

The UKPSF

The UKPSF is a comprehensive set of professional standards and guidelines for HE teachers and providers. It can be applied to personal development programmes to improve quality and recognise excellence, benchmark success and improve institutional processes. It also enables individuals to seek professional recognition as an HEA Fellow.

Benefits of HEA Fellowship (FHEA) include:

- a distinguished mark of quality and a valuable measure of your professional development and success in higher education;
- entitlement to use post-nominal letters which is indicative of your continued success and increasingly recognised by employers as a condition of appointment and promotion;
- an indicator that your institution is fully aligned to UKPSF practice.

Further information about the UKPSF and HEA Fellowship is available from www.heacademy.ac.uk.

UK-SPEC

UK-SPEC sets out the standards of competence and commitment that an individual must demonstrate in order to be professionally registered with the Engineering Council. It supports development in five key areas:

- 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

The titles IEng or CEng are most relevant for teachers in HE. The benefits of registration to an individual include:

- recognition, by peer review, of your competence as an engineer;
- enhanced professional status;
- increased mobility;
- enhanced credibility with students and industrial partners.

In addition, professional institutions that accredit HE engineering programmes seek data about the engineering professional qualifications of staff involved in delivering HE. Having engineering professional registration embedded as a career goal for HE academics is becoming increasingly important. Further information about registration including a full list of benefits, is available at: www.engc.org.uk/benefits

About Chartered Engineer status

The title CEng is protected by civil law and is one of the most recognisable international engineering qualifications. It is awarded to individuals who can demonstrate achievement of the competence and commitment requirements published in the UK-SPEC. These are developed through a combination of education, training and experience. As well as the competence and commitment elements in UK-SPEC, demonstration of the prescribed standard of underpinning knowledge and understanding is required, typically an accredited engineering degree.

Academics seeking CEng status must first join one of the discipline specific professional engineering institutions, and apply through that institution in the same way as any other CEng candidate. For further advice about the review process, mentoring, timescales and how to present evidence, contact the relevant institution directly. A list of engineering institutions that are licensed to assess candidates for registration is available at www.engc.org.uk.

The CEng assessment process, known as professional review, is a peer assessment process and involves a review of documentary evidence and an interview. Documentary evidence may be derived from a range of sources such as course development, research, managing research contracts, industry-related activity, consultancy activity, public engagement and supervision of design and research projects.

About the Engineering Council

The Engineering Council is the UK regulatory body for the engineering profession, and holds the national registers of over 222,000 Engineering Technicians (EngTech), Incorporated Engineers (IEng), Chartered Engineers (CEng) and Information and Communications Technology Technicians (ICTTech).

In addition, the Engineering Council sets and maintains the internationally recognised standards of professional competence and ethics that govern the award and retention of these titles. This ensures that employers, government and wider society – both in the UK and overseas – can have confidence in the knowledge, experience and commitment of professionally registered engineers and technicians. Further information is available from: www.engc.org.uk

About Higher Education Academy

Higher Education Academy (HEA) is the national body for learning and teaching enhancement in higher education. It works with universities and other higher education providers to help bring about change in learning and teaching. It does this to improve the experience that students have while they are studying, and to support and develop those who teach them.

With a robust evidence base to underpin all its work, the HEA helps learning and teaching professionals to realise their talent; supports higher education providers to achieve their strategic ambitions to enhance learning and teaching, and works across the sector to shape the future of higher education. www.heacademy.ac.uk

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Professional recognition for engineering staff working in higher education

Achieving professional recognition as an engineer and HE educator: the UK Professional Standards Framework (UKPSF) for teaching and supporting learning in higher education 2011 and the Engineering Council's UK Standard for Professional Engineering Competence (UK-SPEC).



About this document

This document provides guidance to staff involved in Engineering in higher education (HE) who wish to seek professional recognition as both educators and engineers. It sets out the benefits of HEA Fellowship (FHEA) to those in the early stages of seeking professional recognition for learning and teaching activity, as well as the benefits of professional registration as an engineer.

While this document focuses on HE teaching, the majority of academics will have a range of experience, including research and administration, which is also likely to provide part of their evidence for professional engineer competence.

This document has been developed by the HEA in consultation with the Engineering Council.

How to use this document

This document is intended to help academics in engineering recognise that some of the experience and evidence that they amass as part of their FHEA could also provide some of the evidence for Chartered Engineer (CEng) registration. Its basic principles are also relevant to individuals seeking Incorporated Engineer (IEng) registration. It is intended to help professional HE educators to make these links and assist them in identifying appropriate evidence at the right level for the category of registration.

It also enables those in the HE sector with IEng or CEng status to evaluate how their engineering competence aligns with the requirements of the UKPSF.

However, as the UKPSF is an activity-based framework and UK-SPEC is competence-based, individuals will need to exercise some judgment, in discussion with a mentor, about the extent to which evidence presented for one title may be relevant for the other. You are encouraged to refer to the exemplar activities cited in UK-SPEC www.engc.org.uk/ukspec as well as the standard, and to refer to the full UKPSF statements www.heacademy.ac.uk/ukpsf.

Examples of activities relating to UKPSF dimensions which could contribute to demonstrating the achievement of CEng standards

UK-SPEC CEng standard of competence and commitment

A Use a combination of general and specialist 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.

A2 Engage in the creative and innovative development of engineering technology and continuous improvement systems.

Examples of pedagogical activities

Note that some of these examples may not be relevant to your practice and you may be able to use additional or alternative examples not listed here.

Keep abreast of the theoretical developments in your subject area and/ or carry out research in that area in order to teach effectively. (K1)
Keep up to date and bring engineering and scientific advances into the curriculum and its design and delivery. (A1, A2, K1)
Use evidence-informed approaches and the outcomes from research, scholarship and continuing professional development (V3)
CPD in pedagogical innovations relating to teaching the subject area. (A5, V3)
Extend the knowledge of how students learn and the knowledge of new learning technologies appropriate for subject area. (K3, K4, K2)

Design, plan and deliver learning activities/programme of study. (A1, A2)
Develop effective learning environments and methods for teaching as well as approaches to student guidance in subject specific and professional practice matters. (A4, K2, K3)
Identify and implement appropriate learning technologies and methods of continuous evaluation of their impact on student learning, quality assurance and professional practice. (K4)
Research output which is innovative, such as products, spin out, patents. (K1)

B Apply appropriate theoretical and practical methods to the analysis and solution of engineering problems

B1 Identify potential projects and opportunities.

B2 Conduct appropriate research, and undertake design and development of engineering solutions.

B3 Manage implementation of design solutions, and evaluate their effectiveness.

Note that some of these examples may not be relevant to your practice and you may be able to use additional or alternative examples not listed here.

Explore opportunities for designing any part of a learning and teaching activity in response to student or other demand. (A4)

Identify appropriate research methodologies to carry out improvements in own teaching and engineering research practice. (A1, V3)
Design and commission new experiments for students. (A1)
Carry out the necessary pedagogical research/investigations, collect, analyse and evaluate the data. (V3)
Draft recommendations on the basis of the outcome of these analyses to deliver appropriate learning activities. (A2)

Design work with students, such as design project supervision. (A2)
Design and commission new experiments for students. (A1)
Supervise Masters and research students effectively. (A2)
Implement proposed learning design activities/programmes of study, learning environments, teaching and assessment/feedback methods and learning methodologies. (A4, A2)
Determine the criteria for evaluating the above, selecting appropriate methods of evaluation. (K5)
Evaluate the outcome of the implemented pedagogical changes against the original specification. (K5)
Actively learn from student/peer feedback on results to improve teaching quality and develop good education practice. (K6)

C Provide technical and commercial leadership

C1 Plan for effective project implementation.

C2 Plan, budget, organise, direct and control tasks, people and resources.

C3 Lead teams and develop staff to meet changing technical and managerial needs.

C4 Bring about continuous improvement through quality management.

Note that some of these examples may not be relevant to your practice and you may be able to use additional or alternative examples not listed here.

Identify factors affecting the implementation of designed learning activities, learning environments and methods of teaching and learning, and ensure necessary resources are secured. (A1, K1-4, V1-2)
Negotiate with relevant stakeholders, e.g. professional accreditation bodies or university registry and programme approval departments, the implementation of pedagogical change in view of quality assurance and enhancement requirements for academic and professional practice. (K6)

Deliver subject specific teaching, assessment and feedback, including scheduling budgeting, and management of the teaching team and resources. (A2)
Set up effective learning environments and appropriate methods for teaching and learning. (A4)
Monitoring compliance with quality assurance and enhancement procedures for HE as well as accreditation requirements are complied with. (K6)

As a module/subject area leader ensure the effective delivery of teaching and of the learning outcomes. (A2)
Lead design project/research project teams (if appropriate). (A4)

Promote quality of teaching, assessment and feedback, appropriate teaching methods and, where appropriate, learning environments/ technologies based on research, scholarship and CPD on how students learn. (A2, A5, K5, A3)
Develop and deliver teaching to meet HE quality assurance/ enhancement and professional accreditation requirements. (K6)

D Demonstrate effective interpersonal skills

D1 Communicate in English with others at all levels.

D2 Present and discuss proposals.

D3 Demonstrate personal and social skills.

Note that some of these examples may not be relevant to your practice and you may be able to use additional or alternative examples not listed here.

Teach effectively using clear communication in English and provide clear feedback on assessment. (A3)
Presenting at conferences and writing papers (A5)

Lead and sustain discussions with students and colleagues during sessions, providing an effective learning environment. (A2)

Be aware of the needs of individual learners and diverse learning communities ensuring effective interactions with them, thus promoting equality of opportunity for learners. (V1, V2)
Demonstrate personal and social skills in delivering teaching activities and providing support and guidance to learners. (A2, A4)

E Demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment.

E1 Comply with relevant codes of conduct.

E2 Manage and apply safe systems of work.

E3 Undertake engineering activities in a way that contributes to sustainable development.

E4 Carry out and record continuing professional development necessary to maintain and enhance competence in own area of practice.

E5 Exercise responsibilities in an ethical manner.

Comply with rules of professional conduct and HE quality assurance and enhancement requirements. (V4)
Comply with and promote to students codes of conduct normally applied to professionals employed in specific industry or discipline. (K6)

Identify and take responsibility for own obligations for health, safety and welfare issues in teaching activities (labs, projects, etc.) in the industry or discipline and promote to colleagues and students the same standards. (A2)

Demonstrate commitment to sustainable development through all academic areas of activity. (A1, V4)
Use appropriate and innovative learning technologies to support individual learners and diverse learning communities with thorough understanding of the wider context of the sustainability issues in professional formation. (A2, K4)
Promote participation in HE and equality of opportunity for learners by appropriate implementation of pedagogical practice. (V2)

Demonstrate engagement with and record (pedagogical) CPD, research and scholarship through all core knowledge dimensions within the wider context of academic and professional practice. (A5, V3)

Give an example from your pedagogical practice where you have applied ethical principles as described in the Statement of Ethical Principles published by the Engineering Council and the Royal Academy of Engineering, and your institution's documentation. (V3, V4)
Respect individual learners and diverse learning communities. (V1)
Promote participation in HE and equality of opportunity for learners. (V2)