

Rules and guidance for the Engineering Council examinations

Level 5 Certificate in Engineering (100/6072/8)
Level 6 Graduate Diploma in Engineering (100/6073/X)
Level 7 Postgraduate Diploma in Engineering (100/6074/1)



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1 Acceptance for admission to the examination

Prospective candidates must be registered for the Engineering Council examinations (9107) before being permitted entry to the Certificate, Graduate Diploma or Postgraduate Diploma examinations. A registration form and information pack may be obtained from Engineering Council examinations department or the relevant branch office, regional representative or centre. Registration is dependant on the academic achievement of the applicant to date. Please refer to the document entitled 'Your educational background'.

Once accepted for registration, the candidate will be issued with confirmation of registration and will be given an enrolment number **which must be quoted in all communications**. Once registered, candidates have three years to enter and take their first examination. If they have not taken an examination after the third available examination period from the time of registration, they are required to re-register.

2 Special candidates

Candidates who already possess qualifications of a higher level that have been considered through their professional institution's Individual case procedure route and that have been informed by their institution that they must additionally pass a limited number of units from Engineering Council examinations (9107), must forward to the Engineering Council examinations department a copy of the official letter bearing this decision along with the registration form and fee. Such candidates must then comply with the requirements of these rules. Please see Appendix 1.

3 Requirements

3.1 The Certificate examination

Candidates must satisfy the examiners in

six units - four compulsory together with two optional units from a list of four
A list of the units is given in Appendix 2.

Each candidate who successfully completes in full the requirements of the Certificate examination will be awarded a certificate showing their success. Only candidates making their first attempt in 2002 onwards are entitled to this award.

3.2 The Graduate Diploma examination

The examination is in two parts. Candidates must satisfy the examiners in

five technical units (a list of the units is given in Appendix 3)

and an individual engineering project report. (Rules in section 15)

Each candidate who successfully completes in full the requirements of the Graduate Diploma examination will be awarded a certificate showing their success. Only candidates making their first attempt in 2002 onwards are entitled to this award.

3.3 The Postgraduate Diploma examination

The examination is in two parts. Candidates must satisfy the examiners in

four technical units – one compulsory unit together with one optional unit from a list of four at Postgraduate Diploma level, plus two units from the Graduate Diploma level. (A list of the units is given in Appendix 4)

and a group engineering project report. (Rules in section 16)

Each candidate who successfully completes in full the requirements of the Postgraduate Diploma examination will be a certificate showing their success. Only candidates making their first attempt in 2003 onwards are entitled to this award.

4 Time limits

There is no time limit for the completion of the Certificate, the Graduate Diploma or Postgraduate Diploma timed examinations or any restriction on the number of attempts that can be made. An attempt at the examination is defined as the receipt and acceptance by City & Guilds of an examination entry form that is not withdrawn by the appropriate official closing date for receipt of entries. Candidates may repeat units in order to improve on a grade previously awarded. There is a time limit set within the project units. Please refer to sections 15 and 16 of this document for information.

Candidates whose ultimate goal is to gain registration in the UK as a Chartered Engineer will need to be a member of a nominated body of the Engineering Council UK (that is, a professional engineering institution) in order to do so and should seek the advice of the most appropriate professional institution as soon as they have decided that the Engineering Council examinations route is the most appropriate way to become academically qualified. The engineering institution may impose restrictions on which units should be taken and/or set a time limit for their completion. For a list of the contact details of the institutions, please see the ECUK website at www.engc.org.uk.

Note also that candidates seeking initial membership with a professional institution or seeking to upgrade their membership may be asked to provide an official statement of their Engineering Council examinations results. Such a statement may be obtained from Engineering Council examinations department by the candidate on submission of the appropriate form and fee and on the understanding that all attempts made and all results gained will be shown.

5 Examination date and centres

The examinations are held annually in May in the United Kingdom, the Republic of Ireland and overseas. Information on available invigilation centres will be provided by the relevant branch office, regional representative or centre.

6 Completion of entry forms

Candidates must complete fully each part of the examination entry form in accordance with these rules and any additional rules and regulations sent with the entry form. Examination entry forms that are completed incorrectly will be returned immediately.

Candidates must insert on the entry form the correct unit numbers of the unit(s) that they wish to enter. At each attempt at the examination candidates may choose the number of units that they wish to enter in accordance with section 3.

7 Timetable of submission of entry forms

It is a candidate's responsibility to ensure that their completed entry form is submitted to the centre of their choice in sufficient time to arrive on, or before, the appropriate closing dates for receipt of entries, which are available from the branch office, regional representative or centre dealing with their entry.

Entry forms must be sent by secure courier service or a registered postal service. Official receipts of posting must be retained, as the branch office, regional representative or centre dealing with the entry will not consider any claim that a form has been overlooked or lost unless proof of posting and of receipt is produced.

Entry forms that are received after the closing date issued by the branch, regional representative or centre dealing with the entry will not be accepted under any circumstances.

The submission of a completed entry form by the candidate is the candidate's acknowledgement that these examination rules have been read and understood. Please refer to Appendix 5.

Special Arrangements can be made for you if you are disabled or have special needs. Let us know if you require special facilities when you submit your exam entry forms by 1 March for the May examinations. Please note that you will need to submit medical evidence confirming the nature of the disability.

8 Withdrawals and absentees

Candidates who notify their centre before the appropriate closing date for receipt of that they are withdrawing from the examination will have the examination fee refunded less an amount to cover administrative costs.

Candidates whose notice of withdrawal is received by the branch office, regional representative or centre dealing with the entry after the appropriate official closing date for receipt of entries or who fail to attend the examinations will not have any part of their entry fee refunded. Please refer to Appendix 5.

9 Changes to centre or units

The branch office, regional representative or centre dealing with the entry will not consider any application from a candidate to change the choice of examination centre or units after the appropriate closing date for receipt of entries. Please refer to Appendix 5.

10 Acknowledgement of entry

Candidates will be given an acknowledgement that their entry has been accepted by their branch office, regional representative or centre. Please refer to Appendix 5.

11 Admission slips

An admission slip will be issued to you by your branch office, regional representative or centre dealing with the entry.

If you have not received your admission slip by **one** week before the examinations, it is your responsibility to notify the branch office, regional representative or centre dealing with the entry giving the following information

- Enrolment number
- Your full name date of birth and postal address

Note that the admission slip cannot be sent to you by email. You should therefore provide an appropriate fax number to which a copy of the admission slip may be sent

You will need to produce the admission slip at every examination you attend. You must not, under any circumstances, write notes on your admission slip.

Candidates must inform the branch office, regional representative or centre dealing with the entry in writing of any changes of address ensuring that their original signature appears in the communication.

12 Sitting the examination

12.1 Entry to the examination room

At each session, when attending the examination hall, candidates must show their admission slip in order to gain entrance to the examination room, together with their passport or a national identity card that bears a recent photograph. Candidates without such documentation will not be allowed to sit the examination. **Candidates arriving at the examination hall more than 30 minutes after the time set for the start of the examination will not be admitted.**

Candidates must not take into the examination room (unless instructed by the Supervisor) any articles such as briefcases, books, notes or written material of any kind. Mobile telephones, pagers and other contact devices **must** be switched off for the duration of the examination.

Candidates may take into the examination room pens, a ruler, protractor, set square, compass, eraser, pencil, pencil sharpener and calculator as long as the paper allows such items. Note that candidates must not use 'tippex' or any similar white-out fluid.

Calculators must be

- must be noiseless in operation;
- battery operated;
- clearly visible on the desk to allow inspection by the Supervisor, whose decision whether to allow a particular calculator to be used will be final.

Candidates must not

- take into the examination a calculator's instruction book;
- use a calculator with an alpha keyboard;
- use dual and multi function calculators with graphic/word display and print out facilities;
- use a programmable calculator under any circumstances, whether pre-programmed or not.

Candidates use solar powered calculators at their own risk entirely.

12.2 Taking the examination

There will be one or more invigilators in the room at all times. Invigilators are responsible for ensuring that the examination is carried out in accordance with the rules of the Engineering Council examination.

Candidates must be quiet at all times so as not to disturb the concentration of other candidates. If a candidate needs to speak to an invigilator, she or he should raise their hand to attract their attention.

The doors will be closed thirty minutes after the start of the examination. Any late candidates arriving after that time will not be allowed entry under any circumstances.

Should a candidate feel unwell and need to leave the examination room temporarily, she or he will be accompanied at all times by an invigilator. Note that no extra time will be given to such a candidate.

Candidates must not smoke in the examination room, nor may they drink or eat, unless for medical reasons. If such reasons exist, the candidate must inform the invigilator at the start of the examination.

At the end of the examination, candidates must stop writing **immediately** when they are instructed to do so by the invigilator. Failure to comply may result in the candidate's paper being invalidated.

It is a candidate's responsibility to ensure that his or her answer books and any graph paper used are properly tied together, that they bear their City & Guilds enrolment number and that the numbers of the questions attempted have been written clearly on the cover.

12.3 Disciplinary matters

Any candidate found cheating, attempting to cheat, or assisting another candidate to cheat, will be reported by the invigilator to the Examination Committee. Such candidates may have their examination result invalidated and be barred from entry to future examinations.

'Cheating' includes but is not limited to

- being in possession of any book, notes or documents at any time during the examination or in circumstances which indicate they could have been used during the examination; this includes notes written on the admission slip. All rough notes must be written in the answer book and crossed through.
- talking to, copying from, or in any way colluding with, another candidate;
- leaving the examination room without the permission of an invigilator;
- removing examination stationery, whether used or blank, from the examination room.

Invigilators have the authority to act in cases where cheating is detected or attempted cheating is suspected. In such a case, the invigilator will

- inform a candidate that she or he must stop writing and either direct the candidate to leave the room or to sit quietly until the end of the examination;
- give the candidate the opportunity to make a statement which will be forwarded, along with the invigilator's report, to the Engineering Council's examination Committee.

Any disciplinary action decided upon will be implemented immediately.

All examination question papers will be set and must be answered in English. Dictionaries are not permitted. Each paper is of three hours' duration.

13 Results

Each unit will be marked out of 100. The result of a candidate's performance in each unit attempted will be indicated by a grade as follows

Mark	Grade*
70+	A Pass
60 - 69	B Pass
50 - 59	C Pass
40 - 49	D Pass
35 - 39	E Fail
34 or less	F Fail

* Note that some Institutions may require a grade higher than the minimum to satisfy their requirements for membership.

Candidates will receive a notification of their result, normally during August.

All results will be recorded on a candidate's examination record.

14 Award of certificates

Candidates will receive a formal award of Certificate, Graduate Diploma or Postgraduate Diploma when they have completed the requirements. Only one official award will be issued for Certificate level, one for Graduate Diploma level and one for Postgraduate Diploma level.

15 Rules for the Graduate Diploma individual project unit

The project on which a report is to be submitted should be experimental or investigatory in nature with associated theoretical treatment.

15.1 Approval for entry

A candidate must be registered as a Graduate Diploma candidate following submission of the registration form.

Entry must be made on the project proposal form, which may be obtained from the Engineering Council examinations department. The applicant must complete this form with an outline description of the objective of the project and the work to be undertaken. This outline must not exceed 200 words.

The completed project proposal form must reach the above department at least 8 months before the intended date of submission of the full report. Engineering Council examinations department will notify candidates of the acceptance or otherwise of the proposal within three months of receipt of the outline description. If the proposal is rejected, a short summary of the reasons will be given and a candidate will have the opportunity to submit a revised proposal.

The submission of a completed project proposal form is the candidate's acknowledgement that the examination rules have been read and understood.

15.2 The report

The report on the project must be submitted in the English language. It must be typewritten on A4 size white paper and securely bound in a folder. The report must not exceed 25 pages including drawings, tables, computer output and appendices. Each and every page of the submission must be signed by the candidate as certification that it is his/her own work. No computer discs etc should be submitted with the report.

Engineering Council examinations department will refuse to consider reports, which exceed the specified length or reports, which are considered to be illegible or ineligible for any other reason.

The candidate must ensure that he/she has the permission of his/her employer to submit the report where this is appropriate. Engineering Council examinations department will not consider reports, which are marked confidential and cannot undertake to maintain confidentiality of the report.

All material on submission becomes and will remain the property of the Engineering Council examinations department. No arrangements can be made for the return of any material submitted.

15.3 Submission of the report

The final report on the project must be submitted to Engineering Council examinations department within two years of the candidate's proposal being approved.

The report must be accompanied by the completed official certifying form which confirms that the work has been undertaken solely by the candidate and that he/she alone is responsible for the report. The Supervisor of the project must countersign this form. This can be the Head of Department of the educational establishment which the candidate has attended or, if the candidate is working in industry and the report is on an industry-based project, by a Chartered Engineer of a UK Institution, or a corporate member of the professional engineering institution of the country of residence.

The candidate must accept responsibility for the submission of the report to the Engineering Council examinations department. Candidates must therefore use appropriate security transport at their own expense.

15.4 Assessment of the report

Engineering Council examinations department reserves the right to require a candidate to attend an oral examination.

The department will notify candidates of the acceptance or otherwise of the project report within four months of receipt of the document.

Unsuccessful candidates will be given brief reasons for the failure.

The decisions of the Engineering Council examinations Committee are final. No correspondence will be entered into regarding the results of the assessment.

15.5 Resubmission

Candidates will be permitted to make a resubmission of their project proposal within twelve months of their previous project proposal not being accepted.

Candidates will be permitted to make a resubmission of their project report within twelve months of their previous project report not being accepted.

Candidates will not be permitted any extension of this time.

Candidates who wish to submit a new report on a different topic must complete and submit a fresh project proposal.

Details of the entry fee will be sent with the appropriate entry form.

If a candidate's initial project proposal is rejected, part of the fee less an administrative charge will be refunded if the candidate decides not to continue with the project report unit.

15.6 Guidance

This document assumes that the rules have been read and understood.

The following paragraphs give useful guidance to candidates in their application, preparation and submission for Graduate Diploma individual project unit. In all instances the published rules take precedence over any statement in this section.

All the information required by the project proposal form must be given but within the limitations imposed by the rules.

The scope of the engineering disciplines is extremely wide. For the purpose of assessing projects, the scope has been divided into six broad groups:

- A. Civil and Structural Engineering
- B. Electrical and Electronic Engineering
- C. Mechanical and Production Engineering
- D. Process Engineering
- E. Transport Engineering
- F. Information Systems Engineering

An applicant must indicate clearly on the proposal form the particular group in which the proposed project should be assessed.

In formulating a project proposal, an applicant may wish to select some of the following headings. The list is not exhaustive nor necessarily in any meaningful order.

- Objectives
- Method or Approach
- Outcome
- Validation
- Problems
- Safety
- Environmental Aspects
- Economic Aspects.

When the examiner approval of the outline description of the objective of the project and the work to be undertaken, it is done only in the sense that it is agreeing that the work proposed, when undertaken under competent supervision, may provide suitable material for the submission of a project report.

No responsibility can be accepted for supervision of the work to be undertaken.

The rules state:

The project on which a report is to be submitted should be experimental or investigatory in nature with associated theoretical treatment.

The purpose of the project is to demonstrate experience in

- a the design and planning of experiments and similar investigations **and/or**
- b the design, construction and operation of equipment and/or numerical models **and in**
- c the critical interpretation of results
- d the use of technical and scientific literature
- e report writing.

The standard of the project report is expected to be similar to that of a project undertaken during the final year of a BEng course leading to a UK degree in an engineering discipline.

Evidence of experimental and/or theoretical ability is sought from the conduct of the work and credit will be given for industry and enterprise as well as for actual achievements. Close attention will be paid to presentation and to clarity and style of the written work. Unless the project is one of exceptional novelty, a survey of the relevant literature should form an important part of the report.

The examiner will expect the project report to take account of any comments made at the time of approving the project proposal.

If the project is not the work of a single applicant, the candidate must indicate clearly in the report those parts of the project for which he/she is solely responsible.

It is expected that the majority of projects will be undertaken in the educational establishment which the candidate attends and will be complementary to the units taken in the Graduate Diploma examination, in many cases being undertaken simultaneously with preparation of the dated units. However, it may be appropriate in some cases for the candidate to submit a report on work undertaken whilst in employment. In such cases, the candidate must ensure that he has the permission of his employer to submit the report where this is appropriate. Reports marked confidential will not be accepted. Engineering Council examinations department cannot undertake to maintain confidentiality of the project report.

It is essential in all cases for candidates to seek the guidance and supervision of a competent person.

It is essential that any experimental work is undertaken in a safe manner, and at all times must follow the precepts of any Health and Safety policy statement of the establishment or organisation in which the candidate is working.

The Report should not exceed a total of 25 pages including drawings, tables, computer output and appendices. This restriction on length should not be thought to minimise the importance of this project unit of the Graduate Diploma examination; rather it is to encourage conciseness of expression and selective presentation of results.

The arrangement and style of papers published in the technical and scientific literature should be studied. Comparing them with one another will help in deciding both what to avoid and what constitutes a suitable type of presentation, viz. one which adequately and concisely describes the work done and at the same time maintains the interest of the report.

In addition to the requirements for the presentation of the project report, it is suggested that the following recommendations are taken into account:

- a The full name of the candidate, the candidate's enrolment number, the place where the project was undertaken, the date of submission and the title of the project should appear on the outside of the folder as well as on the title page.
- b A short abstract including a summary of the purpose and results of the work should be submitted on a separate sheet (included in the report but not bound to it).
- c A page listing the contents, with page numbers, should be included and the text should be sectionalised and sub divided wherever this is helpful.
- d A list of the symbols used should be included on page at the end. It is convenient if this is made to fold outwards.
- e All quotations, facts and opinions from published work should be identified by the name of the author and the date of publication. The collected references should be given in alphabetical order of the first named author.
- f In the case of a Report including computing, flow charts and programme listings are expected and it should be shown clearly how the programmes were tested to ensure that they worked correctly.
- g All diagrams must either be A4 size or less or else folded and bound to fit within the limits of the A4 size
- h The Report should conclude with a short summary including conclusions.

Candidates will be informed as soon as is practicable, after submission whether their report is satisfactory. Normally the Engineering Council examinations department will expect to the assessment of the report to be completed within four months of its receipt.

16 Rules for the Postgraduate Diploma group project unit

The project on which a report is to be submitted should satisfy aspects a) to g) in the Guidelines.

16.1 Approval for entry

A candidate must be registered as a Postgraduate Diploma candidate following submission of the registration form.

Entry must be made on the project proposal form, which may be obtained from the Engineering Council examinations department. The applicant must complete this form with an outline description of the objective of the project, the sequence of work to be undertaken and how aspects a) to g) in the guidelines are to be satisfied and the work of the candidate in the project team. This outline must not exceed 500 words.

The completed project proposal form must reach the above department at least 8 months before the intended date of submission of the full report. Engineering Council examinations department will notify candidates of the acceptance or otherwise of the proposal within three months of receipt of the outline description. If the proposal is rejected, a short summary of the reasons will be given and a candidate will have the opportunity to submit a revised proposal.

The submission of a completed project proposal form is the candidate's acknowledgement that the examination rules have been read and understood.

16.2 The report

The report on the project must be submitted in the English language. It must be typewritten on A4 size white paper and securely bound in a folder. The report must not exceed 40 pages excluding drawings, tables, computer output and appendices. Every page of the submission must be numbered and signed by the candidate as certification that it is his/her own work. No computer discs etc should be submitted with the Report.

Engineering Council examinations department will refuse to consider reports, which exceed the specified length, or reports which are considered to be illegible or ineligible for any other reason.

The candidate must ensure that he/she has the permission of his/her employer to submit the report where this is appropriate. Engineering Council examinations department will not consider reports, which are marked confidential and cannot undertake to maintain confidentiality of the report.

All material on submission becomes and will remain the property of the Engineering Council examinations department. No arrangements can be made for the return of any material submitted.

16.3 Submission of the report

The final report on the project must be submitted to this department within two years of the candidate's proposal being approved.

The report must be accompanied by the completed official certifying form which confirms which work has been undertaken by the candidate and that he/she alone is responsible for the report. The supervisor of the project must countersign this form. This can be the Head of department of the educational establishment which the candidate has attended or, if the candidate is working in industry and the report is on an industry-based project, by a Chartered Engineer of a UK institution, or a corporate member of the professional engineering institution of the country of residence.

The candidate must accept responsibility for the submission of the report to the Engineering Council examinations department. Candidates must therefore use appropriate security of transport at their own expense.

16.4 Assessment of the report

Engineering Council examinations department reserves the right to require a candidate to attend an oral examination.

Engineering Councils examinations department will notify candidates of the acceptance or otherwise of the project report within four months of receipt of the document.

Unsuccessful candidates will be given brief reasons for the failure.

The decisions of the Engineering Council examinations Committee are final. No correspondence will be entered into regarding the results of the assessment.

16.5 Resubmission

Candidates will be permitted to make a resubmission of their project proposal within twelve months of their previous project proposal not being accepted.

Candidates will be permitted to make a resubmission of their project report within twelve months of their previous project report not being accepted.

Candidates will not be permitted any extension of this time.

Candidates who wish to submit a new report on a different topic must complete and submit a fresh project proposal.

Details of the entry fee will be sent with the appropriate entry form.

If a candidate's initial project proposal is rejected, part of the fee less an administrative charge will be refunded if the candidate decides not to continue with the project report unit.

16.6 Guidance

This document assumes that the rules have been read and understood.

The following paragraphs give useful guidance to candidates in their application, preparation and submission for Postgraduate Diploma project unit. In all instances the published rules take precedence over any statement in this section.

All the information required by the project proposal form must be given but within the limitations imposed by the rules.

The scope of the engineering disciplines is extremely wide. For the purpose of assessing projects, the scope has been divided into six broad groups:

- A. Civil and Structural Engineering
- B. Electrical and Electronic Engineering
- C. Mechanical and Production Engineering
- D. Process Engineering
- E. Transport Engineering
- F. Information Systems Engineering

An applicant must indicate clearly on the proposal form the particular and most appropriate group in which the proposed project should be assessed.

In formulating a project proposal, an applicant may wish to select some of the following headings. The list is not exhaustive nor necessarily in any meaningful order.

- Objectives
- Method or Approach
- Outcome
- Validation
- Problems
- Safety
- Environmental Aspects
- Economic Aspects
- Quality centred techniques and procedures.

When the examiner approval of the outline description of the objective of the project and the work to be undertaken, it is done only in the sense that it is agreeing that the work proposed, when undertaken under competent supervision, may provide suitable material for the submission of a project report

No responsibility can be accepted for supervision of the work to be undertaken.

The rules state:

The project on which a report is to be submitted should satisfy aspects a) to g) in the guidelines.

The report should be written in English and its standard is expected to be similar to that of a project undertaken during the final year of a course leading to a UK accredited MEng degree in an engineering discipline. Close attention will be paid to presentation and to clarity and style of the written work.

The examiner will expect the project report to take account of any comments made at the time of approving the project proposal.

If the project is not the work of a single applicant, the candidate must indicate clearly in the report those parts of the project for which he/she is solely responsible.

It is expected that the majority of projects will be undertaken whilst in employment. In such cases, the candidate must ensure that he has the permission of his employer to submit the report where this is appropriate. Reports marked confidential will not be accepted. Engineering Council examinations department cannot undertake to maintain confidentiality of the project report.

It is essential in all cases for candidates to obtain the guidance and supervision of a competent person.

It is essential that any experimental work is undertaken in a safe manner, and at all times must follow the precepts of any Health and Safety policy statement of the establishment or organisation in which the candidate is working.

The Report should not exceed a total of 40 pages excluding drawings, tables, computer output and appendices. This restriction on length should not be thought to minimise the importance of this project unit of the Postgraduate Diploma examination; rather it is to encourage conciseness of expression and selective presentation of results.

The arrangement and style of papers published in the technical and scientific literature should be studied. Comparing them with one another will help in deciding both what to avoid and what constitutes a suitable type of presentation, viz. one which adequately and concisely describes the work done and at the same time maintains the interest of the report.

In addition to the requirements for the presentation of the project report, it is suggested that the following recommendations are taken into account:

- a The full name of the candidate, the candidate's enrolment number, the place where the project was undertaken, the date of submission and the title of the project should appear on the outside of the folder as well as on the title page.
- b Identification of the contribution of all people (including their designation) who are involved in the development of the report.
- c A short abstract including a summary of the purpose and results of the work should be submitted on a separate sheet (included in the report but not bound to it).
- d A page listing the contents, with page numbers, should be included and the text should be sectionalised and sub divided wherever this is helpful.
- e A list of the symbols used should be included on page at the end. It is convenient if this is made to fold outwards.
- f All quotations, facts and opinions from published work should be identified by the name of the author and the date of publication. The collected references should be given in alphabetical order of the first named author.
- g In the case of a report including computing material, flow charts and programme listings are expected and it should be shown clearly how the programmes were tested to ensure that they worked correctly.

- h All diagrams must either be A4 size or less or else folded and bound to fit within the limits of the A4 size
- i The report should conclude with a short summary including conclusions.

Candidates will be informed as soon as is practicable, after submission whether their report is satisfactory. Normally the Engineering Council examinations department will expect to the assessment of the report to be completed within four months of its receipt.

16.7 Postgraduate Diploma projects

1. The guidance on group projects endorsed by the Registration Standards Committee states in paragraph 6 that

Specific aspects that should normally be covered within the group project include the application and integration of:

- a Team working skills (but with the individual being responsible for at least one major part of the project)
- b Multi-disciplinary activities (i.e. across the engineering disciplines)
- c Multi-function activities, where possible (i.e. across the business functions, such as finance, legal, etc)
- d Project management skills and quality control techniques and procedures
- e Written and verbal communication skills (i.e. both to communicate effectively with other project team members and to communicate the results of the project)
- f Industrial relevance (i.e. the 'real world' of the discipline)
- g Industrial involvement (i.e. a 'real' industrial problem)

In all cases the performance of the individual must be assessed.

And in paragraph 7 that:

Where a matching section is undertaken in industry concurrently with Initial Professional Development, or simply during employment in an engineering environment, it is likely that the Group Project can be undertaken as part of the normal employment tasks. Candidates for the Postgraduate Diploma would fall into these categories.

2. The Guidance goes on to state that:

Where a project has to be carried out to satisfy the requirements of the Engineering Council Part 3 (Postgraduate Diploma) examination, it is essential that the above seven aspects are still satisfied. However, in this event, the aspects which need to be 'simulated' and those which are 'real' will be different from those described in the previous section (for university based routes). The requirements could be met in the following ways:

3. It is unlikely that anyone working in industry or commerce will not be working in some form of team. This may be a small or large internal team or may be a self-employed individual working in a 'team' with his/her client. In either case, the team will be 'real' with a real objective and a real customer. The members will have varying experience and the team or project leader will have to develop and use team management and communication skills. The project must have an acceptable amount of engineering content. This situation would satisfy aspects a) to d).

Aspect e) will almost certainly need to be simulated, at least in part. The individual concerned may be the only member of the team who needs to use the project for formal assessment. It will thus be necessary to produce an individual, written project report which will be available for assessment during the Professional Review process, if not before (to complete the requirements for the Postgraduate Diploma).

The report would need to replicate the normal requirements of a university-based project. Firstly, this would be describe and analyse the project aims, design, implementation and results. Secondly, it would analyse the project in terms of its management, quality control and progression; set out the successes and failures and propose alternative improved procedures, etc. Obviously, the report will need to be cleared with the team leader or supervisor of the author.

By definition, a project undertaken in industry should satisfy aspects f) and g).

4. Since the project reports will be the work of an individual, their assessment will relatively straightforward, following similar procedures to those currently followed for the Part 2 (Graduate Diploma) projects. Supporting documentation and authentication would be available from the Supervisor/employer. Involvement of the nominated body at this stage should be possible.
5. The RSC has made an explicit statement in the Guidance as to the acceptability of assessed group project work carried out in employment as a replacement for the simulated project in an academic environment. In many cases, the work-based project could be seen to be advantageous.

16.8 Guidance on group projects

(Endorsed by Registration Standards Committee on 4 May 1999)

Introduction

1. SARTOR 3rd Edition specifies a number of important differences which will exist between an accredited BEng (Hons) course and an accredited MEng course or between an accredited IEng course and an HND course.
2. These are:
 - a Both broader and deeper technical knowledge
 - b Broader coverage of non-technical aspects, such as commercial, management, communication, legal, etc.
 - c A group project, preferably multi-disciplinary

Each of the above requirements must be presented with industrial relevance.

3. For an HND or BEng (Hons) graduate, the above aspects have to be completed by the addition of a Matching Section to the prior educational experience. The Matching Section may be achieved totally or partially by means of a formal course in a university or college; by distance learning, such as through the Open University; by Work Based Learning (WBL), assessed during employment; or by a combination of these.
4. While RSC wishes, as always, to retain variety and flexibility in the routes to Registration, it is necessary to aim for comparable standards. Thus, it is preferable that, whichever of the above routes is to be used, any definition of a Group Project should meet the general requirements and assumptions set out below, both for the Project itself and for demonstrating its industrial relevance.

SARTOR project requirements

5. The required course content for CEng and IEng degrees is specified in SARTOR 1997 Part 2, CEng Section 4.1.1., paragraph 14 and IEng Section 4.1.2., paragraph 12. Much of the required practical awareness of management issues, leadership, risk analysis, environmental factors, etc., can be gained through a Group Project. Similarly, potential professional engineers are able to demonstrate, while working in a team, the ability to be creative, innovative and adaptable in their problem solving.
6. Specific aspects that should normally be covered within the Group Project include the application and integration of:
 - a Team working skills (but with the individual being responsible for at least one major part of the project)
 - b Multi-disciplinary activities (i.e. across the engineering disciplines)
 - c Multi-function activities, where possible (i.e. across the business functions, such as finance, legal, etc.)
 - d Project management skills and quality control techniques and procedures
 - e Written and verbal communication skills (i.e. both to communicate effectively with other project team members and to communicate the results of the project)
 - f Industrial relevance (i.e. the 'real world' of the discipline)
 - g Industrial involvement (i.e. a 'real' industrial problem)

In all cases the performance of the individual must be assessed.

7. Thus, any MEng degree or degree for IEng should satisfy the above requirements. The same will be true in a Matching Section package which must always include a Group Project if the individual's first qualification did not contain one (and see paragraph 8, below). Where a Matching Section is undertaken in industry concurrently with Initial Professional Development, or simply during employment in an engineering environment, it is likely that the Group Project can be undertaken as part of the normal employment tasks.

University-based or College-based projects

8. The Group Project should always occur after the end of the second year of any full-time CEng course and after the end of the first year for a full-time IEng course (or equivalent position in a part-time course). This requirement is to ensure that the project will be at the correct academic level, building on knowledge and skills already acquired. As, realistically, there is usually not time to carry out a Group Project as well as an individual project in the final year of a BEng (Hons) or HND, the Group Project will normally need to be part of a Matching Section, in these cases. If, however, the Group Project **is** designed as part of any formal course, the requirements could be met in the following ways:

9. **Problem** To satisfy items (a) to (d)

Solution Student teams could be established possibly including members from different engineering courses within the Faculty or School and possibly also from business-related courses. The team members will all have approximately the same level of experience, will manage the project themselves and will usually be supervised by an academic staff member. This is thus simulating a real-world project.

10. **Problem** To satisfy item (e)

Solution Formal project reports and presentations will be required as in any academically based project. Some of the assessment will be of the whole group and some will be of each individual.

11. **Problem** To satisfy items (f) and (g)

Solution An appropriate project will be defined and/or approved by academic staff and the industrial aspects may need to be simulated by involving selected industrial or commercial organisations and relevant individuals in the specification of the project. A better solution would be to tackle a real industrial problem, with some supervision by and involvement of the company concerned.

12. **Problem** To provide a robust system of individual assessment.

Solution This would form part of the normal process of 'in course' assessment with the same requirements as for any project in an accredited course.

Work-based projects

13. Where a project has to be carried out to satisfy the requirements of a formal Distance Learning route, such as the OU or Engineering Council Part 3 examination, or as part of WBL, it is essential that the above seven aspects are still satisfied. However, in this event, the aspects which need to be 'simulated' and those which are 'real' will be different from those described in the previous section.
14. Depending on the company size and geographical situation of the individual's employment, the requirements could be met in the following ways:

15. **Problem** To satisfy items (a) to (d)

Solution It is unlikely that anyone working in industry or commerce will not be working in some form of team. This may be a small or large internal team or may be a self-employed individual working in a 'team' with his/her client. In either case, the team will be 'real' with a real objective and a real customer. The members will have varying experience and the team or project leader will have to develop and use team management and communication skills. The project must have an acceptable amount of engineering content.

16. **Problem** To satisfy item (e)

Solution This aspect of the requirements will almost certainly need to be simulated, at least in part. The individual concerned may be the only member of the team who needs to use the project for formal assessment. It will thus be necessary to produce an individual, written project report which will be available for assessment during the Professional Review process, if not before.

The report would need to replicate the normal requirements of a university-based project. Firstly, this would be to describe and analyse the project aims, design, implementation and results. Secondly, it would analyse the project in terms of its management, quality control and progression; set out the successes and failures and propose alternative improved procedures, etc. Obviously, the report will need to be cleared with the team leader or supervisor of the author.

This recommended procedure follows very closely that which runs successfully in high quality sandwich degree programmes where student assessment is a joint procedure between the University and the employer and, often, presentations are given by the student.

17. **Problem** To satisfy items (f) and (g)

Solution By definition, the project undertaken in industry should be able to satisfy these requirements.

18. **Problem** To provide a robust system of individual assessment.

Solution This would need to be provided through a range of means and would certainly require assessment expertise from an academic source, possibly in conjunction with the nominated body. Preferably, supporting documentation and authentication would be available from the employer. In cases where the employer is formally supporting the applicant this will be simpler than where the applicant is acting independently.

Conclusion

19. RSC wishes to make an explicit statement as to the acceptability of assessed group project work carried out in employment as a replacement for the simulated project in an academic environment. In many cases, the work-based project could be seen to be advantageous.

20. Nominated bodies should develop appropriate advice and guidance for academia, employers and potential members, either based on that proposed above or a demonstrably equivalent alternative. This guidance should include any specific requirements regarding the selection of project topics.

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Appendix 1 Instructions for individual case procedure

candidates required by their professional institution to undertake units from the Engineering Council examinations

- The Engineering Council examinations provides an alternative route to meeting the academic standard required to register as CEng.
- The Engineering Council examinations department processes direct registrations from students at Certificate level (A level entrance standard) and Graduate Diploma level (HND* entrance standard) and Postgraduate Diploma level (BEng Degree entrance standard).
*appropriate levels or merits are required
- Nominated bodies of the Engineering Council UK (i.e., professional engineering institutions) are licensed to assess individual candidates for CEng registration through the individual case procedure (ICP). Such assessment may lead to the requirement for the candidate to undertake a specified number of units from the Engineering Council examinations.
- ICP candidates receiving such a decision should:
 - i. contact Engineering Council examinations department for a registration pack (address shown below)
 - ii. complete the registration form as requested, attach a copy of their highest qualification award, a copy of the letter of notification from the nominated body which states that they must undertake the examination, and the registration fee, and return it to Engineering Council examinations department.
- Engineering Council examinations department will then process the application for registration and, if everything is in order, send an entry form for the next examination together with additional information as appropriate (the examination is held once a year, in May).
- A candidate's registration remains valid for three years; if the candidate has not attempted the examination within those three years, the candidate must re-register.
- Engineering Council examinations department otherwise places no time limit for the completion of the requirements of the timed papers but professional institutions are within their rights to make stipulation as to this and other matters, such as the selection of units, the grades required and the number of re-sits allowed. Candidates must ensure that they are aware of, and comply with, any such stipulations.
- Having sat the examination, Engineering Council examinations department will issue to each candidate a result notification. If candidates see from their result notification that they have met the requirements of their professional institution, it is their responsibility to inform their professional institution.
- Engineering Council Examinations department will not
 - i. intervene in any dispute between a candidate and a professional institution;
 - ii. issue a certificate of award or any other document in addition to the result notification, except to provide a statement of results on completion of the appropriate application form and remittance of the appropriate fee.

Engineering Council Examinations Department
City & Guilds
1 Giltspur Street
London
EC1A 9DD

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Appendix 2 Level 5 Certificate examinations

Compulsory units

Accredited units

Unit number	Unit number	Title
A/500/2011	9107-101	Mathematical techniques for engineering applications
F/500/2012	9107-102	Properties of engineering materials
J/500/2013	9107-103	The principles of engineering science
L/500/2014	9107-104	Engineering perspectives and skills

Optional units

Accredited units

Unit number	Unit number	Title
R/500/2015	9107-105	Mechanical and structural engineering
Y/500/2016	9107-106	Thermodynamic, fluid and process engineering
D/500/2017	9107-107	Electrical and electronic engineering
H/500/2018	9107-108	Software and information systems engineering

Appendix 3 Level 6 Graduate Diploma examinations

Accredited units

Unit number		Unit number	Title
H/500/1693		9107-201	Applied thermodynamics
K/500/1694		9107-202	The analysis of heat and mass transfer
T/500/1696	*	9107-203	The analysis of the mechanics of fluids
A/500/1697	*	9107-204	Hydraulics and hydrology
F/500/1698		9107-205	Separation processes in chemical engineering
J/500/1699		9107-206	Chemical thermodynamics, kinetics and reactor design
M/500/1700		9107-207	The internal environmental design of buildings
R/500/1706		9107-208	Properties of materials for engineering applications
Y/500/1707		9107-209	Mechanics of solids
H/500/1726		9107-210	The analysis of engineering structures
K/500/1727		9107-211	The design of engineering structures
M/500/1728		9107-212	Design and operation of marine vehicles
T/500/1729		9107-213	Geotechnical engineering
K/500/1730		9107-214	Engineering surveying
M/500/1731		9107-215	The analysis and design of electric circuits and fields
T/500/1732		9107-216	Electrical machines and drives
A/500/1733		9107-217	Electrical energy systems
F/500/1734		9107-218	Electronic systems engineering
J/500/1735		9107-219	Telecommunication systems engineering
L/500/1736		9107-220	Quality and reliability engineering
R/500/1737	+	9107-221	Analysis and design of manufacturing systems
Y/500/1738	+	9107-222	The management of construction projects
D/500/1739		9107-223	The management of engineering enterprises
Y/500/1741		9107-224	Advanced mathematical techniques for engineering applications
D/500/1742		9107-225	Dynamics of mechanical systems
H/500/1743		9107-226	The technology of manufacturing processes
K/500/1744		9107-227	Control systems engineering
M/500/1745		9107-228	Information systems engineering
T/500/1746		9107-229	Software engineering
A/500/1747		9107-230	Software for embedded systems
F/500/1748		9107-231	Computer systems engineering
J/500/1749	~	9107-232	Individual project

~ 9107-232 is a compulsory unit.

*Candidates may take either 9107-203 or 9107-204 but not both: 9107-203 is designed to be most appropriate for mechanical or chemical engineers, 9107- 204 for civil engineers.

+Candidates may take either 9107-221 or 9107-222 but not both.

See the separate list for examinations available to be sat for the current year.

Appendix 4 Level 7 Postgraduate Diploma examinations

Compulsory units

Accredited units

Unit number	Unit number	Title
R/500/1771	9107-300	Advanced engineering analysis
T/500/1777	9107-306	Group project

Optional units

Accredited units

Unit number	Unit number	Title
Y/500/1772	9107-301	The analysis of compressible fluid flow
D/500/1773	9107-302	Computational mechanics using finite element method
H/500/1774	9107-303	Advanced telecommunications systems engineering
K/500/1775	9107-304	The technology of advanced manufacturing processes
M/500/1776	9107-305	High performance computer systems engineering

You must take the compulsory units plus **one** optional unit and **two** units which have not been previously taken from the Graduate Diploma.

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Appendix 5 Entering the examinations

Regulations and advice

Examination sittings

Examinations are held once a year, in May. You can only sit these examinations if you have been registered as a candidate and have paid all the relevant fees.

The examination entry form

Please remember the following:

The examination entry will not be accepted without the appropriate entry fee.

The completed entry form and fee must be returned to the branch office, regional representative or centre dealing with your entry by post or courier. The Engineering Council examination department will not accept entry forms by fax or email.

Before you send your examination entry form, please make sure that you do the following:

- a Check the examination closing dates
- b Check that you have correctly completed the form, that your name and address is correctly shown and that you have signed and dated the declaration.
- c Enclose the appropriate fee.

Post your entry form and fee yourself: giving it to someone else to post may cause delay and you may even miss the deadline. Post early to ensure acceptance and make sure you obtain a proof of posting. The branch office, regional representative or centre dealing with your entry will not consider any claim that a form has been overlooked or lost unless proof of posting and receipt is produced.

Closing dates

The official closing dates for examination entry forms are available from your branch office, regional representative or centre.

Examination centres

Overseas candidates who would like to apply to sit at a location other than those listed should contact a British Council office in their area which provides invigilation for City & Guilds qualifications at least 5 months prior to the date of their examination. The centre will then have to make an application to INTOPS (intops@cityandguilds.com) for approval to run these examinations. The Engineering Council examinations department does not guarantee that this will be possible and some areas of the world will be unable to comply with the requirements.

Choosing your units

You may enter for a maximum of 6 Certificate units or 5 Graduate Diploma units or for Postgraduate Diploma candidates 2 Postgraduate Diploma units plus 2 Graduate Diploma units at any one sitting. You must refer to the timetable issued as you may not sit two units scheduled for the same session. Insert your chosen unit codes (in numerical order) and unit titles in the boxes on the entry form.

Paying examination fees

You must pay your examination fee when you send your examination entry form to the relevant branch office, regional representative or centre dealing with your entry.

Details of fees are available from your branch office, regional representative or centre.

Acknowledgement of receipt of entry

You should receive an acknowledgement of receipt of your entry. If you do not receive this, please contact your branch office, regional representative or centre.

Amendments to entries

Normally, amendments to the chosen centre or units will not be accepted after the official closing date. Therefore, please ensure that you enter the correct details on your entry form.

Withdrawal from the examination

You may withdraw from the examination prior to the official closing date advertised by your branch office, regional representative or centre. If you wish to do so, please inform branch office, regional representative or centre in writing. You will be eligible for a refund of entry fee less an administrative charge.

You may not withdraw from the examination after the official closing date advertised by your branch office, regional representative or centre. If you are unable to attend the examination sitting, you will be recorded absent. You will not be eligible for a refund of entry fee nor may your fee be transferred to a future examination.

Admission Slips

An admission slip will be issued to you by your branch office, regional representative or centre dealing with the entry. If you have not received your admission slip by **one** week before the examinations, it is your responsibility to notify the branch office, regional representative or centre dealing with the entry giving the following information:

- Enrolment number
- Your full name date of birth and postal address

Note that the admission slip cannot be sent to you by email. You should therefore provide an appropriate fax number to which a copy of the admission slip may be sent.

You will need to produce the admission slip at every examination you attend. You must not, under any circumstances, write notes on your admission slip.

Candidates must inform the branch office, regional representative or centre dealing with the entry in writing of any changes of address ensuring that their original signature appears in the communication.

Receiving your results

Examination results are sent in mid August. Details of examination performance cannot be given by telephone or email and result notifications will not be sent by fax. It is therefore of vital importance that you notify the branch office, regional representative or centre dealing with the entry of any change of address.

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