**Part B – Incorporated Engineer (IEng) competence grid**

# Incorporated Engineer definition

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**Incorporated Engineers** maintain and manage applications of current and developing technology, and may undertake engineering design, development, manufacture, construction and operation.

Incorporated Engineers shall demonstrate:

* The theoretical knowledge to solve problems in established technologies using well proven analytical techniques
* Successful application of the knowledge to deliver engineering tasks or services using established technologies and methods
* Contribution to the financial and planning aspects of projects or tasks and contribution to leading and developing other professional staff
* Effective interpersonal skills in communicating technical matters
* The ability to specify and operate to safe systems of work and to demonstrate appropriate consideration of the principles of sustainability
* Commitment to professional engineering values

An Incorporated Engineer will be able to demonstrate their competence in all of the areas listed, but the depth and extent of their experience and competence will vary with the nature and requirements of their role. They will demonstrate a level of competence and commitment in each area (A1–E5) 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 and their role may provide limited experience in certain areas. 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 levels of competence in those areas which are critical to their role. Overall, they must demonstrate an appropriate balance of competences to perform their role effectively at Incorporated Engineer level.

The examples of evidence are intended as guidance to help identify activities that might demonstrate the required competence and commitment for Incorporated Engineer registration. They are intended as examples only as the most appropriate evidence will vary with each individual role. The list is not exhaustive and other types of evidence might be valid. There is no requirement to provide multiple examples of evidence for each area of competence, but examples from two or three projects or tasks would be useful.

**Completing the grid**

Your completed grid should:

* Include examples about you and the energy / petroleum engineering related work you have done.
* Be in the first person.
* Address the competence being described.
* Use detailed and specific examples to describe your actual work rather than a theoretical example.

You should look to write around 200 ~ 300 words for each competence. Please see the guidance document for further information.

# Competence and Commitment Standard for Incorporated Engineers

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| **Name:** |  | **Current EI Membership grade:** |  |
| **Job title if applicable:** |  | **Company:** |  |

**A Knowledge and understanding**

**Incorporated Engineers shall use a combination of general and specialist energy-engineering knowledge and understanding to apply existing and emerging technology.**

This competence is about having knowledge of the technologies, standards and practices relevant to your area of practice and having evidence of maintaining and applying this knowledge.

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| **Competence that you shall demonstrate:** | | **Examples of how you meet this competence:** |
| **A1** | **Have maintained and extended a sound theoretical approach to the application of technology in energy-engineering**  **Practice**  Examples of evidence:   * 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. |  |
| **Competence that you shall demonstrate:** | | **Examples of how you meet this competence:** |
| **A2** | **Use a sound evidence-based approach to problem-solving**  **and contribute to continuous improvement.**  Examples of evidence   * 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. |  |

**B Design, development and solving energy-engineering problems.**

**Incorporated Engineers shall apply appropriate theoretical and practical methods to design, develop, manufacture, construct, commission, operate, maintain, decommission and recycle energy-engineering processes, systems, services and products.**

This competence is about the ability to identify appropriate methods and approaches to use to undertake a task within your area of practice and to make a significant contribution to the development of a design or process or the maintenance of operations.

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| **Competence that you shall demonstrate:** | | **Examples of how you meet this competence:** |
| **B1** | **Identify, review and select techniques, procedures and methods to undertake energy-engineering tasks**  Examples of evidence:   * Establishing 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. |  |
| **Competence that you shall demonstrate:** | | **Examples of how you meet this competence:** |
| **B2** | **Contribute to the design and development of engineering solutions.**  Examples of evidence:   * 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), intellectual property 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.** Examples of evidence:   * 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 recommendations for improvement and actively learning from feedback on results. |  |

**C Responsibility, management and leadership**

**Incorporated Engineers shall provide technical and commercial management.**

This competence is about the ability to plan your own work and manage or specify the work of others effectively, efficiently and in a way which provides leadership at an appropriate level, whether technical or commercial. Leadership is not necessarily about having a formal line management role. In matrix management and other types of organisational structure, where Incorporated Engineers are working within complex and varied working relationships, they will provide leadership to achieve objectives. This competence is also about the ability to consider and identify improvements to quality.

| **Competence that you shall demonstrate:** | | **Examples of how you meet this competence:** |
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| **C1** | **Plan the work and resources needed to enable effective implementation of engineering tasks and projects**  Examples of evidence:   * Identifying factors affecting the project implementation * Carrying out holistic and systematic risk identification,   assessment and management   * Preparing and agreeing implementation plans and method   statements   * Securing the necessary resources and confirming roles in   a project team   * Applying the necessary contractual arrangements with   other stakeholders (clients, subcontractors, suppliers, etc) |  |

| **Competence that you shall demonstrate:** | | **Examples of how you meet this competence:** |
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| **C2** | **Manage (organise, direct and control), programme or schedule, budget and resource elements of engineering tasks or projects**  Examples of evidence:   * Operating appropriate management systems * Working 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 performance and recommending improvements |  |
| **C3** | **Manage teams, or the input of others, into own work and**  **assist others to meet changing technical and management needs**  Examples of evidence:   * 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 |  |
| **Competence that you shall demonstrate:** | | **Examples of how you meet this competence:** |
| **C4** | **Take an active role in continuous quality improvement.**  Examples of evidence:   * Ensuring the application of quality management principles by team members and colleagues * Managing operations to maintain quality standards   eg ISO 9000, EQFM   * Evaluating projects and making recommendations for   improvement   * Implementing and sharing the results of lessons learned |  |

**D Communication and interpersonal skills**

**Incorporated Engineers shall demonstrate effective communication and interpersonal skills.**

This is the ability to work with others constructively, to explain ideas and proposals clearly and to discuss issues objectively and constructively.

| **Competence that you shall demonstrate** | | **Examples of how you meet this competence:** |
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| **D1** | **Communicate effectively with others, at all levels, in English.**  Examples of evidence:   * 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 |  |

| **Competence that you shall demonstrate** | | **Examples of how you meet this competence:** |
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| **D2** | **Clearly present and discuss proposals, justifications and**  **conclusions.**  Examples of evidence:   * 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.**  Examples of evidence:   * 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 |  |

**E Personal and professional commitment**

**Incorporated Engineers shall demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment.**

This competence is about ensuring that the applicant is acting in a professional manner in their work and in their dealings with others. An Incorporated Engineer should set a standard and example to others with regard to professionalism.

| **Competence that you shall demonstrate:** | | **Examples of how you meet this competence:** |
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| **E1** | **Understand and comply with relevant codes of conduct.**  Examples of evidence:   * Demonstrating compliance with the EI’s Code of   Professional Conduct   * Identifying aspects of the Code particularly relevant to   your role   * Managing work within all relevant legislative and   regulatory frameworks, including social and employment  legislation |  |

| **Competence that you shall demonstrate:** | | **Examples of how you meet competence:** |
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| **E2** | **Understand the safety implications of your role and**  **manage, apply and improve safe systems of work.**  Examples of evidence:   * Identifying and taking responsibility for your own   obligations for health, safety and welfare issues   * Managing systems that 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 your work.**  Examples of evidence:   * Operating and acting responsibly, taking account of the   need to progress environmental, social and economic  outcomes simultaneously   * Recognising how sustainability principles, as described   in the Guidance on Sustainability on page 48 can be  applied in your day-to-day work   * Providing products and services which maintain and   enhance the quality of the environment and community,  and meet financial objectives   * Understanding and encouraging stakeholder involvement   in sustainable development   * Using resources efficiently and effectively * Taking action to minimise environmental impact in your   area of responsibility |  |
| **Competence that you shall demonstrate:** | | **Examples of how you meet competence:** |
| **E4** | **Carry out and record the Continuing Professional Development (CPD) necessary to maintain and enhance competence in your own area of practice:**  Examples of evidence:   * Undertaking reviews of your own development needs * Planning how to meet personal and organisational   objectives   * Carrying out and recording 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 your role and**  **carry out your responsibilities in an ethical manner.**  Examples of evidence:   * 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 Statement of Ethical  Principles on page 47 of UK-SPEC v4   * Giving an example of where you have applied or upheld   ethical principles as defined by your organisation or  company |  |