (BSc(Hons)) may be conferred by the University of Glasgow in the Faculty of Engineering as a degree in such designations as may be prescribed by Regulations.
2. The Senate will make Regulations governing the award of the degrees which are subject to the approval of the University Court. These shall be stated under 'Regulations' below.
3. The degree may also be offered as the Ordinary Degree of BSc in Engineering (BSc(Ord)). The early exit awards of Diploma of Higher Education in Engineering Studies (DipHE(Engineering Studies)) and Certificate of Higher Education in Engineering Studies (CertHE(Engineering Studies)) are also included in the Regulations.

Regulations

1 Duration of Degree Study

1.1 Study in the University of Glasgow

The minimum period of full-time study for the degrees and other qualifications shall normally be as follows:

- (i) MEng - five sessions.
- (ii) BEng or BSc(Hons) - four sessions.
- (iii) BSc(Ord) - three sessions.
- (iv) DipHE (Engineering Studies) - two sessions.
- (v) CertHE(Engineering Studies) - one session.

The total attendance of part-time students must be equivalent to these requirements.

1.2 Recognition of Study in other Faculties, Universities and Institutions of Tertiary Education and secondary level qualifications

1.2.1 Admission to MEng

Admission to the Degree of MEng 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 BEng. Transfer to the MEng Degree shall take place not later than at completion of the third year of the curriculum 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.

1.2.2 Exemptions on Entry

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.

Exemption may be granted on the following terms:

- (i) Candidates who have satisfied the entrance requirements 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 120 credits if they are qualified in any one of the following ways:
 - (a) 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.)
 - (b) He or she has obtained, at a normal first presentation for the General Certificate of Education (GCE) Advanced level or SQA Advanced Higher examination, appropriate qualifications and grades in Mathematics, Physics and one other approved subject;
 - (c) He or she has obtained such other qualification as may be approved by the University Court on the recommendation of Senate. (A Higher National Diploma or Certificate with satisfactory passes and/or endorsements in approved subjects will be accepted for this purpose.)
- (ii) Candidates who have satisfied the entrance requirements 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 240 credits if they are qualified in any one of the following ways:
 - (a) 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;
 - (b) Possession of such other qualification as may be approved by the University Court on the recommendation of the *Senatus*.
- (iii) Every candidate for exemption may be required to attend and perform satisfactorily special courses held prior to the commencement of the session unless excused there from by virtue of previous work in the subject. Special courses include classes in Drawing, Computing and subject-orientated courses (e.g. Civil Engineering).

To qualify for any award, candidates with exemptions on entry must spend a minimum of one year in an approved course of study at the University of Glasgow and to qualify for Honours they must successfully complete years 3 onwards of a University of Glasgow curriculum.

1.2.3 Credit Transfer Schemes

A candidate may be admitted from 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 Degrees of MEng, BEng or BSc(Hons) in Engineering.

To qualify for any award, candidates under recognised credit transfer schemes must spend a minimum of one year in an approved course of study at the University of Glasgow. To qualify for BEng or BSc(Hons), candidates in this category must successfully complete year 4 of the curriculum at the University of Glasgow. To qualify for MEng, candidates in this category must successfully complete years 4 and 5 of the University of Glasgow curriculum and at least one of these years must be at the University of Glasgow.

2 General Structure and Assessment of Degree

2.1 General and Course Admission Requirements

Subjects in which the degrees may be awarded are listed in section 4.3.

The curricula for the degrees and other qualifications shall be made up in accordance with the **Regulations for Courses** that are laid out in Departmental Undergraduate Student Handbooks.

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

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

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.

2.2 Pre-requisites and Co-requisites

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 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.

2.3 Approval of Curricula

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.

2.4 Minimum Requirement for the Award of Credits

The minimum requirement for the award of credits for a course shall be specified by the Department concerned, and given to candidates in writing at the beginning of the course. 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 has not met 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 would lead to the result of Grade N (no credit), no matter what level of performance was achieved in the end of course examination.

2.5 Assessment

Regulations for assessment are governed by the Code of Assessment, which is contained in the General Information and Fees section of the Calendar.

A candidate 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.

The final Honours assessment will be based only on the results from the first attempt at courses in year 3 and above, except on medical or compassionate grounds. Students may, however, repeat year 3 assessments with a view to improving their level of proficiency or to meet the progress regulations.

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.

2.6 Re-assessment in a Module

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.

Re-assessments should normally take place at the first available opportunity.

No student may be assessed on any course more than four times (initial assessment plus three re-assessments).

No candidate for honours may be assessed more than twice on any level 3 course, or more than once on any level 4 or 5 course.

Level 4 and 5 courses have no resit examinations.

3 Progress of Students

3.1 Progress Rules

3.1.1 All Candidates

The progress of all students in their chosen curriculum is reviewed annually. Where a degree is awarded by more than one Faculty, candidates must also satisfy the relevant progress regulations of the other Faculties concerned.

Students who fail to satisfy the requirements for progress on the degree for which they are registered will also have their performance reviewed in terms of the progress regulations for other degrees under the Resolution specified at

the beginning of these Regulations; and may, in the light of this review, be transferred from one programme to another (e.g. MEng to BEng).

At any stage, a student who fails to meet the progress regulations will be considered for the early exit awards of Dip. H.E. and Cert. H.E.

To remain matriculated for any degree, a student must:

- (i) in the preceding session, achieve a grade point average of at least 10 over courses corresponding to
 - 60 credits for full time students, or
 - half the credits studied for part time students;
- (ii) not exceed the permitted maximum number of re-assessments as stipulated in section 2 of these regulations;
- (iii) normally have obtained the Certificate of Basic IT Competence in his or her first session in order to progress to subsequent sessions of study and to qualify for any award covered by these regulations.

3.1.2 Candidates for BEng or BSc(Hons)

In addition to the foregoing requirements, a candidate for BEng or BSc(Hons) must reach the following standard in the preceding year of the curriculum¹ in order to progress to the next year of the curriculum¹:

- (i) at least a grade E in all courses;
- (ii) a grade point average of at least 10.

Students who fail to satisfy progress requirements (iv) and/or (v) may not proceed to the next year of the curriculum. Such students must repeat courses if permitted or will be transferred to the BSc(Ord) curriculum.

3.1.3 Candidates for MEng

In addition to the foregoing requirements, a candidate for MEng must reach the following standard in order to progress to the next year of the curriculum:

- (iii) achieve a grade point average of 13 in the preceding year of the curriculum¹.

A student who fails to meet the progress requirement at entry to years 2, 3 or 4 will be considered for the corresponding BEng or BSc(Hons) programme.

A student who fails to meet the progress requirement at entry to year 5 will be required to complete any missing components of the corresponding BEng or BSc(Hons) programme and will then be considered for the degree of BEng or BSc(Hons) in the normal way².

A student who fails to complete the curriculum of year 5, or whose overall performance falls below the standard required for the MEng degree, will be required to complete any missing components of the corresponding BEng or BSc(Hons) programme and will then be considered for the degree of BEng or BSc(Hons) in the normal way³.

Any student who is transferred to a BEng or BSc(Hons) programme must complete any missing components within one further year of study⁴.

3.2 Administration of progression (Progress Committee)

Faculty has devolved decisions on progress to **Departmental Progress Committees** who will meet as soon as possible after the results are available. Following the progress committee, students will be informed in writing by Departments if they are not being allowed to progress on their chosen programme of study. Departments will inform such students of their right to appeal and advise them to contact their Adviser of Studies for help with this process, should they wish to do so.

3.3 Appeals against Decisions relating to Progress of Students

3.3.1 Appeals against Decisions made by Departmental Progress Committees

Departmental Appeals Committees will meet to consider all appeals against the decisions of the Departmental Progress Committees. Appeals will not be entertained against decisions of the progress committee based on the evidence supplied to them, but only on grounds of unfair procedure or because new medical or other evidence has become available. Following the Departmental Appeals Committee, students will be informed in writing by Departments of the outcome of their appeal. If it has been unsuccessful, Departments will inform the student of their right to appeal to the Faculty Appeals Committee and advise them to contact their Adviser of Studies for help with this process.

¹The year of the curriculum is not necessarily the same as the courses studied in the year (session) of attendance, particularly for part time students.

²Such students have already completed the requirements for the BSc(Ord) degree but in many cases the fourth year of the MEng curriculum does not include all the components required for the BEng or BSc(Hons) curriculum, notably an individual project. Thus such students cannot be guaranteed a BEng or BSc(Hons) degree without further study.

³ A student who has completed the MEng project to a satisfactory standard may not need to take any further courses, but a student who fails to complete the MEng project may have to undertake a project for BEng or BSc(Hons) if the work completed for the MEng project does not reach the standard required for BEng

⁴If only the project is involved (most likely), this can often be completed over the summer.

3.3.2 *Appeals against Decisions made by Departmental Appeals Committees*

The **Faculty Appeals Committee** will follow the procedures laid down in the Faculty Appeals Code in the General section of the Calendar.

4 Specific Structure of the Degree and Sub-Degree Awards

4.1 Minimum Requirements for the awards

4.1.1 MEng, BEng and BSc(Hons)

Candidates for the degrees of MEng, BEng and BSc(Hons) must complete courses totalling at least 480 credits for the Bachelor's degrees and at least 600 credits for the Master's degree. Subjects in which the degrees may be awarded are listed in section 4.3 and curricula are laid out in Departmental Undergraduate Student Handbooks.

There shall be four classes of Honours as follows for the Degrees of MEng, BEng and BSc(Hons) in Engineering, to be called the First, Upper Second, Lower Second and Third Classes, respectively. The Second Class of Honours shall be divided into two divisions (Upper Second and Lower Second). The degrees may also be awarded as Unclassified Honours Degrees. Candidates failing to meet the minimum requirements for the Degree of MEng may be considered for any classification of the BEng or BSc 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.

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 BEng and of the Degree of BSc with Honours in Engineering and the courses of Years 3, 4 and 5 of the Degree of MEng 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 Undergraduate Student 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 Undergraduate Student 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.

4.1.2 Pass Degree

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

4.1.3 BSc(Ord)

A candidate for the Degree of BSc(Ord) must satisfy the following minimum requirements:

- (i) Courses must be completed with a grade point average of at least 10 over 360 credits, including any compulsory courses.
- (ii) Courses at Level 3 or above, including any compulsory courses, must be completed with a grade point average of at least 10 over:
 - 80 credits for a single subject, or
 - 40 credits in each of the two subjects for a joint subject.

Compulsory courses for each subject and any other special requirements are specified in Departmental Undergraduate Student Handbooks. This Degree may be awarded with Merit if the candidate has a grade point average of at least 12, or with Distinction if the candidate has a grade point average of at least 14, over each of the minimum sets of credits specified in requirements (i) and (ii).

This Degree is offered in the same subjects as those listed for Honours Degrees.

4.1.4 DipHE(Engineering Studies)

To qualify for the DipHE, the candidate must satisfy the following requirements:

- (i) Successful completion of or exemption from courses corresponding to at least 240 credits.
- (ii) Successful completion of courses above Level 1 corresponding to at least 90 credits.
- (iii) At least 120 of the credits must correspond to courses in Engineering subjects.
- (iv) Candidates with no exemptions at entry must achieve a Grade Point Average of at least 8.5 over at least 240 credits.
- (v) Candidates awarded credit at entry under the provisions of section 1.2 must achieve a Grade Point Average of at least 8.5 over at least 120 credits obtained on the basis of courses completed at the University of Glasgow.

This Diploma is offered only in Engineering Studies. There are no designated diplomas.

4.1.5 CertHE(Engineering Studies)

To qualify for the CertHE the candidate must satisfy the following requirements:

- (i) Successful completion of courses totalling at least 120 credits.

- (ii) At least 60 of the credits must be in courses in Engineering subjects.
- (iii) Candidates must have a Grade Point Average of at least 8.5 over at least 120 credits obtained on the basis of courses completed at the University of Glasgow.

This Certificate is offered only in Engineering Studies. There are no designated certificates.

4.2 Placement, Year Abroad

- (i) Courses to a maximum of 20 credits, as deemed appropriate by the Faculty of Engineering, may count as part of the overall requirements of a minimum graduating curriculum if they have been obtained from a course of study in another institution of higher education, provided that the Senate is satisfied that the standard of the courses for which they were awarded is equivalent to that of courses at the same level in the Faculty of Engineering of this University.
- (ii) The final year of an Honours curriculum must follow a University of Glasgow curriculum and must be assessed by the University of Glasgow.
- (iii) A candidate 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 assessed abroad as contributing towards the qualification of MEng, BEng or BSc(Hons) in Engineering. This regulation does not overrule regulation (ii) above.

4.3 Designated Degrees

Full details of the curriculum for each Degree Programme are provided in the appropriate Undergraduate Student Handbook (available from each Department) and must be read in conjunction with this Calendar.

Listed here are all the available Honours Degrees. BSc(Ord) may also be awarded in the same subjects.

4.3.1 Aeronautical Engineering

MEng in:

- Aeronautical Engineering
- Avionics

BEng in:

- Aeronautical Engineering
- Avionics

4.3.2 Civil Engineering

MEng in:

- Civil Engineering
- Civil Engineering with Architecture

Bachelor of Engineering in:

- Civil Engineering
- Civil Engineering with Architecture

BSc(Hons) in:

- Environmental Design

4.3.3 Electronics and Electrical Engineering

MEng in:

- Electronics and Electrical Engineering
- Audio and Video Engineering
- Microcomputer Systems Engineering
- Electrical Power Engineering
- Electronic and Software Engineering
- Avionics (administered by the Department of Aerospace Engineering)

MEng (European) in:

- Electronics and Electrical Engineering
- Audio and Video Engineering
- Microcomputer Systems Engineering
- Electrical Power Engineering
- Electronics with Music
- Avionics (administered by the Department of Aerospace Engineering)
- Electronic and Software Engineering
- Electronic Engineering and Physics

Accelerated entry to MEng and MEng (European) in:

- Electronics and Electrical Engineering
- Audio and Video Engineering
- Electrical Power Engineering

BEng in:

- Electronics and Electrical Engineering
- Audio and Video Engineering
- Microcomputer Systems Engineering
- Electrical Power Engineering

Electronics with Music
Avionics (administered by the Department of Aerospace Engineering)
Electronic and Software Engineering
Electronic Engineering and Physics

4.3.4 Mechanical Engineering

MEng in:

Mechanical Engineering
Mechanical Engineering - Accelerated Route
Mechanical Engineering (European Curriculum)
Mechanical Engineering (European Curriculum) - Accelerated Route
Mechanical Engineering with Aeronautics
Mechanical Engineering with Aeronautics - Accelerated Route
Mechanical Engineering with Electrical Engineering
Mechanical Engineering with Electrical Engineering - Accelerated Route
Mechanical Design Engineering
Mechanical Design Engineering - Accelerated Route

BEng in:

Mechanical Engineering
Mechanical Engineering (European Curriculum)
Mechanical Engineering with Aeronautics
Mechanical Engineering with Electrical Engineering
Mechanical Design Engineering

BSc(Hons) in:

Mechanical Engineering
Mechanical Engineering (European Curriculum)
Mechanical Engineering with Aeronautics
Mechanical Engineering with Electrical Engineering
Mechanical Design Engineering

4.3.5 Specialisation in 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 a list of Selected Subjects available in the appropriate Departmental Undergraduate Student Handbook.

4.3.6 Naval Architecture and Ocean Engineering

In August 2001, the Department of Naval Architecture and Ocean Engineering, University of Glasgow and the Department of Ship and Marine Technology, University of Strathclyde merged to form the Department of Naval Architecture and Marine Engineering. The regulations for Degree Programmes and Higher Degrees offered by the merged Department apply to students who commenced study after October 2001 and are detailed in the University of Strathclyde Calendar. Students registered at the University of Glasgow prior to October 2001, who wish to graduate with a Glasgow degree, should consult the Regulations in the 2001-2002 edition of the University of Glasgow Calendar.

Degree of Bachelor of Science in Nautical Science

Since the merger described above, undergraduate teaching of students of the merged department has taken place on the John Anderson Campus, University of Strathclyde. Students undertaking the Degree of Bachelor of Science in Nautical Science therefore attend courses at the University of Strathclyde and the Glasgow College of Nautical Studies. From Session 2003/04 the Regulations for this Degree Programme are detailed in the Calendar of the University of Strathclyde. Students registered at the University of Glasgow prior to Session 2003/04 should consult the Regulations in the 2002-2003 edition of the Calendar of the University of Glasgow.

4.3.7 Degrees of Bachelor of Technological Education & Bachelor of Technology Studies

From October 2002, students entering the Degrees of Bachelor of Technological Education (BTechEd) and Bachelor of Technology Studies (BTechS) will be matriculated in the Faculty of Education. Students admitted to the Degree before October 2002 will continue to be matriculated in the Faculty of Engineering. Both groups of students should refer to the Faculty of Education section of this Calendar.