

Institute of Materials, Minerals & Mining (IOM3)

Guide to Application

Incorporated Engineer (IEng) via the Technical Report Route

- Competence and Commitment Requirements
- Forms
- Documentation
- Assessment

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All enquiries and questions should be addressed to the membership department:

Telephone: +44 (0) 207 451 7300

Email: membership@iom3.org

1. Introduction

The Technical Report Route (TRR) enables individuals with appropriate working experience but without the necessary qualification(s), be it the Level or related subject matter, to apply for registration as an Incorporated Engineer (IEng). The qualification level required to underpin Incorporated Engineer registration is:

IEng - an accredited or approved RQF Level 6/SCQF Level 10 or equivalent qualification such as a BEng or BSc.

If in doubt about the Level or suitability of your qualification(s), you should seek guidance from the Membership Department by email on membership@iom3.org.

Individuals can qualify through the TRR by submitting an appropriate piece of work - the **TECHNICAL REPORT** - through which they demonstrate the same level of knowledge and understanding of engineering fundamentals as someone who has the necessary qualification. This is achieved by satisfying a set of learning outcomes.

Entry experience

As this route is based on experience gained through appropriate work-based learning, applicants should have gained sufficient to develop the knowledge and understanding to underpin their application. Whilst opportunities for career development vary from person to person, it is recommended, but only as a rough guide, that individuals have gained the following before making an application through the TRR:

Highest RQF level of related academic qualification held	Work experience (Years)
4/5 - such as a FdSc/FdEng/HNC/HND	5
3 - such as a ONC / OND	7
None	15

2. The Summary

Before writing the Technical Report, potential applicants must first submit a summary of the subject matter for approval. This is to ensure that it will meet the requirements in terms of its technical scope and level. The Summary should ideally be no more than 800 words and text only.

The Summary should include the following:

- Your name and Institute membership number
- Title of the Report
- Your role in the work forming the basis of the report
- Introduction including background and reasons for the selection of the proposed topic
- Key objectives
- Challenges encountered
- Technical review of the engineering, scientific and technological principles encountered
- Resolution of the objectives
- Conclusions and lessons learnt

3. Submission of the Summary

Once drafted, the Summary should be submitted to the Institute with the following documents:

- Application form (Further information regarding this document can be found under Additional Documents).
- CV
- Any academic certificates held unless already submitted to the Institute

The Summary will be reviewed by the Membership Committee. The applicant will be advised of the outcome of this review and the length of Technical Report they should submit within 4 weeks. Once approved, the applicant will have 9 months in which to prepare and submit their Technical Report. An extension may be sought if circumstances prevent its completion. The granting of any extension is at the discretion of the Membership Committee and the maximum period that may be granted is 3 months. If the outcome of the review is not successful, the applicant will be encouraged to resubmit along the lines of feedback and guidance from the Membership Committee.

4. Preparation of the Technical Report

Content

The Technical Report should include a commentary, diagrams and calculations which together demonstrate an understanding of fundamental engineering principles of the project outlined in the Summary and cover the following five areas of learning:

- Science and mathematics
- Engineering analysis
- Design and innovation
- The Engineer and society
- Engineering practice

Indicative content may include:

- Mathematical aspects and calculations
- Details on Standards that must be conformed with
- Use of appropriate software to solve problems and reach engineering solutions
- Application of new and innovative technologies relevant to the subject of the project
- Application of analysis and modelling
- Evaluation and exploitation of sustainable technologies
- Establishing fitness for purpose using reliable quantitative methods
- Solution of practical problems.
- Scientific knowledge of the properties of materials, minerals, ground conditions, components, and physical processes
- Selection and use of relevant equipment, tools processes or products
- The use and application of information from technical knowledge resources
- Application of engineering practices and processes such as in commissioning, design, maintenance, repair, refurbishment, and adaption

Individuals are not asked to demonstrate their professional competence in the Technical Report. The submission of a 'Management Report' addressing budgets, sourcing equipment, completion dates, staff matters, control of consultants, compliance with international standards and health and safety requirements is not acceptable content for the Technical Report.

Format

The following format for the Technical Report should be used:

Title page

This should include the applicant's name, membership number, date, report title and purpose of the report e.g., IEng application via the TRR.

Executive summary

This should be a summary of the main objectives, conclusions, findings, and achievements.

Contents page Introduction

This should clearly indicate what the report is about and rationale behind the subject.

Main body of the report

Applicants should be guided by the following points when writing this part of the report:

- This can be sub-divided but must demonstrate the application and understanding of engineering, scientific and technological principles
- Each section should have a clear theme with ideas presented in a logical manner backed up by data, references and calculations or other sources
- Ensure the content links to the subject of the report and to the aims and objectives
- Relevant diagrams or graphical supporting information can be included
- Any lengthy supporting calculations should be included as an appendix

Discussion

This is where the applicant should develop reasoned arguments by applying their engineering knowledge and understanding.

Conclusions

The applicant must be able to provide a considered opinion on their work linked to engineering, scientific or technological principles; identify lessons learnt; and recommend changes as a result of the work and implementation of these recommendations.

Appendices

These should be limited to any calculations too lengthy for the body of the report, essential background data, drawings, or photographs. Please note, you should only include information in the Appendices that you specifically refer to in the main body of the report.

Length

The length of the Technical Report will usually vary according to the highest level of related academic qualification held by the applicant. Where an individual holds a qualification of the required level but in a non-engineering subject, for example a MChem, they will be set a bespoke minimum report length. The minimum word limit relates to the main body of the report. As a guide you should aim to not exceed the suggested report length plus 10%.

Highest RQF Level of related academic qualification held	Minimum report length (Words) (You should not exceed the suggested report length plus 10%)
4/5 - such as a FdSc/FdEng/HNC/HND	4,000
3 - such as a ONC/OND	5,000
None	7,000

The minimum length of the Technical Report to be submitted by the applicant will be confirmed at the time the Summary is approved.

The applicant must sign-off their Technical Report under the statement:

I certify that this Technical Report is all my own work.

Your Sponsor should also sign-off the report under the statement:

To the best of my knowledge, all of the information included within this report is true and correct.

The Institute recommends that applicants seek the guidance of a mentor when preparing their Technical Report. The Mentor should be an IOM3 member who is an IEng or CEng and familiar with the subject area of the Technical Report and the TRR process and requirements. If this is not possible, IOM3 will be happy to help identify a suitable mentor. The role of the Mentor is:

- Advise on content and subject matter
- Discuss conclusions and challenge technical reasoning and any assumptions made
- Comment constructively on drafts and advise on any changes which may be necessary

The Institute also recommends that applicants attend an IEng via the Technical Report Route Workshop. Details of our workshops can be found on our website (www.iom3.org).

You should submit your completed Technical Report along with the documents outlined in the next section.

5. Additional Documents Required

All forms can be found online at: www.iom3.org/membership/chartered-status/registration-options.html

Application Form

It is important to complete all sections of the form in the spaces provided.

Artificial Intelligence (AI) is a useful tool if used appropriately. If you have used AI to complete this application, please tick the box on the application form and let us know how you have used it.

If you require a reasonable adjustment to be made to the application or assessment process, please let us know; there is also a box to tick on the application form to indicate this. A member of the team will contact you to understand how best we can support you through the application process.

Declarations

The applicant and Sponsor must sign the declaration statement at the end of the application form. Increasingly we see the use of digital signatures from applicants and supporters. If you are not providing a wet signature, please ensure that your electronic signature is provided rather than simply typing your name.

Supporters

Only one Sponsor is required to sign off the application form for Incorporated Engineer registration (IEng).

Individuals suitable to act as a sponsor or supporters should ideally hold the professional registration for which the applicant is applying, failing that an individual holding a different Chartered level registration can act instead. Please contact the Membership Department if you have any questions about this or problems in finding suitable supporters or a sponsor.

Completed forms can be returned directly to the Membership Department unless it is preferred to give them to the applicant for submission.

Academic Certificates

Applicants must provide copies of any higher education qualification certificate(s) unless these have been previously submitted to IOM3.

Professional Review Report (IEng)

The Professional Review Report (PRR) is presented in the form of an expanded CV, which details the applicant's career and professional development. For each position, the applicant should provide a description of their function and responsibilities, giving examples of projects and activities they have undertaken, and materials or natural resources, techniques, processes and equipment they have become familiar with.

The PRR should link the applicant's career and professional development to the competence requirements of the professional registration (s) they are applying for, which are listed in the appendices. The PRR should be four (4) to five (5) sides long of A4 with five (5) sides being the maximum.

An example of a PRR excerpt for an individual applying for IEng is shown below.

Process Technologist – Recycled Resources (15 September 2020 – Present)	IEng
<p>General description of role: Responsible chiefly for ensuring material quality standards are maintained by suppliers. Includes monitoring of incoming materials, particularly recycled copper, PVC and PP. I deal with some 1,500 tonnes of materials annually. When problems occur, I liaise with suppliers to ensure remedial action is taken and followed through.</p> <p>I am also responsible for monitoring in-house processes. This involves the development of process controls, assessing training needs, and providing operator training and certification.</p> <p>I contribute to the development and validation of new processes working in conjunction with suppliers and a multidisciplinary team containing design engineers, production engineers, quality engineers and production management. This involves defining validation requirements, production and testing of samples and post-testing analysis.</p> <p>I am the appointed Works Environmental Coordinator reporting directly to the Technical Director, ensuring compliance with environmental legislation and company protocols.</p> <p>Training undertaken: 3 x one day courses at Euston Road College covering the Health & Safety at Work Act and COSHH regulations.</p>	<p>A1, A2</p> <p>E1</p> <p>D1, D2, D3</p> <p>B1, C2, C3</p> <p>D1, D2</p> <p>B1, B2, B3</p> <p>D1</p> <p>E3</p> <p>E1, E2, E3, E5</p> <p>A1, E1, E4</p>

Applicants should be able to demonstrate their competence in all areas, but the depth and extent of their experience and competence will vary with the nature and requirements of their role. They will need to demonstrate a level of competence in each area and at a level which is consistent with their specific role. It is to be expected that they will have a higher level of competence in some areas than others, however they need to demonstrate an understanding of, and familiarity with, the key aspects of competence in all areas as a minimum requirement while demonstrating higher level of competence in those areas which are critical to their role. Overall, they will demonstrate an appropriate balance of competences to perform their role effectively at the Incorporated level. Competences should be referenced individually rather than clustered.

Continuous Professional Development (CPD) Records

Applicants must include in their application a record of their CPD activities, covering a partial record for the calendar year in which they are making their application and completed records for the three previous calendar years.

It is a requirement of the Engineering Council that registrants and those seeking registration participate in and record their CPD activities. IOM3 requires its registrants and applicants to undertake and record a minimum of 35 hours CPD each calendar year.

Ideally CPD should be a mixture of learning activities relevant to current or future practice and could include the following categories:

1. Work-based learning (WBL)
2. Professional activity (PA)
3. Formal education (FE)
4. Self-directed learning (SDL)
5. Conferences, Seminars, and Workshops (CSW)
6. Other activities which extend or broaden an individual's technical or professional knowledge, skills, understanding or experience (O)

Information to be included in the CPD record for each record:

1. Date
2. Type, i.e., work-based learning
3. CPD hours
4. Title & provider for formal activities
5. Outcome & benefits, which should be a short but concise reflective statement on how the activity has benefitted the individual's professional knowledge, skills and understanding or experience

Annual Professional Development (APD) Plan

In addition to the Continuous Professional Development Log (CPD), they must also submit a plan of their proposed CPD activity for the year in which they are making their application – the Annual Professional Development Plan. A template showing examples is available from the IOM3 Website. Your Annual Professional Development Plan must include the next 12 months going forward.

Identification

We also require either a current Driving Licence or a Passport / ID card to be submitted.

6. Application Submission

We require applications to be submitted electronically to membership@iom3.org ensuring that any scanned documents are legible.

Applications will be acknowledged within five (5) working days of submission. Please contact us by email if you do not receive an acknowledgement.

At this stage, all applications will be checked for completeness and applicants notified if any further information is required.

7. Professional Review Interview (PRI)

Following scrutineering, candidates applying for CEng via the Technical Report Route are required to attend two interviews, the format being:

1. The **Technical Interview** to explore the depth and breadth of engineering knowledge and understanding. Applicants who do not meet the appropriate standard will not be able to progress to the Professional Review Interview. Applicants will be expected to give a 10 minute, three-slide PowerPoint introductory presentation on their technical report project at the start of the interview.
2. The **Professional Review Interview** which will assess an applicant's engineering competence. This is a standard professional review interview. We would recommend that you start the interview with a 10 minute presentation on your broader experience.

Each interview will take between 45 and 60 minutes, and held on different days, with the same interviewers where possible.

The interviews will be conducted by a Professional Review Panel (PRP) consisting of two trained assessors who are members of IOM3 and hold the professional registration for which the applicant has applied. The interviews will be held on different days, with the same interviewers where possible, held online using MS Teams and last between 45 and 60 minutes.

Please make sure that you bring your identification along to the remote interviews.

The panel will prepare an evaluation report with a recommendation to Membership Committee on the applicant's suitability for professional registration.

8. The Approval Process

The Membership Committee will consider the recommendations of the interview panel alongside applicant's submission when making the decision to award. Applicants will be notified in writing of the Committee's decision within 10 working days of it being made.

We aim to complete the approval process within 90 working days of the complete application being submitted, provided that a mutually convenient date for the Professional Review Interview (PRI) can be arranged.

Upon election as a registrant, the member may use the respective post nominal letters **IEng** alongside their Institute membership grade and the title Incorporated Engineer.

IOM3 will notify the registration body of your award once you have paid the required fee.

9. General Data Protection Regulations

The General Data Protection Regulation (GDPR) and Data Protection Act 2018

The Institute of Materials, Minerals & Mining will hold and use the data provided in each membership application to assess its merits only. This means we will use the data provided in your application for the purposes of assessing your application only and information contained in your application will be treated with strictest confidence.

We will only pass data necessary to complete your registration onto the registration body, i.e., Engineering Council.

10. Table of Documents to be Submitted

IEng
Initial Submission
Application Form
Technical Report Route Summary
CV
To Be Submitted with the full Technical Report
Professional Review Report (PRR)
Full Technical Report
Continuous Professional Development Log (CPD) for the current year so far and three previous years
Annual Professional Development Log (APD) for the next 12 months going forward
Identification – Driving Licence or Passport / ID card

Appendix 1 - Incorporated Engineer (IEng) competence requirements

IEng shall:	The applicant shall demonstrate that they:
A. Use a combination of general and specialised engineering knowledge and understanding to apply existing and emerging technology.	1. Have maintained and extended a sound theoretical approach to the application of technology in engineering practice.
	2. Use a sound evidence-based approach to problem solving and contribute to continuous improvement.
B. Apply appropriate theoretical and practical methods to design, develop, manufacture, construct, commission, operate, maintain, decommission, and recycle engineering processes, systems, services, and products.	1. Identify, review and select techniques, procedures, and methods to undertake engineering tasks.
	2. Contribute to the design and development of engineering solutions.
	3. Implement design solutions for equipment or processes and contribute to their evaluation.
C. Provide technical and commercial management.	1. Plan the work and resources needed to enable effective implementation of engineering tasks and projects.
	2. Manage (organise, direct and control) programme or schedule, budget and resource elements of engineering tasks or projects.
	3. Manage teams, or the input of others, into own work and assist others to meet challenging technical and managerial needs.
	4. Take an active role in continuous quality improvement.
D. Demonstrate effective communication and interpersonal skills.	1. Communicate effectively with others, at all levels, in English.
	2. Clearly present and discuss proposals, justifications, and conclusions.
	3. Demonstrate personal and social skills and awareness of diversity and inclusion issues.
E. Demonstrate a personal commitment to professional standards, recognising obligations to society, the profession, and the environment.	1. Understand and comply with relevant codes of conduct.
	2. Understand the safety implications of their role and manage, apply, and improve safe systems of work.
	3. Understand the principles of sustainable development and apply them in their work.
	4. Carry out and record the Continuing Professional Development (CPD) necessary to maintain and enhance competence in their own area of practice.
	5. Understand the ethical issues that may arise in their role and carry out their responsibilities in an ethical manner.

These competences are expanded on the following pages.

When drafting their professional review report, applicants could use the following as evidence to meet the various competences:

- A1 Have maintained and extended a sound theoretical approach to the application of technology in engineering practice.**
- Identifying the limits of your knowledge and skills Taking steps to develop and extend personal knowledge of appropriate technology, both current and emerging.
 - Applying newly gained knowledge successfully in a task or project.
 - Reviewing current procedures and processes and recommended improvements or changes to reflect best practice.
 - Developing knowledge needed to work in a new industry area or discipline.
- A2 Use a sound evidence-based approach to problem-solving and contribute to continuous improvement.**
- Applying knowledge and experience to investigate and solve problems arising during engineering tasks and implementing corrective action.
 - Identifying opportunities for improvements and how these have been (or could be) implemented.
 - Using an established process to analyse issues and establish priorities.
- B1 Identify, review, and select techniques, procedures, and methods to undertake engineering tasks.**
- Establish the engineering steps needed to carry out a task efficiently.
 - Identifying the available products or processes needed to undertake an engineering task and establishing a means of identifying the most suitable solution.
 - Preparing technical specifications.
 - Reviewing and comparing responses to the technical aspects of tender invitations.
 - Establishing user requirements for improvements.
- B2 Contribute to the design and development of engineering solutions**
- Contributing to the identification and specification of design and development requirements for engineering products, processes, systems, and services.
 - Identifying operational risks and evaluating possible engineering solutions, taking account of cost, quality, safety, reliability, accessibility, appearance, fitness for purpose, security (including cyber security), IP constraints and opportunities, and environmental impact.
 - Collecting and analysing results.
 - Carrying out necessary tests.
- B3 Implement design solutions for equipment or processes and contribute to their evaluation.**
- Identifying the resources required for implementation.
 - Implementing design solutions, taking account of critical constraints, including due concern for safety and sustainability.
 - Identifying problems during implementation and taking corrective action.
 - Contributing to recommendation for improvement and actively learning from feedback on results.
- C1 Plan the work and resources needed to enable effective implementation of engineering tasks and projects.**
- Identifying factors affecting the project implementation.
 - Carry out holistic and systematic risk identification, assessment, and management.
 - Preparing and agreeing implementation plans and statements.
 - Securing the necessary resources and confirming roles in a project team.
 - Applying the necessary contractual arrangements with other stakeholders (clients, subcontractors, suppliers, etc.)

- C2 Manage (organise, direct and control) programme or schedule, budget and resource elements of engineering tasks or projects.**
- Operating appropriate management systems.
 - Work to the agreed quality standards, programme, and budget, within legal and statutory requirements.
 - Managing work teams, coordinating project activities.
 - Identifying variations from quality standards, programme, and budgets, and taking corrective action.
 - Evaluating and recommending improvements.
- C3 Manage teams, or the input of others, into own work and assist others to meet changing technical and management needs.**
- Agreeing objectives and work plans with teams and individuals.
 - Reinforcing team commitment to professional standards.
 - Leading and supporting team and individual development.
 - Assessing team and individual performance and providing feedback.
 - Seeking input from other teams or specialists where needed and managing the relationship.
- C4 Take an active role in continuous quality improvement.**
- Ensuring the application of quality management principles by team members and colleagues.
 - Managing operations to maintain quality standards e.g., ISO 9000, EQFM.
 - Evaluating projects and making recommendations for improvement.
 - Implementing and sharing the results of lessons learned.
- D1 Communicate effectively with others, at all levels, in English.**
- Contributing to, chairing, and recording meetings and discussions.
 - Preparing communications, documents, and reports on technical matters.
 - Exchanging information and providing advice to technical and non-technical colleagues.
 - Engaging or interacting with professional networks.
- D2 Clearly present and discuss proposals, justifications, and conclusions.**
- Preparing and delivering appropriate presentations.
 - Managing debates with audiences.
 - Feeding the results back to improve the proposals.
 - Contributing to the awareness of risk.
- D3 Demonstrate personal and social skills and awareness of diversity and inclusion issues.**
- Knowing and managing own emotions, strengths, and weaknesses.
 - Being confident and flexible in dealing with new and changing interpersonal situations.
 - Identifying, agreeing, and working towards collective goals.
 - Creating, maintaining, and enhancing productive working relationships, and resolving conflicts.
 - Being supportive of the needs and concerns of others, especially where this relates to diversity and inclusion.
- E1 Understand and comply with relevant codes of conduct.**
- Demonstrating compliance with your Licensee's Code of Professional Conduct.
 - Identifying aspects of the Code which are particularly relevant to your role.
 - Be aware of the legislative and regulatory frameworks relevant to your role and how they conform to them.
 - Leading work within relevant legislations and regulatory frameworks, including social and employment legislation.

E2 Understand the safety implications of their role and manage, apply, and improve safe systems of work.

- Identifying and taking responsibility for your own obligations and ensuring that others assume similar responsibility for health, safety, and welfare issues.
- Ensuring that systems satisfy health, safety, and welfare requirements.
- Developing and implementing appropriate hazard identification and risk management systems and culture.
- Managing, evaluating, and improving these systems.
- Applying a sound knowledge of health and safety legislation, for example: HASAW 1974, CDM regulations, ISO 45001, and company safety policies.

E3 Understand the principles of sustainable development and apply them in their work.

- Operating and acting responsibly, taking account of the need to progress environmental, social, and economic outcomes simultaneously.
- Providing products and services which maintain and enhance the quality of the environment and community and meet financial objectives.
- Recognising how sustainability principles, as described in the Engineering Council Guidance on Sustainability can be applied in your day-to-day work.
- Understanding and securing stakeholder involvement in sustainable development.
- Using resources efficiently and effectively in all activities.
- Taking action to minimise environmental impact in your area of responsibility.

E4 Carry out and record the Continuing Professional Development (CPD) necessary to maintain and enhance competence in their own area of practice

- Undertaking reviews of your own development needs.
- Planning how to meet personal and organisational objectives.
- Carrying out planned and unplanned CPD activities.
- Maintaining evidence of competence development.
- Evaluating CPD outcomes against any plans made.
- Assisting others with their own CPD.

E5 Understand the ethical issues that may arise in their role and carry out their responsibilities in an ethical manner.

- Understanding the ethical issues that you may encounter in your role.
- Giving an example of where you have applied ethical principles as described in the Engineering Council Statement of Ethical Principles.
- Giving an example of where you have applied, or upheld ethical principles as defined by your organisation or company.