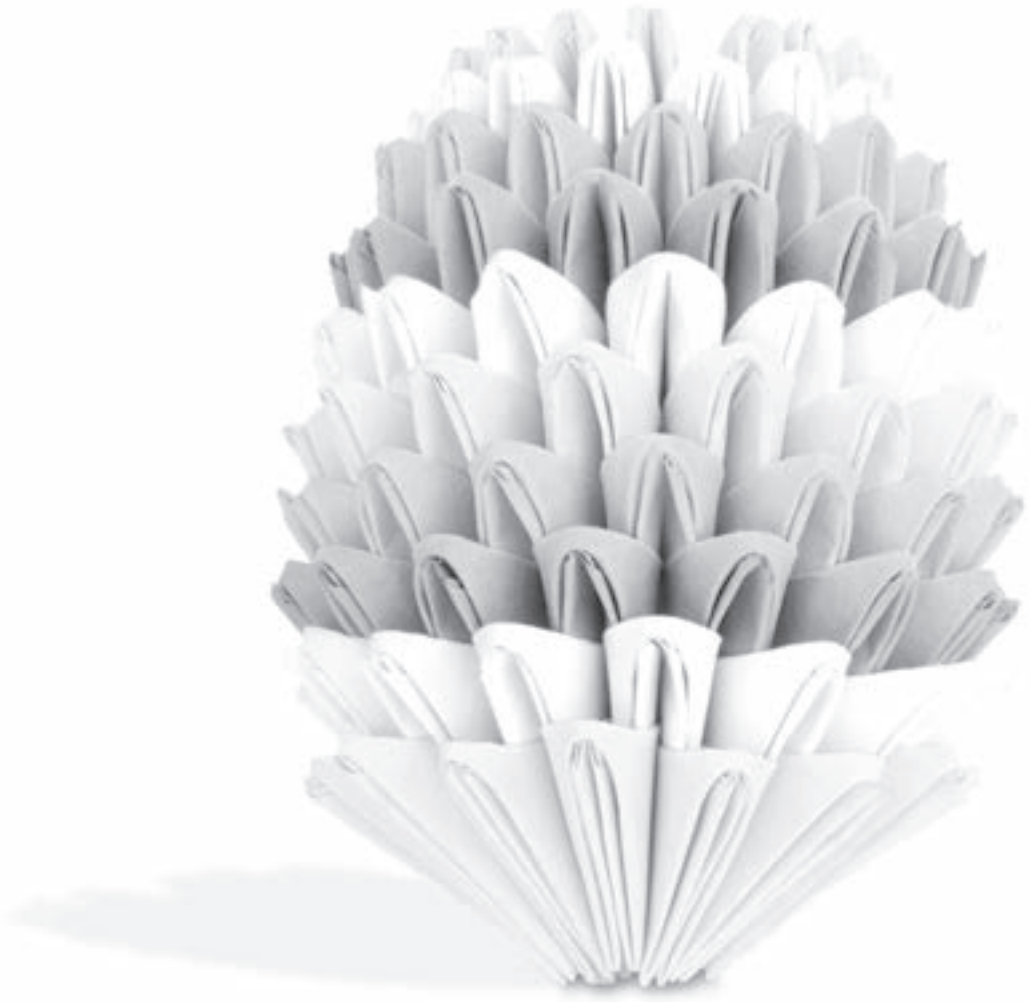
knowledge.experience.commitment

EngTech, IEng and CEng



UK-SPEC

UK STANDARD FOR PROFESSIONAL ENGINEERING COMPETENCE

Engineering Technician, Incorporated Engineer and Chartered Engineer Standard

Third edition

www.engc.org.uk

Engineering Council

CONTENTS

Operating under a Royal Charter, the Engineering Council is charged with regulating the engineering profession in the United Kingdom, setting the standard for the practice of engineering, and maintaining the registers of professional engineers and technicians. The Engineering Council is governed by a Board representing the professional engineering institutions in the UK, together with individuals drawn from industries and sectors with an interest in regulation of the engineering profession. This internationally recognised UK Standard is published by the Engineering Council on behalf of the UK engineering profession. First published in 2003, it was developed in collaboration with the profession and is kept under review. It was most recently reviewed in 2013.

FOREWORD

Engineering is all around us, satisfying everything from our basic needs to our more complex dreams and ambitions. The engineers and technicians who make this possible enjoy contributing to teams through technical endeavour to sustain and improve lives. They possess an incredible range of creative talent that is underpinned by their enquiring minds and balanced by their intellect and judgement.

Society rightly places great faith in the engineering profession, trusting engineers and technicians to regulate themselves on its behalf. This trust can only be delivered through significant individual commitment that is publicly demonstrated by the attainment of the professional competence and behaviours that are described in this Standard.

The men and women who aspire to be recognised as professional engineers and technicians require independent assessment of their competence and commitment, and the UK Standard for Professional Engineering Competence (UK-SPEC) provides the means to achieve this.

UK- SPEC has been developed collaboratively by members representing the breadth of the profession, from industry and academia, and from the many different disciplines and specialisms that make up the 'Universe of Engineering'.

THE PURPOSE OF UK-SPEC

Professional registration with the Engineering Council is based on demonstration of competence and commitment. The UK Standard for Professional Engineering Competence (UK-SPEC) describes the competence and commitment requirements that have to be met for registration as an Engineering Technician (EngTech), Incorporated Engineer (IEng) or Chartered Engineer (CEng). It includes examples of activities that could demonstrate achievement of the requirements, to enable individuals and employers to find out whether they or their staff can meet the registration requirements. Qualifications that exemplify the required knowledge and understanding are listed, however it should be noted that there are other ways of demonstrating achievement.

This document also explains the steps necessary to achieve professional registration; the requirement to maintain and enhance competence once registered; and the obligations to act with integrity and in the public interest that are placed on registrants through their membership of a licensed professional engineering institution.

A glossary of terms is included on page 36 and a matrix comprising requirements for all three titles is provided as an Annex.

Career development and progression

Registration in any category demonstrates valued recognition of an individual's engineering competence and commitment. However, experiential or other learning and professional development may also enable individuals to progress, from EngTech to IEng and from IEng to CEng, as their career develops. Evidence of competence and commitment is the key requirement for registration, and normally there will be a need for additional education and training before an individual can be registered for a different title.

Why register?

Professional registration underpins the systems and processes that ensure the current and future safeguarding of society. It provides employers, government and society, in the UK and overseas, with the confidence that professionally registered engineers and technicians possess and maintain the knowledge, skills and commitment required to meet the engineering and technological needs of today, whilst also catering for the needs of future generations.

Registration sets individual professionals apart from engineers and technicians who are not registered. It establishes their proven knowledge, understanding and competence. In particular, registration demonstrates a commitment to professional standards, and to developing and enhancing competence.

Employers of registered engineering professionals have the assurance of knowing that their employees have had their competence independently assessed, their credentials verified, and their commitment to Continuing Professional Development (CPD) established. They will have gained the recognition of their peers as meeting UK standards for knowledge and experience, which are internationally recognised. Maintaining registration requires continued membership of a professional engineering institution, which ensures that registrants are exposed to new developments in their profession, and provides opportunities to benefit from these. It also means that they are governed by a professional code of conduct, and receive assistance in determining their obligations under this code.

In some cases, evidence of employing registered engineering professionals will be necessary for the award of contracts, both in the UK and internationally.

Some employers use the framework offered by UK-SPEC as a basis for their own organisational needs, and rely on achievement of registration to demonstrate readiness for promotion.

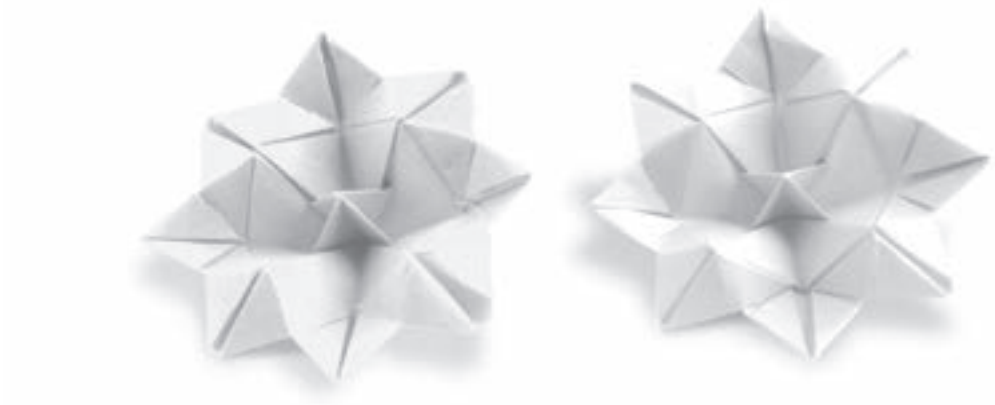
Further benefits for individuals can be found at: **www.engc.org.uk/benefits** and for employers at: **www.engc.org.uk/informationfor/employers**

International context

Many Engineering Council registrants are nationals of, or working in, countries outside the UK. The standing of Engineering Technicians, Incorporated Engineers and Chartered Engineers as defined by UK-SPEC is widely recognised around the world. In some cases professional registration is required for particular work. Professional registration can therefore be helpful when applying for jobs and tendering for work abroad.

As well as reflecting the requirements of global engineering in UK-SPEC, the Engineering Council is active within a number of multilateral mutual recognition agreements with national engineering bodies in other countries. In particular, the organisation was a founder member of the Washington Accord, which since 1989 has extended well beyond the original six English-speaking countries. The Engineering Council has subsequently worked with international partners to develop the Sydney and Dublin Accords, the International Engineering Technologists Agreement and the International Professional Engineers Agreement. Together with the APEC Engineers Agreement, governance of these now sits within the International Engineering Alliance. In addition, the Engineering Council has worked within the European Federation of National Engineering Associations (FEANI) to strengthen the voice of engineers at the European level.

The Engineering Council continues to be committed to helping engineers and technicians whose registration was in the UK, to contribute to engineering in other countries, as well as to admitting to its register those who have developed their professional engineering competence in other countries and can demonstrate that they meet the UK Standard.



How to register

Professional registration is open to all engineers and technicians who can demonstrate competence and commitment to perform professional work to the necessary standard.

Anyone wishing to be registered must apply through one of the professional engineering institutions licensed by the Engineering Council. Institutions can provide advice about the process and typical timescales for the review. A list of institutions can be found at: **www.engc.org.uk/peis**

The assessment process is known as a professional review. The process starts with an application made in accordance with the requirements of the chosen institution. A detailed description of the format for this will be provided by the institution, but any claim of qualifications, experience or training will need formal documented evidence. When submitting details, applicants will need to show how this relates to the required competences and commitment.

To assist potential registrants, their advisers and professional review assessors in deciding the most appropriate category of registration, a matrix comparing requirements for all three titles is provided as Annex A.

Members of a Professional Affiliate (see glossary) that has an agreement with a licensed institution to process its members for registration may apply through the institution. For a current list of Professional Affiliates please see: **www.engc.org.uk/pas**

What is competence?

Competence is the ability to carry out a task to an effective standard. To achieve competence requires the right level of knowledge, understanding and skill, and a professional attitude. Competence is developed by a combination of formal and informal learning, and training and experience, generally known as initial professional development. However, these elements are not necessarily separate or sequential and they may not always be formally structured.

Pages 10 – 31 of this document set out the threshold generic competence and commitment standards for registration as an Engineering Technician, Incorporated Engineer or Chartered Engineer, and include some examples of the kind of evidence that would help to demonstrate these. The list of examples is not intended to be exhaustive. There may be other examples and local equivalents.

There are five generic areas of competence and commitment for all registrants, broadly covering:

A Knowledge and understanding

B Design and development of processes, systems, services and products

C Responsibility, management or leadership

D Communication and inter-personal skills

E Professional commitment

For each category of registration, the formal education qualification to demonstrate the necessary knowledge and understanding that underpins competence is also given. Applicants without exemplifying qualifications may demonstrate the required knowledge and understanding in other ways, and increasingly, workplace learning is contributing to this.

What is commitment?

Registered engineers and technicians demonstrate a personal and professional commitment to society, their profession and the environment. They are required to show that they have adopted a set of values and behaviours that will maintain and enhance the reputation of the profession. Specific evidence is required in the areas of:

- Complying with codes of conduct
- Managing and applying safe systems of work
- Undertaking engineering activities in a way that contributes to sustainable development
- Carrying out CPD necessary to maintain and enhance competence
- Actively participating within the profession.

This revision of UK-SPEC includes a requirement to exercise responsibilities in an ethical manner (see standard E5). The Statement of Ethical Principles developed by the Engineering Council and the Royal Academy of Engineering (**www.engc.org.uk/professional-ethics**) sets a standard to which members of the profession should aspire in their working habits and relationships. The values on which it is based should apply in every situation in which engineers and technicians exercise their judgement.

Further information on the required standards is available from a variety of sources. Each institution will have its own Code of Conduct, in line with the generic framework on page 33 of this document, and supporting guidance.

The Engineering Council has published a CPD Code for Registrants, (see page 9), as well as guidance on risk and sustainability (see page 34).

Assessment of competence and commitment

To become professionally registered, applicants must have their competence and commitment assessed through a process known as professional review. This is a peer review process, by registrants who are competent and trained to undertake this kind of assessment. Applicants are assessed against the standards listed in this document, which may be adapted by the institution to relate specifically to the particular technologies or industries with which it is concerned.

There is no prescribed time period for the development of competence and commitment – it depends on many factors such as prior qualifications or experience, job role and personal circumstances. Following a review of the documented evidence, the institution will decide whether the applicant is ready. For would-be Incorporated Engineers and Chartered Engineers, a formal interview with the assessors is always a part of the process. For those seeking to become registered Engineering Technicians, the assessment may be on the basis of documentary evidence. For all three titles, the institution will be able to advise how best to present evidence of training and experience. Where shortfalls in evidence emerge, institutions will usually be able to suggest ways in which they can be addressed. This may involve further training or additional experience.

On completion of the professional review, a decision will be made by the relevant committee of the institution. A positive decision will result in registration of the candidate as an Engineering Technician, Incorporated Engineer or Chartered Engineer. Retention of the title requires continued membership of the admitting institution or another licensed for that title, or a Professional Affiliate which has a registration agreement with an institution licensed for that title, and payment of an annual fee.

Maintaining and enhancing competence

Candidates applying for professional registration must be committed to maintaining and enhancing their competence. They will be required to show evidence that they have taken steps to ensure this, and that they intend to continue to do this in line with the CPD Code for Registrants. This is an important part of recognition as a registered engineer or technician, and it is important that anyone seeking registration recognises that this will entail obligations and an ongoing commitment.

CPD Code for Registrants

Engineering Technicians, Incorporated Engineers and Chartered Engineers should take all necessary steps to maintain and enhance their competence through Continuing Professional Development (CPD). In particular they should:

1 Take ownership of their learning and development needs, and develop a plan to indicate how they might meet these, in discussion with their employer, as appropriate.

2 Undertake a variety of development activities, both in accordance with this plan and in response to other opportunities which may arise.

3 Record their CPD activities.

4 Reflect upon what they have learned or achieved through their CPD activities and record these reflections.

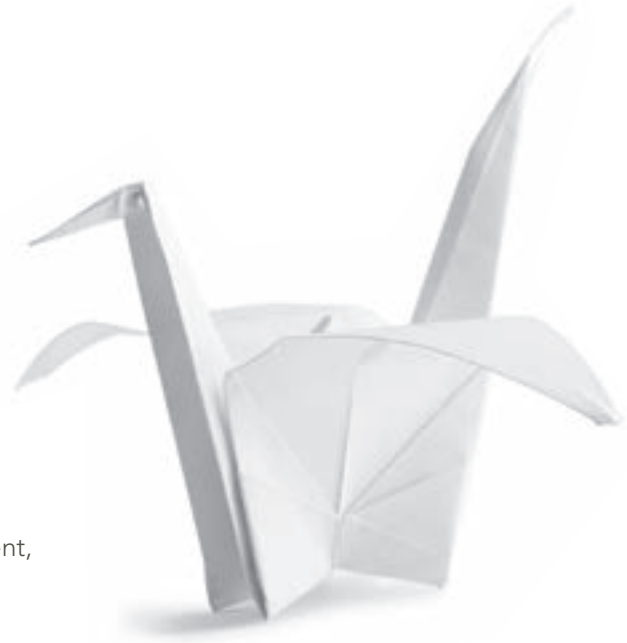
5 Evaluate their CPD activities against any objectives which they have set and record this evaluation.

6 Review their learning and development plan regularly following reflection and assessment of future needs.

7 Support the learning and development of others through activities such as mentoring, and sharing professional expertise and knowledge.

Further information on CPD can be found on page 34.

THE ENGINEERING TECHNICIAN STANDARD



Engineering Technicians apply proven techniques and procedures to the solution of practical engineering problems.

Engineering Technicians are required to apply safe systems of work and are able to demonstrate:

- Evidence of their contribution to either the design, development, manufacture, commissioning, decommissioning, operation or maintenance of products, equipment, processes or services
- Supervisory or technical responsibility
- Effective interpersonal skills in communicating technical matters
- Commitment to professional engineering values.

The Competence and Commitment Standard for Engineering Technicians.

The examples given below are intended to help you identify activities you might quote to demonstrate the required competence and commitment for EngTech registration. These are not exhaustive. Moreover, you are not required to give multiple examples to demonstrate competence and commitment.

Engineering Technicians must be competent throughout their working life, by virtue of their education, training and experience, to:	Tell us about your career, education and training. Explain how the experience you have gained has made you more competent.
A Use engineering knowledge and understanding to apply technical and practical skills. This includes the ability to:	**The reviewers will be looking for evidence that you have the know-how to do the job, and were able to go beyond the immediate requirements and use your initiative and experience to solve a problem or improve a process.**
A1 Review and select appropriate techniques, procedures and methods to undertake tasks.	Describe: • an example of work you did that went well, the choices you made and the outcome • or something in your work that you were involved in which didn't quite work and explain why • or a technique, procedure or method you improved upon and explain why.

A2 Use appropriate scientific, technical or engineering principles.	Drawing from your direct experience, this might be an explanation of how a piece of equipment, system or mechanism works.
B Contribute to the design, development, manufacture, construction, commissioning, operation or maintenance of products, equipment, processes, systems or services. In this context, this includes the ability to:	**Explain how you contribute to one or more of these activities.**
B1 Identify problems and apply appropriate methods to identify causes and achieve satisfactory solutions.	Show an example of how you have used measurement, monitoring and assessment to: • identify the source of a problem • or to identify an opportunity • or to propose a solution.
B2 Identify, organise and use resources effectively to complete tasks, with consideration for cost, quality, safety, security and environmental impact.	Illustrate how you make decisions about: • what information, material, component, people or plant to use • or how to introduce a new method of working • or what precautions you took. Describe how you have contributed to best practice methods of continuous improvement, eg ISO 9000.
C Accept and exercise personal responsibility. This includes the ability to:	**Describe an experience or instance where you have had to accept personal responsibility for seeing a process through to completion within agreed targets.**
C1 Work reliably and effectively without close supervision, to the appropriate codes of practice.	Your evidence should show how you identified and agreed what had to be done and to what standards on a typical project.
C2 Accept responsibility for work of self or others.	Your evidence could include: minutes of meetings; site notes and instructions; Variation Orders; programmes of work; specifications, drawing and reports; or appraisals. Activity not associated with your job can contribute evidence.
C3 Accept, allocate and supervise technical and other tasks.	

D	**Use effective communication and interpersonal skills.** This includes the ability to:	**You will need to show you can: contribute to discussions; make a presentation; read and synthesise information; or write different types of documents.**
D1	Use oral, written and electronic methods for the communication in English[1] of technical and other information.	Your evidence could include: letters; reports; drawings; emails; minutes, including of progress meetings; appraisals; work instructions; and other task planning and organising documents. Your application itself will be relevant.
D2	Work effectively with colleagues, clients, suppliers or the public, and be aware of the needs and concerns of others, especially where related to diversity and equality.	Show examples of how this has occurred, and your role at the time. Describe your role as part of a team. Describe a situation where you put your awareness into practice.
E	**Make a personal commitment to an appropriate code of professional conduct, recognising obligations to society, the profession and the environment.**	**Your commitment will be to become part of the profession and uphold the standards to which all members subscribe. You need to show that you have read and understood your institution's Code of Conduct.**
E1	Comply with the Code of Conduct of your institution.	The professional review involves demonstration of, or discussion of, your position on typical ethical challenges.
E2	Manage and apply safe systems of work.	Provide evidence of applying current safety requirements, such as risk assessment and other examples of good practice you adopt in your work. You will need to show that you have received a formal safety instruction relating to your workplace (such as a CSCS safety test in the UK), or an update on statutory regulations. In the UK an example would be COSHH requirements.
E3	Undertake engineering work in a way that contributes to sustainable development. This could include an ability to: • Operate and act responsibly, taking account of the need to progress environmental, social and economic outcomes simultaneously.	Show examples of methodical assessment of risk in specific projects; actions taken to minimise risk to society or the environment.

1 Any interviews will be conducted in English, subject only to the provisions of the Welsh Language Act 1993 and any Regulations which may be made in implementation of European Union directives on free movement of labour.

E4 Carry out and record CPD necessary to maintain and enhance competence in own area of practice including: • Undertake reviews of own development needs • Plan how to meet personal and organisational objectives • Carry out planned (and unplanned) CPD activities • Maintain evidence of competence development • Evaluate CPD outcomes against any plans made • Assist others with their own CPD.	This means demonstrating that you have actively sought to keep yourself up to date, perhaps by studying new standards or techniques, or made use of magazines, lectures organised by professional engineering institutions, and other opportunities to network in order to keep abreast of change.
E5 Exercise responsibilities in an ethical manner.	Give an example of where you have applied ethical principles as described in the Statement of Ethical Principles on page 33. Give an example of where you have applied/upheld ethical principles as defined by your organisation or company, which may be in its company or brand values.

Education

Knowledge and understanding are important components of professional competence. The following qualifications exemplify the required knowledge and understanding for Engineering Technicians:

- An Advanced/Modern Apprenticeship or other work-based learning programme approved by a licensed professional engineering institution

- or a qualification, approved by a licensed professional engineering institution, in engineering or construction set at level 3 (or above) in the Qualifications and Credit Framework/National Qualifications Framework[†] for England and Northern Ireland; or at level 6 (or above) in the Scottish Credit and Qualifications Framework; or at level 3 (or above) in the Credit and Qualifications Framework for Wales

- or equivalent qualifications approved by a licensed professional engineering institution.

Many qualifications may be acceptable as evidence that part or all of the necessary competence has been acquired. Please check the Engineering Council's searchable database of approved qualifications and programmes for information about current approved status: **www.engc.org.uk/techdb**

Many potential Engineering Technicians have not had the advantage of formal training, but are able to demonstrate that they have acquired the necessary competence through substantial working experience. Thus individuals without the types of qualifications described above may apply for an Individual Route assessment. This process, administered by the applicant's institution, includes assessment of prior learning and of current performance. Evidence of employer recognition of competences and relevant skills may be helpful.

Applicants should consult their institution for advice on the most appropriate option.

[†] See document of amendments at **http://www.engc.org.uk/engcdocuments/internet/Website/2017_Standards_Amendments.pdf** for updates.

Professional development

This is the other key part of developing competence. It is how potential Engineering Technicians learn to apply their knowledge and understanding and begin to apply professional judgement. It can happen at the same time as some of the formal education or training referred to above, for example through an apprenticeship scheme.

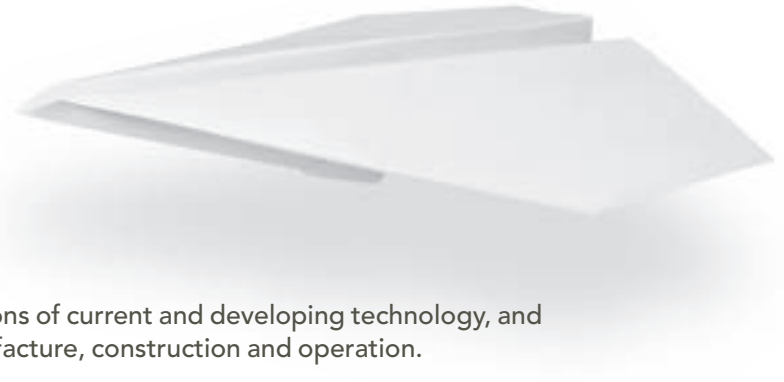
Many organisations run well-established apprenticeship or employer training and development schemes. While these schemes are of course geared to the specific needs of their organisations, they are frequently designed to help individuals on the way to registration, and may have been approved by one or more of the professional engineering institutions.

Potential Engineering Technicians in organisations without schemes of this type will need to develop profiles of competence and professional activity to help them prepare for registration. In some cases employers will use occupational standards or competence frameworks in determining job descriptions and staff development, and these may assist in developing a competence profile. Otherwise, aspiring registrants should use the competence and commitment statements and seek advice and guidance from the relevant institution, which may be able to put them in touch with a mentor to assist them through the process and help them address any gaps in their development.

Those seeking Engineering Technician registration should maintain a detailed record of their professional development, responsibilities and experience, verified by supervisors or mentors, to provide best evidence for the professional review (see page 8).

EngTech

THE INCORPORATED ENGINEER STANDARD



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

Incorporated Engineers are able to demonstrate:

- The theoretical knowledge to solve problems in developed technologies using well proven analytical techniques
- Successful application of their knowledge to deliver engineering projects or services using established technologies and methods
- Responsibility for project and financial planning and management together with some responsibility for leading and developing other professional staff
- Effective interpersonal skills in communicating technical matters
- Commitment to professional engineering values.

The Competence and Commitment Standard for Incorporated Engineers.	The examples given below are intended to help you identify activities you might quote to demonstrate the required competence and commitment for IEng registration. These are not exhaustive. Moreover, you are not required to give multiple examples to demonstrate competence and commitment.
Incorporated Engineers must be competent throughout their working life, by virtue of their education, training and experience, to:	
A Use a combination of general and specialist engineering knowledge and understanding to apply existing and emerging technology.	
A1 Maintain and extend a sound theoretical approach to the application of technology in engineering practice. This could include an ability to: • Identify the limits of own personal knowledge and skills • Strive to extend own technological capability • Broaden and deepen own knowledge base through new applications and techniques.	Engage in formal learning. Learn new engineering theories and techniques in the workplace, at seminars, etc. Broaden your knowledge of engineering codes, standards and specifications.

A2	Use a sound evidence-based approach to problem-solving and contribute to continuous improvement. This could include an ability to: • Use market intelligence and knowledge of technological developments to promote and improve the effectiveness of engineering products, systems and services • Contribute to the evaluation and development of continuous improvement systems • Apply knowledge and experience to investigate and solve problems arising during engineering tasks and implement corrective action.	Manage/contribute to market research, and product and process research and development. Involvement with cross-disciplinary working. Conduct statistically sound appraisal of data. Use evidence from best practice to improve effectiveness. Apply root cause analysis.
B	**Apply appropriate theoretical and practical methods to design, develop, manufacture, construct, commission, operate, maintain, decommission and re-cycle engineering processes, systems, services and products.**	
B1	Identify, review and select techniques, procedures and methods to undertake engineering tasks. This could include an ability to: • Establish users' requirements for improvement • Select a review methodology • Fully exploit and implement current technology • Review the potential for enhancing engineering practices, products, processes, systems and services, using evidence from best practice • Establish an action plan to implement the results of the review.	Contribute to the marketing of and tendering for new engineering products, processes and systems. Contribute to the specification and procurement of new engineering products, processes and systems. Develop decommissioning processes. Set targets, and draft programmes and action plans. Schedule activities.

B2	Contribute to the design and development of engineering solutions. This could include an ability to: • Contribute to the identification and specification of design and development requirements for engineering products, processes, systems and services • Identify operational risks and evaluate possible engineering solutions, taking account of cost, quality, safety, reliability, appearance, fitness for purpose, security, intellectual property (IP) constraints and opportunities, and environmental impact • Collect and analyse results • Carry out necessary tests.	Contribute to theoretical and applied research. Manage/ contribute to value engineering and whole life costing. Work in design teams. Draft specifications. Find and evaluate information from a variety of sources, including online. Develop and test options. Identify resources and costs of options. Produce detailed designs. Be aware of IP constraints and opportunities.
B3	Implement design solutions and contribute to their evaluation. This could include an ability to: • Secure the resources required for implementation • Implement design solutions, taking account of critical constraints, including due concern for safety and sustainability • Identify problems during implementation and take corrective action • Contribute to recommendations for improvement and actively learn from feedback on results.	Follow the design process through into product manufacture. Operate and maintain processes, systems etc. Contribute to reports on the evaluation of the effectiveness of the designs, including risk, safety and life cycle considerations. Contribute to product improvement. Interpret and analyse performance. Contribute to determining critical success factors.
C	**Provide technical and commercial management.**	
C1	Plan for effective project implementation. This could include an ability to: • Identify factors affecting the project implementation • Carry out holistic and systematic risk identification, assessment and management • Prepare and agree implementation plans and method statements • Secure the necessary resources and confirm roles in project team • Apply the necessary contractual arrangements with other stakeholders (client, subcontractors, suppliers, etc).	Manage/contribute to project planning activities. Produce and implement procurement plans. Contribute to project risk assessments. Collaborate with key stakeholders. Plan programmes and delivery of tasks. Identify resources and costs. Prepare and agree contracts/work orders.

C2	Manage tasks, people and resources to plan and budget. This could include an ability to: • Operate appropriate management systems • Work to the agreed quality standards, programme and budget, within legal and statutory requirements • Manage work teams, coordinating project activities • Identify variations from quality standards, programme and budgets, and take corrective action • Evaluate performance and recommend improvements.	Manage/contribute to project operations. Manage the balance between quality, cost and time. Manage contingency processes. Contribute to the management of project funding, payments and recovery. Satisfy legal and statutory obligations. Manage tasks within identified financial, commercial and regulatory constraints.
C3	Manage teams and develop staff to meet changing technical and managerial needs. This could include an ability to: • Agree objectives and work plans with teams and individuals • Identify team and individual needs, and plan for their development • Reinforce team commitment to professional standards • Manage and support team and individual development • Assess team and individual performance, and provide feedback.	Carry out/contribute to staff appraisals. Plan/contribute to the training and development of staff. Gather evidence from colleagues of the management, assessment and feedback that you have provided. Carry out/contribute to disciplinary procedures.
C4	Manage continuous quality improvement. This could include an ability to: • Ensure the application of quality management principles by team members and colleagues • Manage operations to maintain quality standards • Evaluate projects and make recommendations for improvement.	Promote quality. Manage/contribute to best practice methods of continuous improvement, eg ISO 9000, EFQM, balanced scorecard. Carry out/contribute to quality audits. Monitor, maintain and improve delivery. Identify, implement and evaluate changes to meet quality objectives.
D	**Demonstrate effective interpersonal skills.**	
D1	Communicate in English[2] with others at all levels. This could include an ability to: • Contribute to, chair and record meetings and discussions • Prepare communications, documents and reports on technical matters • Exchange information and provide advice to technical and non-technical colleagues.	Reports, letters, emails, drawings, specifications and working papers (eg meeting minutes, planning documents, correspondence) in a variety of formats. Engaging or interacting with professional networks.

2 Any interviews will be conducted in English, subject only to the provisions of the Welsh Language Act 1993 and any Regulations which may be made in implementation of European Union directives on free movement of labour.

D2 Present and discuss proposals. This could include an ability to: • Prepare and deliver appropriate presentations • Manage debates with audiences • Feed the results back to improve the proposals • Contribute to the awareness of risk.	Presentations, records of discussions and their outcomes.
D3 Demonstrate personal and social skills. This could include an ability to: • Know and manage own emotions, strengths and weaknesses • Be aware of the needs and concerns of others, especially where related to diversity and equality • Be confident and flexible in dealing with new and changing interpersonal situations • Identify, agree and work towards collective goals • Create, maintain and enhance productive working relationships, and resolve conflicts.	Records of meetings. Evidence from colleagues of your personal and social skills. Contribute to productive working relationships. Apply diversity and anti-discrimination legislation.
E Demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment.	
E1 Comply with relevant codes of conduct. This includes an ability to: • Comply with the rules of professional conduct of own institution • Manage work within all relevant legislation and regulatory frameworks, including social and employment legislation.	Contribute to the affairs of your institution. Work with a variety of conditions of contract.
E2 Manage and apply safe systems of work. This could include an ability to: • Identify and take responsibility for own obligations for health, safety and welfare issues • Manage systems that satisfy health, safety and welfare requirements • Develop and implement appropriate hazard identification and risk management systems and culture • Manage, evaluate and improve these systems • Apply a sound knowledge of health and safety legislation.	Undertake formal health and safety training. Work with health and safety legislation and best practice. In the UK, examples include HASAW 1974, CDM regulations, OHSAS 18001:2007 and company safety policies. Carry out safety audits. Identify and minimise hazards. Assess and control risks. Deliver health and safety briefings and inductions.

E3 Undertake engineering activities in a way that contributes to sustainable development. This could include an ability to: • Operate and act responsibly, taking account of the need to progress environmental, social and economic outcomes simultaneously • Provide products and services which maintain and enhance the quality of the environment and community, and meet financial objectives • Understand and encourage stakeholder involvement in sustainable development • Use resources efficiently and effectively.	Carry out/contribute to environmental impact assessments. Carry out/contribute to environmental risk assessments. Manage best practice environmental management systems, eg ISO 14000. Manage best practice risk management systems eg ISO 31000. Work within environmental legislation. Adopt sustainable practices. Contribute to social, economic and environmental outcomes.
E4 Carry out and record CPD necessary to maintain and enhance competence in own area of practice including: • Undertake reviews of own development needs • Plan how to meet personal and organisational objectives • Carry out planned (and unplanned) CPD activities • Maintain evidence of competence development • Evaluate CPD outcomes against any plans made • Assist others with their own CPD.	Keep up to date with national and international engineering issues. Maintain CPD plans and records. Involvement with the affairs of your institution. Evidence of your development through on-the-job learning, private study, in-house courses, external courses and conferences.
E5 Exercise responsibilities in an ethical manner.	Give an example of where you have applied ethical principles as described in the Statement of Ethical Principles on page 33. Give an example of where you have applied/upheld ethical principles as defined by your organisation or company, which may be in its company or brand values.

Education

Knowledge and understanding are important components of professional competence. Formal education is the usual, though not the only, way of demonstrating the necessary knowledge and understanding, and the following qualifications exemplify the required knowledge and understanding for Incorporated Engineers:

- An accredited Bachelors or honours degree in engineering or technology
- or a Higher National Diploma or a Foundation Degree in engineering or technology, plus appropriate further learning to degree level*
- or an NVQ4 or SVQ4 which has been approved for the purpose by a licensed professional engineering institution, plus appropriate further learning to degree level*.

*See **www.qaa.ac.uk** for qualification levels and HE reference points.

The Engineering Council website provides searchable databases of accredited programmes. Please check the Engineering Council website:
www.engc.org.uk/courses

Applicants who do not have exemplifying qualifications may demonstrate the required knowledge and understanding in other ways, but must clearly demonstrate they have achieved the same level of knowledge and understanding as those with exemplifying qualifications.

Ways to demonstrate this include:

- Taking further qualifications, in whole or in part, as specified by the institution to which they are applying
- Completing appropriate work-based or experiential learning
- Writing a technical report, based on their experience, and demonstrating their knowledge and understanding of engineering principles
- Until 2011, taking Engineering Council examinations.

Applicants should consult their institution for advice on the most appropriate option.

Professional development

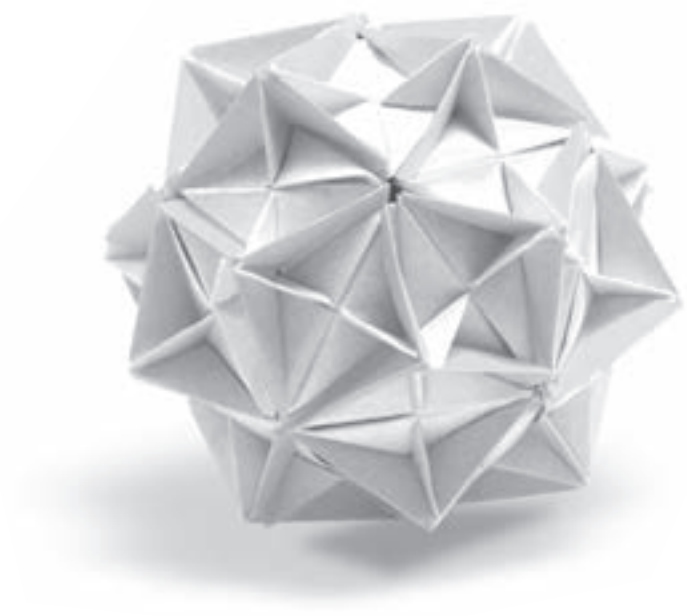
This is the other key part of developing competence. It is how potential Incorporated Engineers learn to apply their knowledge and understanding and begin to apply professional judgement. It can happen at the same time as some of the formal education referred to above, for example through an industrial placement during a higher education course, through a Higher Apprenticeship scheme or alongside part-time study.

Many larger employers run well-established apprenticeship or graduate training and development schemes. While these schemes are of course geared to the specific needs of their organisations, they are frequently designed to help apprentices and graduates on the way to registration, and may have been approved or accredited by one or more of the professional engineering institutions.

Potential Incorporated Engineers in organisations without schemes of this type will need to develop profiles of competence and professional activity to help them prepare for registration. In some cases employers will use occupational standards or competence frameworks in determining job descriptions and staff development, and these may assist in developing a competence profile. Otherwise aspiring registrants should use the competence and commitment statements and seek advice and guidance from the relevant institution, which may be able to put them in touch with a mentor to assist them through the process and help them address any gaps in their development.

Those seeking Incorporated Engineer registration should maintain a detailed record of their professional development, responsibilities and experience, verified by supervisors or mentors, to provide best evidence for the professional review (see page 8).

THE CHARTERED ENGINEER STANDARD



Chartered Engineers develop solutions to engineering problems using new or existing technologies, through innovation, creativity and change and/or they may have technical accountability for complex systems with significant levels of risk.

Chartered Engineers are able to demonstrate:

- The theoretical knowledge to solve problems in new technologies and develop new analytical techniques
- Successful application of the knowledge to deliver innovative products and services and/or take technical responsibility for complex engineering systems
- Accountability for project, finance and personnel management and managing trade-offs between technical and socio-economic factors
- Skill sets necessary to develop other technical staff
- Effective interpersonal skills in communicating technical matters.

The Competence and Commitment Standard for Chartered Engineers.	The examples given below are intended to help you identify activities you might quote to demonstrate the required competence and commitment for CEng registration. These are not exhaustive. Moreover, you are not required to give multiple examples to demonstrate competence and commitment.
Chartered Engineers **must be competent throughout their working life, by virtue of their education, training and experience, to:**	
A Use a combination of general and specialist engineering knowledge and understanding to optimise the application of existing and emerging technology.	
A1 Maintain and extend a sound theoretical approach in enabling the introduction and exploitation of new and advancing technology. This could include an ability to: • Identify the limits of own personal knowledge and skills • Strive to extend own technological capability • Broaden and deepen own knowledge base through research and experimentation.	Engage in formal post-graduate academic study. Learn and develop new engineering theories and techniques in the workplace. Broaden your knowledge of engineering codes, standards and specifications.

A2	Engage in the creative and innovative development of engineering technology and continuous improvement systems. This could include an ability to: • Assess market needs and contribute to marketing strategies • Identify constraints and exploit opportunities for the development and transfer of technology within own chosen field • Promote new applications when appropriate • Secure the necessary intellectual property (IP) rights • Develop and evaluate continuous improvement systems.	Lead/manage market research, and product and process research and development. Cross-disciplinary working involving complex projects. Conduct statistically sound appraisal of data. Use evidence from best practice to improve effectiveness.
B	**Apply appropriate theoretical and practical methods to the analysis and solution of engineering problems.**	
B1	Identify potential projects and opportunities. This could include an ability to: • Establish and help develop solutions to meet users' requirements • Consider and implement new and emerging technologies • Enhance engineering practices, products, processes, systems and services • Use own knowledge of the employer's position to assess the viability of opportunities.	Involvement in the marketing of and tendering for new engineering products, processes and systems. Involvement in the specification and procurement of new engineering products, processes and systems. Set targets, and draft programmes and action plans. Schedule activities.
B2	Conduct appropriate research, and undertake design and development of engineering solutions. This could include an ability to: • Identify and agree appropriate research methodologies • Allocate and manage resources • Develop the necessary tests • Collect, analyse and evaluate the relevant data • Undertake engineering design • Prepare, present and agree design recommendations, with appropriate analysis of risk, and taking account of cost, quality, safety, reliability, appearance, fitness for purpose, security, intellectual property (IP) constraints and opportunities, and environmental impact.	Carry out formal theoretical research. Evaluate numerical and analytical tools. Carry out applied research on the job. Lead/manage value engineering and whole life costing. Lead design teams. Draft specifications. Develop and test options. Identify resources and costs of options. Produce concept designs, and develop these into detailed designs. Be aware of IP constraints and opportunities.

B3	Manage implementation of design solutions, and evaluate their effectiveness. This could include an ability to: • Ensure that the application of the design results in the appropriate practical outcome • Implement design solutions, taking account of critical constraints, including due concern for safety and sustainability • Determine the criteria for evaluating the design solutions • Evaluate the outcome against the original specification • Actively learn from feedback on results to improve future design solutions and build best practice.	Follow the design process through into product or service realisation and its evaluation. Prepare and present reports on the evaluation of the effectiveness of the designs, including risk, safety and life cycle considerations. Manage product improvement. Interpret and analyse performance. Determine critical success factors.
C	**Provide technical and commercial leadership.**	
C1	Plan for effective project implementation. This could include an ability to: • Systematically review the factors affecting the project implementation including safety and sustainability considerations • Define a holistic and systematic approach to risk identification, assessment and management • Lead on preparing and agreeing implementation plans and method statements • Ensure that the necessary resources are secured and brief the project team • Negotiate the necessary contractual arrangements with other stakeholders (client, subcontractors, suppliers, etc).	Lead/manage project planning activities. Produce and implement procurement plans. Carry out project risk assessments. Collaborate with key stakeholders, and negotiate agreement to the plans. Plan programmes and delivery of tasks. Identify resources and costs. Negotiate and agree contracts/work orders.
C2	Plan, budget, organise, direct and control tasks, people and resources. This could include an ability to: • Set up appropriate management systems • Define quality standards, programme and budget within legal and statutory requirements • Organise and lead work teams, coordinating project activities • Ensure that variations from quality standards, programme and budgets are identified, and that corrective action is taken • Gather and evaluate feedback, and recommend improvements.	Take responsibility for and control project operations. Manage the balance between quality, cost and time. Manage risk register and contingency systems. Manage project funding, payments and recovery. Satisfy legal and statutory obligations. Lead/manage tasks within identified financial, commercial and regulatory constraints.

C3	Lead teams and develop staff to meet changing technical and managerial needs. This could include an ability to: • Agree objectives and work plans with teams and individuals • Identify team and individual needs, and plan for their development • Reinforce team commitment to professional standards • Lead and support team and individual development • Assess team and individual performance, and provide feedback.	Carry out/contribute to staff appraisals. Plan/contribute to the training and development of staff. Gather evidence from colleagues of the management, assessment and feedback that you have provided. Carry out/contribute to disciplinary procedures.
C4	Bring about continuous improvement through quality management. This could include an ability to: • Promote quality throughout the organisation and its customer and supplier networks • Develop and maintain operations to meet quality standards • Direct project evaluation and propose recommendations for improvement.	Plan and implement best practice methods of continuous improvement, eg ISO 9000, EFQM, balanced scorecard. Carry out quality audits. Monitor, maintain and improve delivery. Identify, implement and evaluate changes to meet quality objectives.
D	**Demonstrate effective interpersonal skills.**	
D1	Communicate in English[3] with others at all levels. This could include an ability to: • Lead, chair, contribute to and record meetings and discussions • Prepare communications, documents and reports on complex matters • Exchange information and provide advice to technical and non-technical colleagues.	Reports, letters, emails, drawings, specifications and working papers (e.g. meeting minutes, planning documents, correspondence) in a variety of formats. Engaging or interacting with professional networks.
D2	Present and discuss proposals. This could include an ability to: • Prepare and deliver presentations on strategic matters • Lead and sustain debates with audiences • Feed the results back to improve the proposals • Raise the awareness of risk.	Presentations, records of discussions and their outcomes.

3 Any interviews will be conducted in English, subject only to the provisions of the Welsh Language Act 1993 and any Regulations which may be made in implementation of European Union directives on free movement of labour.

D3	Demonstrate personal and social skills. This could include an ability to: • Know and manage own emotions, strengths and weaknesses • Be aware of the needs and concerns of others, especially where related to diversity and equality • Be confident and flexible in dealing with new and changing interpersonal situations • Identify, agree and lead work towards collective goals • Create, maintain and enhance productive working relationships, and resolve conflicts.	Records of meetings. Evidence from colleagues of your personal and social skills. Take responsibility for productive working relationships. Apply diversity and anti-discrimination legislation.
E	**Demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment.**	
E1	Comply with relevant codes of conduct. This includes an ability to: • Comply with the rules of professional conduct of own institution • Lead work within all relevant legislation and regulatory frameworks, including social and employment legislation.	Work with a variety of conditions of contract. Demonstrate initiative in and commitment to the affairs of your institution.
E2	Manage and apply safe systems of work. This could include an ability to: • Identify and take responsibility for own obligations for health, safety and welfare issues • Ensure that systems satisfy health, safety and welfare requirements • Develop and implement appropriate hazard identification and risk management systems and culture • Manage, evaluate and improve these systems • Apply a sound knowledge of health and safety legislation.	Undertake formal health and safety training. Work with health and safety legislation and best practice. In the UK, examples include HASAW 1974, CDM regulations, OHSAS 18001:2007 and company safety policies. Carry out safety audits. Identify and minimise hazards. Assess and control risks. Evaluate the costs and benefits of safe working. Deliver strategic health and safety briefings and inductions.

E3 Undertake engineering activities in a way that contributes to sustainable development. This could include an ability to: • Operate and act responsibly, taking account of the need to progress environmental, social and economic outcomes simultaneously • Use imagination, creativity and innovation to provide products and services which maintain and enhance the quality of the environment and community, and meet financial objectives • Understand and secure stakeholder involvement in sustainable development • Use resources efficiently and effectively.	Carry out environmental impact assessments. Carry out environmental risk assessments. Plan and implement best practice environmental management systems, eg ISO 14000. Manage best practice risk management systems eg ISO 31000. Work within environmental legislation. Adopt sustainable practices. Achieve social, economic and environmental outcomes.
E4 Carry out and record CPD necessary to maintain and enhance competence in own area of practice including: • Undertake reviews of own development needs • Plan how to meet personal and organisational objectives • Carry out planned (and unplanned) CPD activities • Maintain evidence of competence development • Evaluate CPD outcomes against any plans made • Assist others with their own CPD.	Keep up to date with national and international engineering issues. Maintain CPD plans and records. Involvement with the affairs of your institution. Evidence of your development through on-the-job learning, private study, in-house courses, external courses and conferences.
E5 Exercise responsibilities in an ethical manner.	Give an example of where you have applied ethical principles as described in the Statement of Ethical Principles on page 33. Give an example of where you have applied/upheld ethical principles as defined by your organisation or company, which may be in its company or brand values.

Education

Knowledge and understanding are important components of professional competence. Formal education is the usual, though not the only, way of demonstrating the necessary knowledge and understanding, and the following qualifications exemplify the required knowledge and understanding for Chartered Engineers:

- An accredited Bachelors degree with honours in engineering or technology, plus either an appropriate Masters degree or Engineering Doctorate (EngD) accredited by a professional engineering institution, or appropriate further learning to Masters level*;

- or an accredited integrated MEng degree.

*See **www.qaa.ac.uk** for qualification levels and HE reference points.

The Engineering Council website provides a searchable database of accredited programmes. Please check the Engineering Council website: **www.engc.org.uk/courses**

Applicants who do not have exemplifying qualifications may demonstrate the required knowledge and understanding in other ways, but must clearly demonstrate they have achieved the same level of knowledge and understanding as those with exemplifying qualifications.

Ways to demonstrate this include:

- Taking further qualifications, in whole or in part, as specified by the institution to which they are applying

- Completing appropriate work-based or experiential learning

- Writing a technical report, based on their experience, and demonstrating their knowledge and understanding of engineering principles

- Until 2011, taking Engineering Council examinations.

Applicants should consult their institution for advice on the most appropriate option.

Professional development

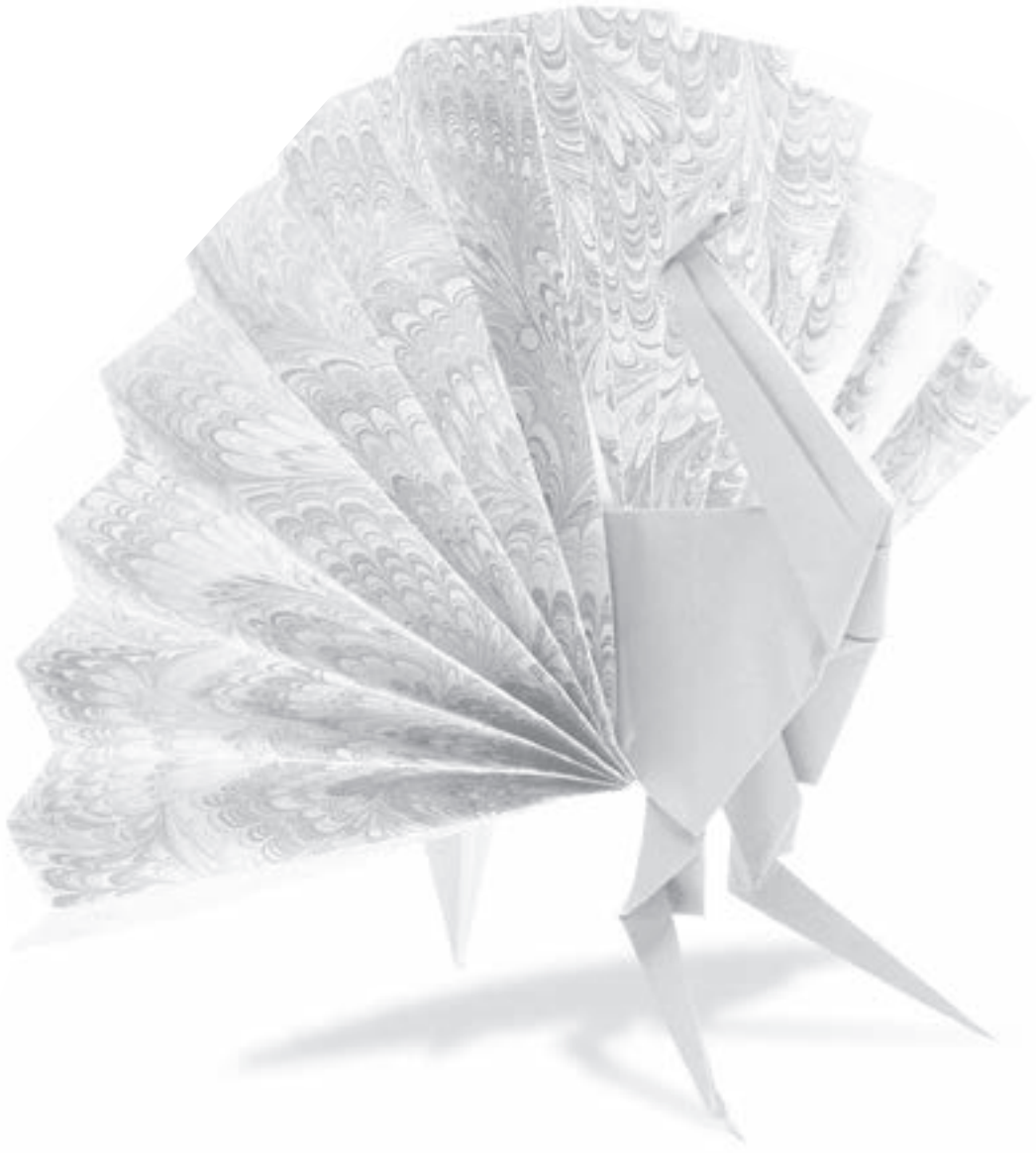
This is the other key part of developing competence. It is how potential Chartered Engineers learn to apply their knowledge and understanding and begin to apply professional judgement. It can happen at the same time as some of the formal education referred to above, for example through an industrial placement during a higher education course, or alongside part-time study.

Many larger employers run well-established graduate training and development schemes. While these schemes are of course geared to the specific needs of their organisations, they are frequently designed to help graduates on the way to registration and may have been accredited by one or more of the institutions.

Potential Chartered Engineers in organisations without schemes of this type will need to develop profiles of competence and professional activity to help them prepare for registration. In some cases employers will use occupational standards or competence frameworks in determining job descriptions and staff development, and these may assist in developing a competence profile. Otherwise aspiring registrants should use the competence and commitment statements and seek advice and guidance from the relevant institution, which may be able to put them in touch with a mentor to assist them through the process and help them address any gaps in their development.

Those seeking Chartered Engineer registration should maintain a detailed record of their professional development, responsibilities and experience, verified by supervisors or mentors, to provide best evidence for the professional review (see page 8).

CEng



PROFESSIONAL AND ETHICAL BEHAVIOUR

Statement of Ethical Principles†

This Statement of Ethical Principles, published by the Engineering Council and the Royal Academy of Engineering, lists four fundamental principles to guide engineers and technicians in achieving the high ideals of professional life:

- Accuracy and rigour
- Honesty and integrity
- Respect for life, law and the public good
- Responsible leadership: listening and informing

These express the beliefs and values of the profession and are amplified in the Statement of Ethical Principles: **www.engc.org.uk/professional-ethics**

Guidelines for Institution Codes of Conduct†

All registrants are expected to observe the requirements of the Code of Conduct of the institution they have joined.

The Code of Conduct of each licensed professional engineering institution should place a personal obligation on its members to act with integrity and in the public interest. It should be worded in such a way as to encourage members to act in accordance with the Statement of Ethical Principles. Institutions shall ensure that they have appropriate disciplinary processes in place to deal with breaches of their Codes of Conduct.

Specifically, Codes of Conduct should oblige members to:

1 Act with due skill, care and diligence and with proper regard for professional standards.
2 Prevent avoidable danger to health or safety.
3 Act in accordance with the principles of sustainability, and prevent avoidable adverse impact on the environment and society.
4 Maintain and enhance their competence, undertake only professional tasks for which they are competent, and disclose relevant limitations of competence.
5 Accept appropriate responsibility for work carried out under their supervision.
6 Treat all persons fairly and with respect.
7 Encourage others to advance their learning and competence.
8 Avoid where possible real or perceived conflict of interest, and advise affected parties when such conflicts arise.
9 Observe the proper duties of confidentiality owed to appropriate parties.
10 Reject bribery and all forms of corrupt behaviour, and make positive efforts to ensure others do likewise.
11 Raise a concern about a danger, risk, malpractice or wrongdoing which affects others ('blow the whistle'), and support a colleague or any other person to whom you have a duty of care who in good faith raises any such concern.*
12 Assess and manage relevant risks and communicate these appropriately.
13 Assess relevant liability, and if appropriate hold professional indemnity insurance.
14 Notify the Institution if convicted of a criminal offence or upon becoming bankrupt or disqualified as a Company Director.
15 Notify the Institution of any significant violation of the Institution's Code of Conduct by another member.

*Included August 2015.

† See document of amendments at **http://www.engc.org.uk/engcdocuments/internet/Website/2017_Standards_Amendments.pdf** for updates.

Guidance on Risk

This guidance, published by the Engineering Council, lists six principles to guide and motivate professional engineers and technicians in identifying, assessing, managing and communicating about risk.

1 Apply professional and responsible judgement and take a leadership role
2 Adopt a systematic and holistic approach to risk identification, assessment and management
3 Comply with legislation and codes, but be prepared to seek further improvements
4 Ensure good communication with the others involved
5 Ensure that lasting systems for oversight and scrutiny are in place
6 Contribute to public awareness of risk

For more information please see: **www.engc.org.uk/risk**

Guidance on Sustainability

This guidance, published by the Engineering Council, lists six principles to guide and motivate professional engineers and technicians when making decisions for clients, employers and society which affect sustainability.

1 Contribute to building a sustainable society, present and future
2 Apply professional and responsible judgement and take a leadership role
3 Do more than just comply with legislation and codes
4 Use resources efficiently and effectively
5 Seek multiple views to solve sustainability challenges
6 Manage risk to minimise adverse impact to people or the environment

For more information please see: **www.engc.org.uk/sustainability**

Professional engineering institutions may use these documents to assist them in developing guidance for their members.[†]

Continuing Professional Development (CPD) Policy Statement

In addition to the CPD Code for Registrants published earlier in this document, in 2013 the Engineering Council published a policy statement about CPD. A supporting explanatory note for professional engineering institutions is available at: **www.engc.org.uk/cpd**

CPD is understood across most professions as the systematic acquisition of knowledge and skills, and the development of personal qualities, to maintain and enhance professional competence. All members of professional engineering institutions have an obligation to undertake CPD, and to support the learning of others. For Engineering Council registrants, this obligation underpins the value of the professional titles of Engineering Technician, Incorporated Engineer, Chartered Engineer and ICT Technician, as well as serving society and enabling it to have confidence in the engineering profession.

[†] See document of amendments at **http://www.engc.org.uk/engcdocuments/internet/Website/2017_Standards_Amendments.pdf** for updates.

CPD has several purposes, which will vary in relation to registrants' circumstances, their needs and their career progression. Very often registrants will do CPD to assure their continuing competence in their current job. At other times, CPD may be done to enable a different role within or outside their organisation (which may have more management content or which may not be a pure engineering role). Equally, CPD may help them follow a longer term career development plan, or to enhance their professionalism in a wider context than a specific job role. The focus of registrants' learning may therefore be on different areas of competence at different times.

CPD can also take a variety of different forms. At its heart is informal learning through the challenges and opportunities of working life, and interaction with others (eg colleagues, customers, suppliers) including professionals from other disciplines. However, this may be supplemented by structured activities such as courses, distance learning programmes, private study, preparation of papers and presentations, mentoring, involvement in professional body activities, or relevant voluntary work. (This list is not intended to be exhaustive). Individual registrants are best placed to determine their needs and how to meet them. Often, employers or experienced colleagues will play a significant part in this, but individuals should be responsible and proactive in seeking professional development opportunities.

While most engineering professionals undertake CPD, this is often on a casual basis, without any deliberate planning, recording of activities, or conscious reflection. Whatever its purpose or nature, learning through CPD should be reflective and should relate to specific objectives even if these are only to maintain their professional engineering competence. Having a regularly reviewed development plan will facilitate learning, although there will always be a place for unplanned activities. Registrants should record both their CPD activities and what they have learned or achieved through them, and relate this to any planned objectives. Doing this will help them to determine their future needs and plan accordingly, as part of a cyclical process. It will also encourage an outcome-based approach which is more appropriate to professional learning than relying solely on quantitative measures such as hours or points.

One of the main functions of a professional body is promoting and supporting the professional development of its members. The professional engineering institutions licensed by the Engineering Council advise and support their members on CPD in a number of ways, such as providing guidance, resources and mentoring programmes. A number provide CPD planning and recording systems, and review their members' CPD from time to time. They should in future strengthen their support by reviewing a random sample of their professionally active registrants' CPD records each year and providing appropriate feedback. The sample need not include retired registrants or those on career breaks for any reason (eg maternity or paternity leave, parenthood, unemployment etc).

Glossary

APEC: Asia Pacific Economic Cooperation	An agreement in place between a number of APEC countries for the purposes of recognising substantial equivalence of professional competence in engineering. **www.ieagreements.com/apec**
Chartered Engineer (CEng)	One of the professional titles available to individuals who meet the required standard of competence and commitment. **www.engc.org.uk/ceng**
Competence	The ability to carry out a task to an effective standard. Its achievement requires the right level of knowledge, understanding and skill, as well as a professional attitude. It is part of the requirement (along with commitment) that must be demonstrated in order for an individual to be admitted to the Engineering Council's register at the relevant level.
Continuing Professional Development (CPD)	The systematic acquisition of knowledge and skills, and the development of personal qualities, to maintain and enhance professional competence. All members of professional engineering institutions have an obligation to undertake CPD, and to support the learning of others. **www.engc.org.uk/cpd**
Dublin Accord	Similar to the Washington Accord, for Engineering Technicians (see below). **www.ieagreements.com/Dublin**
Engineering Council	The UK regulatory body for the engineering profession that sets and maintains internationally recognised standards of professional competence and ethics, and holds the UK register of professional engineers and technicians. **www.engc.org.uk**
Engineering Technician (EngTech)	One of the professional titles available to individuals who meet the required standard of competence and commitment. **www.engc.org.uk/engtech**
Exemplifying qualification	An educational or vocational qualification that demonstrates the knowledge, understanding and skills to meet or partly meet the requirement for registration in a particular category. Other qualifications may be permitted if they achieve (or exceed) the same level.
FEANI	The European Federation of National Engineering Associations of which the Engineering Council is the UK partner. **www.feani.org**
Incorporated Engineer (IEng)	One of the professional titles available to individuals who meet the required standard of competence and commitment. **www.engc.org.uk/ieng**
National Vocational Qualification (NVQ)	Qualifications developed and accredited according to criteria set out nationally, and that are achieved through assessment and training. In Scotland, they are known as Scottish Vocational Qualification (SVQ). To achieve an NVQ, candidates must prove that they have the ability (competence) to carry out their job to the required standard. NVQs are based on National Occupational Standards that describe the 'competences' expected in any given job role.
Professional Affiliate	An incorporated body/engineering institution which is closely associated with, but not licensed by, the Engineering Council. It may enter into an agreement with a professional engineering institution to process its members for registration. For a list of Professional Affiliates see: **www.engc.org.uk/pas**
Professional development	The process by which an individual gains professional competence. It may take place through formal and informal learning, and workplace training and experience.
Professional engineering institution	Membership organisation which is licensed by the Engineering Council to assess candidates for professional registration. Some institutions also have a licence to accredit degree programmes and/or company training schemes. For a list see: **www.engc.org.uk/peis**
Professional registration	The process whereby an individual is admitted to the Engineering Council's Register as an Engineering Technician, Incorporated Engineer or Chartered Engineer based on the individual demonstrating, via a peer review process by a licensed professional engineering institution, that he/she has met the profession's standards of commitment and competence. Award of the EngTech, IEng or CEng title permits the use of the relevant post-nominal.
Professional review	A peer assessment process to decide whether an individual has met the requirements for registration. It is a holistic assessment of the applicant's competence and commitment against the relevant sections of UK-SPEC. For candidates seeking IEng or CEng registration, this will include a professional review interview (PRI). Some PEIs include an interview for EngTech candidates.
Professional review interview (PRI)	Part of the professional review process undertaken by registrant peers who are trained and competent to do so. It is mandatory for IEng and CEng candidates. For EngTech candidates, the interview is at the discretion of the institution.

Quality Assurance Agency for Higher Education (QAA)	Safeguards standards and drives improvement in the quality of UK higher education across all subjects. The QAA works closely with the Engineering Council and professional engineering institutions to support the Engineering disciplines. **www.qaa.ac.uk**
QCF †	Qualifications and Credit Framework. For HE reference points see: **www.qaa.ac.uk**
Royal Academy of Engineering (RAEng)	The UK's national academy for engineering that works to advance and promote excellence in engineering. RAEng provides analysis and policy support relating to business and education, invests in the UK's research base to underpin innovation, and works to improve public awareness and understanding of engineering. **www.raeng.org.uk**
Royal Charter	A formal document issued by the monarch granting rights and powers to an individual or an organisation.
SCQF	The Scottish Credit and Qualifications Framework. For HE reference points see: **www.scqf.org.uk**
Sydney Accord	Similar to the Washington Accord, for Incorporated Engineers (in the UK) or Engineering Technologists (see below). **www.ieagreements.com/sydney**
UK-SPEC: The UK Standard for Professional Engineering Competence	The UK standard which sets out the competence and commitment requirements for registration with the Engineering Council as an Engineering Technician, Incorporated Engineer or Chartered Engineer. **www.engc.org.uk/ukspec**
Washington Accord	An international agreement among bodies responsible for accrediting engineering degree programmes, recognising the substantial equivalence of such programmes for entry to the practice of engineering. In the UK this is at Chartered Engineer status. **www.ieagreements.com/Washington-Accord**

† See document of amendments at **http://www.engc.org.uk/engcdocuments/internet/Website/2017_Standards_Amendments.pdf** for updates.

Table of competence and commitment standards for EngTech, IEng and CEng

Engineering Technician			Incorporated Engineer			Chartered Engineer		
Engineering Technicians apply proven techniques and procedures to the solution of practical engineering problems. Engineering Technicians are required to apply safe systems of work and are able to demonstrate: • Evidence of their contribution to either the design, development, manufacture, commissioning, decommissioning, operation or maintenance of products, equipment, processes or services • Supervisory or technical responsibility • Effective interpersonal skills in communicating technical matters • Commitment to professional engineering values.			Incorporated Engineers maintain and manage applications of current and developing technology, and may undertake engineering design, development, manufacture, construction and operation. Incorporated Engineers are able to demonstrate: • The theoretical knowledge to solve problems in developed technologies using well proven analytical techniques • Successful application of their knowledge to deliver engineering projects or services using established technologies and methods • Responsibility for project and financial planning and management together with some responsibility for leading and developing other professional staff • Effective interpersonal skills in communicating technical matters • Commitment to professional engineering values.			Chartered Engineers develop solutions to engineering problems using new or existing technologies, through innovation, creativity and change and/or they may have technical accountability for complex systems with significant levels of risk. Chartered Engineers are able to demonstrate: • The theoretical knowledge to solve problems in new technologies and develop new analytical techniques • Successful application of the knowledge to deliver innovative products and services and/or take technical responsibility for complex engineering systems • Accountability for project, finance and personnel management and managing trade-offs between technical and socio-economic factors • Skill sets necessary to develop other technical staff • Effective interpersonal skills in communicating technical matters.		
	The Competence and Commitment Standard for Engineering Technicians. **Engineering Technicians** must be competent throughout their working life, by virtue of their education, training and experience, to:	**The examples given below are intended to help you identify activities you might quote to demonstrate the required competence and commitment for EngTech registration. These are not exhaustive. Moreover, you are not required to give multiple examples to demonstrate competence and commitment.** Tell us about your career, education and training. Explain how the experience you have gained has made you more competent.		**The Competence and Commitment Standard for Incorporated Engineers.** **Incorporated Engineers** must be competent throughout their working life, by virtue of their education, training and experience, to:	**The examples given below are intended to help you identify activities you might quote to demonstrate the required competence and commitment for IEng registration. These are not exhaustive. Moreover, you are not required to give multiple examples to demonstrate competence and commitment.**		**The Competence and Commitment Standard for Chartered Engineers.** **Chartered Engineers** must be competent throughout their working life, by virtue of their education, training and experience, to:	**The examples given below are intended to help you identify activities you might quote to demonstrate the required competence and commitment for CEng registration. These are not exhaustive. Moreover, you are not required to give multiple examples to demonstrate competence and commitment.**
A	**Use engineering knowledge and understanding to apply technical and practical skills.** This includes the ability to:	**The reviewers will be looking for evidence that you have the know-how to do the job, and were able to go beyond the immediate requirements and use your initiative and experience to solve a problem or improve a process.**	A	**Use a combination of general and specialist engineering knowledge and understanding to apply existing and emerging technology.**		A	**Use a combination of general and specialist engineering knowledge and understanding to optimise the application of existing and emerging technology.**	

Engineering Technician			Incorporated Engineer			Chartered Engineer		
A1	Review and select appropriate techniques, procedures and methods to undertake tasks.	Describe: • an example of work you did that went well, the choices you made and the outcome • or something in your work that you were involved in which didn't quite work and explain why • or a technique, procedure or method you improved upon and explain why.	**A1**	Maintain and extend a sound theoretical approach to the application of technology in engineering practice. This could include an ability to: • Identify the limits of own personal knowledge and skills • Strive to extend own technological capability • Broaden and deepen own knowledge base through new applications and techniques.	Engage in formal learning. Learn new engineering theories and techniques in the workplace, at seminars, etc. Broaden your knowledge of engineering codes, standards and specifications.	**A1**	Maintain and extend a sound theoretical approach in enabling the introduction and exploitation of new and advancing technology. This could include an ability to: • Identify the limits of own personal knowledge and skills • Strive to extend own technological capability • Broaden and deepen own knowledge base through research and experimentation.	Engage in formal post-graduate academic study. Learn and develop new engineering theories and techniques in the workplace. Broaden your knowledge of engineering codes, standards and specifications.
A2	Use appropriate scientific, technical or engineering principles.	Drawing from your direct experience, this might be an explanation of how a piece of equipment, system or mechanism works.	**A2**	Use a sound evidence-based approach to problem-solving and contribute to continuous improvement. This could include an ability to: • Use market intelligence and knowledge of technological developments to promote and improve the effectiveness of engineering products, systems and services • Contribute to the evaluation and development of continuous improvement systems • Apply knowledge and experience to investigate and solve problems arising during engineering tasks and implement corrective action.	Manage/contribute to market research, and product and process research and development. Involvement with cross-disciplinary working. Conduct statistically sound appraisal of data. Use evidence from best practice to improve effectiveness. Apply root cause analysis.	**A2**	Engage in the creative and innovative development of engineering technology and continuous improvement systems. This could include an ability to: • Assess market needs and contribute to marketing strategies • Identify constraints and exploit opportunities for the development and transfer of technology within own chosen field • Promote new applications when appropriate • Secure the necessary intellectual property (IP) rights • Develop and evaluate continuous improvement systems.	Lead/manage market research, and product and process research and development. Cross-disciplinary working involving complex projects. Conduct statistically sound appraisal of data. Use evidence from best practice to improve effectiveness.
B	**Contribute to the design, development, manufacture, construction, commissioning, operation or maintenance of products, equipment, processes, systems or services.** In this context, this includes the ability to:	**Explain how you contribute to one or more of these activities.**	**B**	**Apply appropriate theoretical and practical methods to design, develop, manufacture, construct, commission, operate, maintain, decommission and re-cycle engineering processes, systems, services and products.**		**B**	**Apply appropriate theoretical and practical methods to the analysis and solution of engineering problems.**	

Engineering Technician			Incorporated Engineer			Chartered Engineer		
B1	Identify problems and apply appropriate methods to identify causes and achieve satisfactory solutions	Show an example of how you have used measurement, monitoring and assessment to: • identify the source of a problem • or to identify an opportunity • or to propose a solution.	**B1**	Identify, review and select techniques, procedures and methods to undertake engineering tasks. This could include an ability to: • Establish users' requirements for improvement • Select a review methodology • Fully exploit and implement current technology • Review the potential for enhancing engineering practices, products, processes, systems and services, using evidence from best practice • Establish an action plan to implement the results of the review.	Contribute to the marketing of and tendering for new engineering products, processes and systems. Contribute to the specification and procurement of new engineering products, processes and systems. Develop decommissioning processes. Set targets, and draft programmes and action plans. Schedule activities.	**B1**	Identify potential projects and opportunities. This could include an ability to: • Establish and help develop solutions to meet users' requirements • Consider and implement new and emerging technologies • Enhance engineering practices, products, processes, systems and services • Use own knowledge of the employer's position to assess the viability of opportunities.	Involvement in the marketing of and tendering for new engineering products, processes and systems. Involvement in the specification and procurement of new engineering products, processes and systems. Set targets, and draft programmes and action plans. Schedule activities.
B2	Identify, organise and use resources effectively to complete tasks, with consideration for cost, quality, safety, security and environmental impact.	Illustrate how you make decisions about: • what information, material, component, people or plant to use • or how to introduce a new method of working • or what precautions you took. Describe how you have contributed to best practice methods of continuous improvement, eg ISO 9000.	**B2**	Contribute to the design and development of engineering solutions. This could include an ability to: • Contribute to the identification and specification of design and development requirements for engineering products, processes, systems and services • Identify operational risks and evaluate possible engineering solutions, taking account of cost, quality, safety, reliability, appearance, fitness for purpose, security, intellectual property (IP) constraints and opportunities, and environmental impact • Collect and analyse results • Carry out necessary tests.	Contribute to theoretical and applied research. Manage/contribute to value engineering and whole life costing. Work in design teams. Draft specifications. Find and evaluate information from a variety of sources, including online. Develop and test options. Identify resources and costs of options. Produce detailed designs. Be aware of IP constraints and opportunities.	**B2**	Conduct appropriate research, and undertake design and development of engineering solutions. This could include an ability to: • Identify and agree appropriate research methodologies • Allocate and manage resources • Develop the necessary tests • Collect, analyse and evaluate the relevant data • Undertake engineering design • Prepare, present and agree design recommendations, with appropriate analysis of risk, and taking account of cost, quality, safety, reliability, appearance, fitness for purpose, security, intellectual property (IP) constraints and opportunities, and environmental impact.	Carry out formal theoretical research. Evaluate numerical and analytical tools. Carry out applied research on the job. Lead/manage value engineering and whole life costing. Lead design teams. Draft specifications. Develop and test options. Identify resources and costs of options. Produce concept designs, and develop these into detailed designs. Be aware of IP constraints and opportunities.

Engineering Technician			Incorporated Engineer			Chartered Engineer		
			B3	Implement design solutions and contribute to their evaluation. This could include an ability to: • Secure the resources required for implementation • Implement design solutions, taking account of critical constraints, including due concern for safety and sustainability • Identify problems during implementation and take corrective action • Contribute to recommendations for improvement and actively learn from feedback on results.	Follow the design process through into product manufacture. Operate and maintain processes, systems etc. Contribute to reports on the evaluation of the effectiveness of the designs, including risk, safety and life cycle considerations. Contribute to product improvement. Interpret and analyse performance. Contribute to determining critical success factors.	**B3**	Manage implementation of design solutions, and evaluate their effectiveness. This could include an ability to: • Ensure that the application of the design results in the appropriate practical outcome • Implement design solutions, taking account of critical constraints, including due concern for safety and sustainability • Determine the criteria for evaluating the design solutions • Evaluate the outcome against the original specification • Actively learn from feedback on results to improve future design solutions and build best practice.	Follow the design process through into product or service realisation and its evaluation. Prepare and present reports on the evaluation of the effectiveness of the designs, including risk, safety and life cycle considerations. Manage product improvement. Interpret and analyse performance. Determine critical success factors.
C	**Accept and exercise personal responsibility.** This includes the ability to:	**Describe an experience or instance where you have had to accept personal responsibility for seeing a process through to completion within agreed targets.**	**C**	**Provide technical and commercial management.**		**C**	**Provide technical and commercial leadership.**	

Engineering Technician			Incorporated Engineer			Chartered Engineer		
C1	Work reliably and effectively without close supervision, to the appropriate codes of practice.	Your evidence should show how you identified and agreed what had to be done and to what standards on a typical project.	**C1**	Plan for effective project implementation. This could include an ability to: • Identify factors affecting the project implementation • Carry out holistic and systematic risk identification, assessment and management • Prepare and agree implementation plans and method statements • Secure the necessary resources and confirm roles in project team • Apply the necessary contractual arrangements with other stakeholders (client, subcontractors, suppliers, etc).	Manage/contribute to project planning activities. Produce and implement procurement plans. Contribute to project risk assessments. Collaborate with key stakeholders. Plan programmes and delivery of tasks. Identify resources and costs. Prepare and agree contracts/work orders.	**C1**	Plan for effective project implementation. This could include an ability to: • Systematically review the factors affecting the project implementation including safety and sustainability considerations • Define a holistic and systematic approach to risk identification, assessment and management • Lead on preparing and agreeing implementation plans and method statements • Ensure that the necessary resources are secured and brief the project team • Negotiate the necessary contractual arrangements with other stakeholders (client, subcontractors, suppliers, etc).	Lead/manage project planning activities. Produce and implement procurement plans. Carry out project risk assessments. Collaborate with key stakeholders, and negotiate agreement to the plans. Plan programmes and delivery of tasks. Identify resources and costs. Negotiate and agree contracts/work orders.
C2	Accept responsibility for work of self or others.	Your evidence could include: minutes of meetings; site notes and instructions; Variation Orders; programmes of work; specifications, drawing and reports; or appraisals. Activity not associated with your job can contribute evidence.	**C2**	Manage tasks, people and resources to plan and budget. This could include an ability to: • Operate appropriate management systems • Work to the agreed quality standards, programme and budget, within legal and statutory requirements • Manage work teams, coordinating project activities • Identify variations from quality standards, programme and budgets, and take corrective action • Evaluate performance and recommend improvements.	Manage/contribute to project operations. Manage the balance between quality, cost and time. Manage contingency processes. Contribute to the management of project funding, payments and recovery. Satisfy legal and statutory obligations. Manage tasks within identified financial, commercial and regulatory constraints.	**C2**	Plan, budget, organise, direct and control tasks, people and resources. This could include an ability to: • Set up appropriate management systems • Define quality standards, programme and budget within legal and statutory requirements • Organise and lead work teams, coordinating project activities • Ensure that variations from quality standards, programme and budgets are identified, and that corrective action is taken • Gather and evaluate feedback, and recommend improvements.	Take responsibility for and control project operations. Manage the balance between quality, cost and time. Manage risk register and contingency systems. Manage project funding, payments and recovery. Satisfy legal and statutory obligations. Lead/manage tasks within identified financial, commercial and regulatory constraints.

Engineering Technician			Incorporated Engineer			Chartered Engineer		
C3	Accept, allocate and supervise technical and other tasks.	Your evidence could include: minutes of meetings; site notes and instructions; Variation Orders; programmes of work; specifications, drawing and reports; or appraisals. Activity not associated with your job can contribute evidence.	**C3**	Manage teams and develop staff to meet changing technical and managerial needs. This could include an ability to: • Agree objectives and work plans with teams and individuals • Identify team and individual needs, and plan for their development • Reinforce team commitment to professional standards • Manage and support team and individual development • Assess team and individual performance, and provide feedback.	Carry out/contribute to staff appraisals. Plan/contribute to the training and development of staff. Gather evidence from colleagues of the management, assessment and feedback that you have provided. Carry out/contribute to disciplinary procedures.	**C3**	Lead teams and develop staff to meet changing technical and managerial needs. This could include an ability to: • Agree objectives and work plans with teams and individuals • Identify team and individual needs, and plan for their development • Reinforce team commitment to professional standards • Lead and support team and individual development • Assess team and individual performance, and provide feedback.	Carry out/contribute to staff appraisals. Plan/contribute to the training and development of staff. Gather evidence from colleagues of the management, assessment and feedback that you have provided. Carry out/contribute to disciplinary procedures.
			C4	Manage continuous quality improvement. This could include an ability to: • Ensure the application of quality management principles by team members and colleagues • Manage operations to maintain quality standards • Evaluate projects and make recommendations for improvement.	Promote quality. Manage/ contribute to best practice methods of continuous improvement, eg ISO 9000, EFQM, balanced scorecard. Carry out/contribute to quality audits. Monitor, maintain and improve delivery. Identify, implement and evaluate changes to meet quality objectives.	**C4**	Bring about continuous improvement through quality management. This could include an ability to: • Promote quality throughout the organisation and its customer and supplier networks • Develop and maintain operations to meet quality standards • Direct project evaluation and propose recommendations for improvement.	Plan and implement best practice methods of continuous improvement, eg ISO 9000, EFQM, balanced scorecard. Carry out quality audits. Monitor, maintain and improve delivery. Identify, implement and evaluate changes to meet quality objectives.
D	**Use effective communication and interpersonal skills.** This includes the ability to:	**You will need to show you can: contribute to discussions; make a presentation; read and synthesise information; or write different types of documents.**	**D**	**Demonstrate effective interpersonal skills.**		**D**	**Demonstrate effective interpersonal skills.**	

Engineering Technician			Incorporated Engineer			Chartered Engineer		
D1	Use oral, written and electronic methods for the communication in English[1] of technical and other information	Your evidence could include: letters; reports; drawings; emails; minutes, including of progress meetings; appraisals; work instructions; and other task planning and organising documents. Your application itself will be relevant.	**D1**	Communicate in English[1] with others at all levels. This could include an ability to: • Contribute to, chair and record meetings and discussions • Prepare communications, documents and reports on technical matters • Exchange information and provide advice to technical and non-technical colleagues.	Reports, letters, emails, drawings, specifications and working papers (eg meeting minutes, planning documents, correspondence) in a variety of formats. Engaging or interacting with professional networks.	**D1**	Communicate in English[1] with others at all levels. This could include an ability to: • Lead, chair, contribute to and record meetings and discussions • Prepare communications, documents and reports on complex matters • Exchange information and provide advice to technical and non-technical colleagues.	Reports, letters, emails, drawings, specifications and working papers (e.g. meeting minutes, planning documents, correspondence) in a variety of formats. Engaging or interacting with professional networks.
D2	Work effectively with colleagues, clients, suppliers or the public, and be aware of the needs and concerns of others, especially where related to diversity and equality.	Show examples of how this has occurred, and your role at the time. Describe your role as part of a team. Describe a situation where you put your awareness into practice.	**D2**	Present and discuss proposals. This could include an ability to: • Prepare and deliver appropriate presentations • Manage debates with audiences • Feed the results back to improve the proposals • Contribute to the awareness of risk.	Presentations, records of discussions and their outcomes.	**D2**	Present and discuss proposals. This could include an ability to: • Prepare and deliver presentations on strategic matters • Lead and sustain debates with audiences • Feed the results back to improve the proposals • Raise the awareness of risk.	Presentations, records of discussions and their outcomes.
			D3	Demonstrate personal and social skills. This could include an ability to: • Know and manage own emotions, strengths and weaknesses • Be aware of the needs and concerns of others, especially where related to diversity and equality • Be confident and flexible in dealing with new and changing interpersonal situations • Identify, agree and work towards collective goals • Create, maintain and enhance productive working relationships, and resolve conflicts.	Records of meetings. Evidence from colleagues of your personal and social skills. Contribute to productive working relationships. Apply diversity and anti-discrimination legislation.	**D3**	Demonstrate personal and social skills. This could include an ability to: • Know and manage own emotions, strengths and weaknesses • Be aware of the needs and concerns of others, especially where related to diversity and equality • Be confident and flexible in dealing with new and changing interpersonal situations • Identify, agree and lead work towards collective goals • Create, maintain and enhance productive working relationships, and resolve conflicts.	Records of meetings. Evidence from colleagues of your personal and social skills. Take responsibility for productive working relationships. Apply diversity and anti-discrimination legislation.

1 Any interviews will be conducted in English, subject only to the provisions of the Welsh Language Act 1993 and any Regulations which may be made in implementation of European Union directives on free movement of labour.

Engineering Technician			Incorporated Engineer			Chartered Engineer		
E	**Make a personal commitment to an appropriate code of professional conduct, recognising obligations to society, the profession and the environment.**	**Your commitment will be to become part of the profession and uphold the standards to which all members subscribe. You need to show that you have read and understood your institution's Code of Conduct.**	**E**	**Demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment.**		**E**	**Demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment.**	
E1	Comply with the Code of Conduct of your institution.	The professional review involves demonstration of, or discussion of, your position on typical ethical challenges.	**E1**	Comply with relevant codes of conduct. This includes an ability to: • Comply with the rules of professional conduct of own institution • Manage work within all relevant legislation and regulatory frameworks, including social and employment legislation.	Contribute to the affairs of your institution. Work with a variety of conditions of contract.	**E1**	Comply with relevant codes of conduct. This includes an ability to: • Comply with the rules of professional conduct of own institution • Lead work within all relevant legislation and regulatory frameworks, including social and employment legislation.	Work with a variety of conditions of contract. Demonstrate initiative in and commitment to the affairs of your institution.
E2	Manage and apply safe systems of work.	Provide evidence of applying current safety requirements, such as risk assessment and other examples of good practice you adopt in your work. You will need to show that you have received a formal safety instruction relating to your workplace (such as a CSCS safety test in the UK), or an update on statutory regulations. In the UK an example would be COSHH requirements.	**E2**	Manage and apply safe systems of work. This could include an ability to: • Identify and take responsibility for own obligations for health, safety and welfare issues • Manage systems that satisfy health, safety and welfare requirements • Develop and implement appropriate hazard identification and risk management systems and culture • Manage, evaluate and improve these systems. • Apply a sound knowledge of health and safety legislation.	Undertake formal health and safety training. Work with health and safety legislation and best practice. In the UK, examples include HASAW 1974, CDM regulations, OHSAS 18001:2007 and company safety policies. Carry out safety audits. Identify and minimise hazards. Assess and control risks. Deliver health and safety briefings and inductions.	**E2**	Manage and apply safe systems of work. This could include an ability to: • Identify and take responsibility for own obligations for health, safety and welfare issues • Ensure that systems satisfy health, safety and welfare requirements • Develop and implement appropriate hazard identification and risk management systems and culture • Manage, evaluate and improve these systems • Apply a sound knowledge of health and safety legislation.	Undertake formal health and safety training. Work with health and safety legislation and best practice. In the UK, examples include HASAW 1974, CDM regulations, OHSAS 18001:2007 and company safety policies. Carry out safety audits. Identify and minimise hazards. Assess and control risks. Evaluate the costs and benefits of safe working. Deliver strategic health and safety briefings and inductions.

Engineering Technician			Incorporated Engineer			Chartered Engineer		
E3	Undertake engineering work in a way that contributes to sustainable development. This could include an ability to: • Operate and act responsibly, taking account of the need to progress environmental, social and economic outcomes simultaneously.	Show examples of methodical assessment of risk in specific projects; actions taken to minimise risk to society or the environment.	**E3**	Undertake engineering activities in a way that contributes to sustainable development. This could include an ability to: • Operate and act responsibly, taking account of the need to progress environmental, social and economic outcomes simultaneously • Provide products and services which maintain and enhance the quality of the environment and community, and meet financial objectives • Understand and encourage stakeholder involvement in sustainable development • Use resources efficiently and effectively.	Carry out/contribute to environmental impact assessments. Carry out/ contribute to environmental risk assessments. Manage best practice environmental management systems, eg ISO 14000. Manage best practice risk management systems eg ISO 31000. Work within environmental legislation. Adopt sustainable practices. Contribute to social, economic and environmental outcomes.	**E3**	Undertake engineering activities in a way that contributes to sustainable development. This could include an ability to: • Operate and act responsibly, taking account of the need to progress environmental, social and economic outcomes simultaneously • Use imagination, creativity and innovation to provide products and services which maintain and enhance the quality of the environment and community, and meet financial objectives • Understand and secure stakeholder involvement in sustainable development • Use resources efficiently and effectively.	Carry out environmental impact assessments. Carry out environmental risk assessments. Plan and implement best practice environmental management systems, eg ISO 14000. Manage best practice risk management systems eg ISO 31000. Work within environmental legislation. Adopt sustainable practices. Achieve social, economic and environmental outcomes.
E4	Carry out and record CPD necessary to maintain and enhance competence in own area of practice including: • Undertake reviews of own development needs • Plan how to meet personal and organisational objectives • Carry out planned (and unplanned) CPD activities • Maintain evidence of competence development • Evaluate CPD outcomes against any plans made • Assist others with their own CPD.	This means demonstrating that you have actively sought to keep yourself up to date, perhaps by studying new standards or techniques, or made use of magazines, lectures organised by professional engineering institutions, and other opportunities to network in order to keep abreast of change.	**E4**	Carry out and record CPD necessary to maintain and enhance competence in own area of practice including: • Undertake reviews of own development needs • Plan how to meet personal and organisational objectives • Carry out planned (and unplanned) CPD activities • Maintain evidence of competence development • Evaluate CPD outcomes against any plans made • Assist others with their own CPD.	Keep up to date with national and international engineering issues. Maintain CPD plans and records. Involvement with the affairs of your institution. Evidence of your development through on-the-job learning, private study, in-house courses, external courses and conferences.	**E4**	Carry out and record CPD necessary to maintain and enhance competence in own area of practice including: • Undertake reviews of own development needs • Plan how to meet personal and organisational objectives • Carry out planned (and unplanned) CPD activities • Maintain evidence of competence development • Evaluate CPD outcomes against any plans made • Assist others with their own CPD.	Keep up to date with national and international engineering issues. Maintain CPD plans and records. Involvement with the affairs of your institution. Evidence of your development through on-the-job learning, private study, in-house courses, external courses and conferences.

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E5	Exercise responsibilities in an ethical manner.	Give an example of where you have applied ethical principles as described in the Statement of Ethical Principles on page 33. Give an example of where you have applied/upheld ethical principles as defined by your organisation or company, which may be in its company or brand values.	**E5**	Exercise responsibilities in an ethical manner.	Give an example of where you have applied ethical principles as described in the Statement of Ethical Principles on page 33. Give an example of where you have applied/upheld ethical principles as defined by your organisation or company, which may be in its company or brand values.	**E5**	Exercise responsibilities in an ethical manner.	Give an example of where you have applied ethical principles as described in the Statement of Ethical Principles on page 33. Give an example of where you have applied/upheld ethical principles as defined by your organisation or company, which may be in its company or brand values.

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