

ICE Further Learning Exam Guidance

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Introduction

This document explains the requirements of the ICE Further Learning Exam (FLE) to meet the education base for Chartered Engineer and gives guidance on how to make an application. There are three stages in attaining professional membership with the ICE – Educational Base, Initial Professional Development, and the Professional Review.

In order to meet the educational base for a Chartered Engineer (see below) bachelor's degree graduates need to complete additional learning to masters level. One of the options ICE has available to graduates is the ICE Further Learning Exam (FLE).

The FLE is a seven hours' (including one hour's break) online exam using an open-book format, that enables you to use the knowledge you have gained through further learning and at work to bridge the gap between the qualifications you have and those you need to sit the Chartered Professional Review or Chartered Professional Review Progressive route.

If you have any questions or would like more information, please email us at iceexam@ice.org.uk.

Educational base for a Chartered Engineer

From 2019 graduates with bachelors degrees covered by the international agreement known as the [Washington Accord](#) will need to complete some form of further learning.

For **ICE Member grade (MICE) and registration with the Engineering Council as a Chartered Engineer (CEng)** you will need one of the following:

- Accredited integrated MEng
- Accredited BEng (Hons) (or a qualification which is assessed to be of equivalent standard), plus further learning to top up the qualification to master's Level

An accredited degree is a programme that has been formally assessed by ICE or the [JBM](#) as meeting or contributing towards the required academic standards for registration as a chartered or incorporated engineer. The ICE's accreditation process complies with the UK Standard for Professional Engineering Competence [UK-SPEC](#) outcomes-based approach and also has some civil engineering specific requirements which must be met (that are set out in the our [Guidelines for Developing Degree Programmes](#)).

What is Further Learning

Further learning covers the gap between the initial accredited qualifications and the academic base needed to register as a Chartered Engineer.

All further learning options require you to meet the appropriate master's level Learning Outcomes. Learning outcomes are defined by the Engineering Council in [UK-SPEC](#) and [Accreditation of Higher Education Programmes \(AHEP\)](#) as *“a statement of achievement expected of a graduate from an accredited programme”*. A Learning Outcome area covers the specific skills or knowledge that applicants should be able to demonstrate after completing a *“period of training or education”*.

Masters level learning equates to the study in greater depth of particular aspects or applications of a broader discipline in which you hold an Honours degree at bachelor's level.

There are three options available to you to meet this further learning requirement - to complete an accredited MSc, to make an [Experiential Learning submission](#) or to use the ICE Further Learning Exam.

Further Learning Exam Structure

The Further Learning exam consists of two elements:

- Part A - Further Learning Technical Submission
- Part B - Scenario-Based Examination

This is to ensure that you are able to demonstrate the required level of learning and knowledge.

Part A - Further Learning Technical Submission

You will need to produce a 500-word Further Learning Technical Submission, together with supporting appendices, based on one or more appropriate project(s) or activities that demonstrate master's-level technical knowledge in a civil engineering context. It should demonstrate your ability to integrate prior knowledge and understanding of the discipline

and engineering practice with the development of advanced level knowledge and understanding, to solve a substantial range of engineering problems, some of them complex or non-routine.

It provides you with an opportunity to demonstrate how you have gained the required level of learning to meet certain learning outcomes that are required by the UK Engineering Council to meet the academic base for CEng membership with ICE but are not assessed by the exam itself. These learning outcomes focus on your knowledge and application of engineering principles, technologies, and processes.

The Further Learning Technical Report Submission should be based on one or more appropriate project(s) or activities that demonstrate further learning in one or more technical disciplines to master's level. You should demonstrate how you have built on prior knowledge and understanding of the discipline and engineering practice with the development of advanced level knowledge and understanding, to solve a substantial range of engineering problems, some of them complex or non - routine. You are required to make a well-structured statement based on a minimum of two years' experience in a civil engineering context. Supporting evidence should be provided in appendices which must be limited to two sides of A4 and must be clearly sign-posted to the part of your Further Learning Technical Submission that it is intended to support.

You must demonstrate through your Further Learning Technical Submission that you have achieved a systematic understanding of the aspects detailed in the Learning Outcome statement (see [Appendix A](#)), including acquisition of coherent and detailed knowledge, most of which is at, or informed by, the forefront of defined aspects of the discipline.

Your submission should be a personal account of your learning and experience written in the first person (using 'I undertook this', 'I learned that'...). You must give specific examples of how, through training and experience, you have gained and applied knowledge and understanding.

For example, you should reference:

- the relevant theory and principles
- the application of these principles
- the analytical methods and tools used to apply these principles
- the limits of these principles, methods, and tools



- examples of when you have used these principles, methods, and tools to solve routine or
- non-routine problems

Word Count and Appendices

The Further Learning Technical Submission should be approximately 500 words in length, i.e. no more than 600 words, and no fewer than 400 words.

You may also submit appendices with your submission, but this must be no more than two sides of A4. This could take the form of (but is not limited to) analysis reports, calculations, modelling outputs, technical drawings, correspondence, textual reports or diagrams. We recommend that you submit appendices, as they are invaluable in helping you not use up your word count in describing aspects of your experience which can be communicated through images and diagrams. Please note that the ICE Further Learning Exam is conducted in the English Language. If your appendices are not in English, please annotate with translations for clarity.

For further information on how best to approach your Further Learning Technical Submission please see [Appendix B](#)

Part B Scenario-Based Examination

The syllabus for the ICE FL Exam, aligns closely with the [Attributes](#) required as part of the Chartered Professional Review and master's level UKSPEC learning outcomes and has five compulsory modules:

- Procurement, Contracts & Project Management
- Project Appraisal & Financial Management
- Management & Leadership
- Sustainable Development
- Health, Safety, Welfare & Risk Assessment

The engineering scenario allows you to apply your learning in relation to an unexpected 'real world' scenario, rather than a typical knowledge-based examination. It is intended to be a project that is not in your normal field of work – you will therefore be assessed on how you would consider and approach this unknown situation based on your experience and further

learning. You will need to demonstrate how your learning, together with the materials provided, has allowed you to form judgements in how to respond to the scenario set (i.e. answer the question). Writing three paragraphs of academic knowledge only is unlikely to gain marks unless it applies directly to the scenario.

The content of your Part B Case Study should include text and may include text formatted into tables. The use of graphs and images is not permitted.

ICE training have developed a series of online courses that you can access to support you in the preparation for the FL Exam. ICE publishing has also developed a textbook that will be available in Autumn 2022 to support you as you prepare for the FL Exam.

To support you ICE will provide you with examples of previous examination papers and the linked Examiner's report, and these can be found in the ICE website.

Plagiarism

Plagiarism is presenting the work of others as your own. This means using words or ideas, for example, without the permission of the original author or authors, or without their acknowledgement. Plagiarism should be avoided at all times, and this includes any reports, drawings and presentations that you submit.

Here are some guidelines to help avoid plagiarism:

- Don't cut and paste material from other
- Where you've directly quoted others, or the work of others, attribute the source fully and, where appropriate, use quotation marks. As a rule of thumb, material derived from others should be considered a quote, unless it's assumed to be common knowledge – for example, standard equations that are in the public domain

Plagiarism is taken seriously by the ICE. Should there be concerns with your submission, ICE will investigate including using plagiarism detection software. If this shows significant levels of similarity with any unattributed sources you will be contacted by the ICE and asked to provide an explanation.

Collusion

In the context of your submission, collusion is any agreement to conceal someone else's contribution to your piece of work. The guidance above equally applies to avoiding collusion. Plagiarism and collusion may lead to a ban on applying for membership or, for existing members, permanent expulsion as an ICE member.

If an allegation of plagiarism or collusion is made relating to your application for membership, no result will be given until an investigation has taken place.

Application deadlines and exam dates

ICE Further Learning exam dates and application deadlines [can be found here](#). The Exam will take place online.

Full details of the online exam process can be found in our guidance, this will be sent to you once your application for Further Learning Exam has been approved.

Making your application

In order to make an application for the Further Learning Exam (FLE) you must be an [ICE Graduate member](#), [Associate Member](#) or a full Member or a Graduate member of one of the professional bodies that the ICE has a [Mutual Recognition Agreement](#) with such as the Hong Kong Institution of Engineers. Before you make your application, you should confirm that your undergraduate course is accredited, at the appropriate level by using the [ICE course search tool](#). If you have a degree that is not accredited, you can apply to have your [qualifications assessed](#) to see if they meet the minimum standard. If you can't find your course, email iceexam@ice.org.uk and we will confirm whether the course is accredited or not.

Application content

Before making your application, you need to pay the application fee online (please note this is a non-refundable fee). You can find details of the fee on the [fees page](#) of our website.

The application should include:

- A completed application form available through our [ICE Further Learning Exam application portal](#)
- Details of your academic qualifications if you are not a Graduate member of ICE
- A 2-page CV
- Details of any individual requirements

Evidence of educational qualifications

If you are not a member of the ICE or have not previously provided your certificates, then you will need to provide countersigned copies of any qualifications you have listed in your application. These must be true copies of the original and countersigned by a senior member of your employing company, an ICE member or a college tutor. If the qualifications are not in English, then countersigned translations must be provided.

The person countersigning your certificate(s) should write the following on the certificate copy.

"I confirm this to be a true copy of this applicant's qualification"

Signature:

Print name:

Employing organisation/University/College:

Position:

Contact telephone number or email:

ICE Membership number (if applicable):

If needed by ICE and not provided on your certificate, we will contact you.

CV

Your application must also include a brief, two-page CV, which shows that you have had at least two years' experience since graduation.

Individual Requirements

If there are individual requirements that you would like taken into account you must state these when you apply– for example, if you have a hearing impairment or if there are

commercial or security restrictions on what you can discuss about a particular project you've worked on. You can find out more in [Appendix A](#).

If you wish to speak to a member of staff in confidence regarding your requirements, please email iceexam@ice.org.uk and we will arrange a time to speak to you.

You submit your completed application form and supporting documentation through our [ICE Further Learning Exam application portal](#).

ICE will check your application for completeness and contact you to acknowledge receipt within 10 working days and, if necessary, request any missing documents. We will not be able to continue processing your application until the information is received. To avoid delays, please ensure that all of the items on the application checklist are included with your application.

Once your application has been acknowledged we will provide details of the training and learning resources available to you, together with details of any additional provision on the day of the Exam. (See [Appendix A](#)).

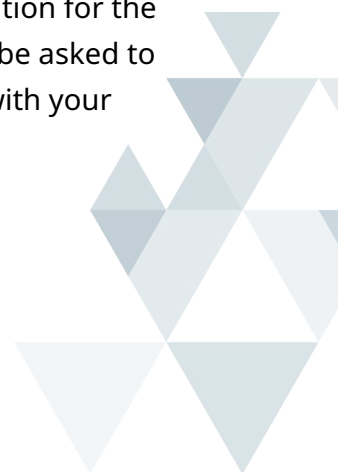
Further Learning Technical Submission

Three weeks before the date of the FL Exam you will receive an email providing details of your reference number and a link to the FL Exam system to allow you to test that your PC is compatible with the FL Exam system.

At this time, you be given one week to upload your Further Learning Technical Submission. If you fail to upload your submission by this date your application to sit the Exam will be deferred to the next session.

The Further Learning Exam Day

On the day of the Exam you will receive an email confirming your access information for the Exam. Please logon on at the time advised. As part of the logon process you will be asked to confirm in response to an online question that there are no connectivity issues with your equipment and that you are able and fit to sit the Exam.



You will have 7 hours to review and produce your answers to the engineering scenario. Once the 7 hours have lapsed your access will be removed. If you have technical issues during the exam you should contact the exams team on iceexam@ice.org.uk or on +44 (0) 207 2211.

At the end of the Exam your Further Learning Technical Submission and engineering scenario answers will be submitted to your assessors for marking.

Further Learning Exam result

Refer to [Key membership dates](#) for your session's Results published date.

If you have been successful you can then complete your [Initial Professional Development](#) and progress to making a [Professional Review](#) application.



Result outcome

Further Learning Technical Submission and engineering scenario answer approved

If the assessors agree that you have passed both elements this will be indicated in your result letter that you now meet the educational base for a Chartered Engineer.

Further Learning Technical Submission is not approved, but you have passed Part B of the Exam, the engineering scenario.

If the assessors decide that you have not given enough evidence in your Further Learning Technical submission to demonstrate your enhanced technical knowledge, you will be asked to provide more information. If you are asked to resubmit your Further Learning Technical submission application, you will need to clearly list the changes and additional information that has been sent or show it in the margins of your revised documents.

Any extra information you submit will be re-assessed (at no additional cost) and you will receive your result on the next published result date.

Refer to [Key membership dates](#) for more information.

Please note that if you are required to resubmit additional information, you must re-write your original statements and remain within the word count – you are not allowed to exceed the word count.

Further Learning Technical Submission and scenario answers are not approved

You will need to re-apply to sit both elements of the Exam again.

Appeals

Candidates have the right to appeal where they feel there was an error in the exam process, or in cases of unforeseen events. Appeals must be received within four weeks of the date stated on your result letter. Appeals after this date will not be considered. If you plan to appeal, we recommend that you read our appeals guidance and contact us via the Further Learning Exam inbox as listed below:

- Please email iceexam@ice.org.uk.

More information and support

The Membership Support Team (MST) can also give you further advice. Please email membership@ice.org.uk or call +44 (0)121 227 5948.



APPENDIX A – Individual requirements

ICE is committed to making reasonable adjustments to our Further Learning Exam process to accommodate specific individual requirements.

Individual requirements may include disabilities, specific learning difficulties (such as dyslexia), temporary conditions, and security clearance.

Each application will be considered on a case-by-case basis in light of the applicant's needs. However, you need to tell us about your requirements in your application form. We will also need to see any evidence, e.g., certified documents or statements, which should be submitted at time of making your application.

Disability or sensory impairment

In line with the Equality Act 2010, we will make whatever 'reasonable adjustments' are required for candidates with a disability, such as dyslexia, speech impairment or sensory loss, for example. Our Equality and Diversity Policy ensures everyone receives the same opportunities during the Further Learning Exam process.

Listed below are some examples of reasonable adjustments made

- Giving extra time for the online Exam
- Providing a scribe

However, these are just examples and ICE staff will contact you and discuss your own individual requirements prior to your Further Learning Exam Day. Adjustment will:

- Not give the candidate an unfair advantage
- Reflect the candidate's normal way of working and
- Be based on the individual needs of the candidate

You can speak to a member of staff in confidence regarding your requirements, please email professional.reviews@ice.org.uk and we will arrange a time to speak to you.

Security-mindedness and security clearance

You should consider whether information in your Further Learning Technical submission should be omitted or reduced in its level of detail due to security reasons. However, there's no reason why this should detract from the quality of your report.

If your submission is affected by security issues, you should consider the following suggestions:

- Make your report non-site specific – for example don't state that the facility was on the Sellafield site or on the Hinkley site or that the asset serves a critical function to the site or country, or is or was vulnerable to various threats
- Don't state building numbers or names – it's sufficient to say 'nuclear facility' or 'nuclear store'
- Remove site and building names from drawings or snapshots of models
- Don't include photographs or other images which reveal the location of buildings and facilities
- Avoid stating, or showing in drawings or extracts from models, technical details (such as wall thickness) which may reveal security-sensitive information

If you work on a security-sensitive project, we recommend that your organisation's information security manager (and also the asset owner's/client's) reads your technical submission and approves the content before submission.

Familiarise yourself with the [Engineering Council's guidance note on Security](#) (published May 2016).

You should also let us know if you believe your assessors need security clearance.



APPENDIX B – Further Learning Technical Submission

The Further Learning Technical Submission is required because it is difficult to set case -study exam questions that cater fairly for the many differing technical specialisms in which candidates are working. A technical question about foundations, for example, may disadvantage a drainage engineer or traffic management specialist. Instead, we require a short report through which a candidate can demonstrate technical knowledge by drawing on work experience.

You should describe a project, scheme or operation that you have been involved in which demonstrates a comprehensive knowledge and understanding and application of engineering principles, technologies and processes to the analysis and solution of complex problems. Give examples from the project where data may be uncertain or incomplete and discuss the limitations of the techniques employed.

The Further Learning Technical Submission is not simply a report describing a candidate's work on recent projects. Its purpose is to demonstrate further academic learning gained since graduating, and to evidence how a candidate has applied knowledge in an innovative way to overcome a particular challenge they've experienced. Remember that it is a test of academic learning alongside practical experience.

The Further Learning Technical Submission is designed to allow candidates to demonstrate they have achieved the required Learning Outcomes. It is important to note that a key difference between the IEng and CEng academic base requirements is the ability to address complex as well as broadly defined problems, and for candidates to evaluate the impact of their work and the way they communicate. In addition, when providing evidence related to 'engineering principles', candidates should provide examples that demonstrate their understanding of the underpinning mathematics, statistics, and science. When evaluating the environmental and societal impact of their work, they should explain it in the context of the whole project life cycle and how they sought to minimise adverse impacts.

A good statement will describe a computational technique (calculations or modelling) that the candidate has applied or adapted to solve a particular problem. It is important to describe the candidate's contribution to the work of a team.

For example:

- An engineer supervising piling operations may explain how unexpected ground conditions and underground structures at one corner of the site had caused them to question the validity of the piling design. Drawing on previous structural design experience they had used finite element software to consider alternative solutions.

Working with the design engineer they had developed an alternative solution to redistribute loading across the whole structure.

- A drainage engineer might explain how a lack of flooding during an intense rainfall event had caused them to question the validity of modelling undertaken for an area wide drainage study. By commissioning CCTV surveys a number of underground chambers had been discovered, together with severe pipe cracking revealed to be allowing water to percolate into surrounding ground. By making adjustments to the model, they had been able to better validate outputs to improve the design of planned flood attenuation works.
- A traffic management engineer might describe how to optimize junction design; they were concerned that SATURN microsimulation software for the wider urban network may falsely predict flows into and out of a new development. Using empirical capacity equations adjusted for pedestrian crossing flows expected in the busy city centre location, they were better able to design the signalised junction.

The above represent a few examples of how candidates can draw upon their own specific experiences as an engineer to provide firm evidence that they know how to apply a systematic knowledge of advanced engineering concepts to achieve engineering objectives that present incomplete information, or unexpected issues and problems.



Our vision

Civil engineers at the heart of society, delivering sustainable development through knowledge, skills and professional expertise.

Core purpose

- To develop and qualify professionals engaged in civil engineering
- To exchange knowledge and best practice for the creation of a sustainable and built environment
- To promote our contribution to society worldwide

Diversity statement

As a membership organisation and an employer, we value diversity and inclusion - a foundation for great engineering achievement

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