ES1A3-15 Professional Engineering Competencies

24/25

Department
School of Engineering
Level
Undergraduate Level 1
Module leader
Alireza Rezaei
Credit value
15
Module duration
24 weeks
Assessment
100% coursework
Study location
University of Warwick main campus, Coventry

Description

Introductory description

ES1A3-15 Professional Engineering Comptencies

Module web page

Module aims

This module aims to inform the students about the five competencies core to the UK-SPEC (UK-Standard for Professional Engineering Competence). The UK-SPEC is the cornerstone of degree accreditation, initial and continuing professional development (CPD), and eventual professional registration via End Point Assessment (EPA). It is built around five fundamental competencies: (a) Knowledge and Understanding; (b) Design and development of processes, systems, services and products; (c) Responsibility, Management and Leadership; (d) Communication and Inter-personal Skills; (e) Professional Commitment.
The aim of this module is to induct the students into their degree, and show them that everything they are learning can be considered to support their development in (at least) one of the competencies. The module aims to create a culture of considered learning and self-reflection where students think about their learning strengths and weaknesses and take some ownership in

their development.

The topics on offer are illustrated in Section 20 – Outline Syllabus. They include subjects to develop knowledge and understanding, transferrable skills (e.g. IT skills, communication). Responsibility, management and leadership is demonstrated and discussed by staff and invited speakers from industry in lectures and seminars. Communication and inter-personal skills will be developed with lectures on report writing, and presentation. Throughout the whole programme professional standards and the commitment to society will be covered in subjects such as ethics, health and safety, sustainability and of course CPD.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

Introduction to the module.
Engineering ethics.
Health and Safety.
Professional Commitment and Institutional Membership.
Competencies (IT skills; Reading, Note Taking and Research skills; Keeping a logbook and writing a reflective report; Writing and Presentation skills; Study skills; Exam skills; Development and Reflection skills; Sketching skills; Time Management skills).
Diversity and Equality.
Self-reflection.
The module includes compulsory on-line courses as defined by the Department.

Learning outcomes

By the end of the module, students should be able to:

- Identify what it means to be a Civil Engineer and being a part of the engineering community through exposure to Professional Engineers coming from the industry, academics of the Engineering department, recent graduate students, and fellow undergraduate students. [C8(M), C9(M), C10(M)]
- Plan self-learning and improve performance as the foundation for lifelong learning (CPD) to enable the EPA. Reflection will be informed by the work/practice and will contribute to the recognition of own work-based learning. [C18(M)]
- Enable transferrable skills and record the progress to inform own work/practice. [C18(M)]
- Understand the challenges faced by society and how Civil engineers can lead on the analysis and actions taken to solve such challenges. [C8(M), C9(M), C10(M), C11(M)]
- Show knowledge and understanding of professional and ethical codes of conduct and associated responsibilities (related to own work/practice) as set out by professional engineering institutions. [C8(M), C9(M), C10(M)]
- Analyse information and/or ideas contributing to the development of an informed evaluation of own work/practice. [C18(M)]
- Identify and access relevant work/practice networks using appropriate interpersonal and networking skills. [C17(M)]
- Understand and apply the communication and collaboration processes and procedures

within the workplace taking into account ethics, risk management and ED&I. [C8(M), C10(M), C11(M)]
- Demonstrate written communication skills for identified work/practice and/or academic audiences. [C17(M)]

Indicative reading list

QAA 2015 Engineering Benchmark Statement ~ What is expected to be delivered and achieved in an engineering degree.
UK-SPEC Published by the Engineering Council UK ~ Guidance on what makes a graduate Chartered Engineer.
Joint Board of Moderators Guidance on Graduate Requirements ~ Guidance on how to interpret UK-SPEC for Civil Engineering.
ICE Professional Review Guidance ~ Guidance on becoming ICE Incorporated Engineer (IEng)

Subject specific skills

1. Knowledge and understanding of the need for a high level of professional and ethical conduct in engineering and the use of technical literature, other information sources including appropriate codes of practice and industry standards
2. Knowledge and understanding of risk issues, including health & safety, environmental and commercial risk, risk assessment and risk management techniques and an ability to evaluate commercial risk
3. Knowledge of professional codes of conduct, how ethical dilemmas can arise, relevant legal and contractual issues.

Transferable skills

1. Apply problem solving skills, information retrieval, and the effective use of general IT facilities
2. Communicate (written and oral; to technical and non-technical audiences) and work with others
3. Plan self-learning and improve performance, as the foundation for lifelong learning/CPD
4. Exercise initiative and personal responsibility, including time management, which may be as a team member or leader
5. Overcome difficulties by employing skills, knowledge and understanding in a flexible manner
6. Ability to formulate and operate within appropriate codes of conduct, when faced with an ethical issue
7. Be professional in their outlook, be capable of team working, be effective communicators, and be able to exercise responsibility and sound management approaches.

Study

Study time

Type	Required
Lectures	18 sessions of 1 hour (12%)
Seminars	8 sessions of 1 hour (5%)
Other activity	32 hours (21%)
Private study	92 hours (61%)
Total	150 hours

Private study description

92 hours of guided independent learning (including VLE use and support from Employer).

Other activity description

4x3 hours online courses (Health & Safety, Plagiarism, Ethics, Matlab)
20 hours of individual tutorials (virtual or face-to-face) with Industry Mentor and/or Personal Tutor

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Assessment group A3

	Weighting	Study time	Eligible for self-certification
Assessment component			
Written Report Reflective report (6 pages max length)	30%		Yes (extension)
Reassessment component is the same			
Assessment component			
Logbook CPD and OTJ time records	30%		Yes (extension)

	Weighting	Study time	Eligible for self-certification
Reassessment component is the same			
Assessment component			
Online course on 'Health and Safety'	10%		Yes (extension)
Reassessment component is the same			
Assessment component			
Online course on 'Plagiarism'	10%		Yes (extension)
Reassessment component is the same			
Assessment component			
Online course on 'Ethics'	10%		Yes (extension)
Reassessment component is the same			
Assessment component			
Online course on 'MATLAB'	10%		Yes (extension)
Reassessment component is the same			

Feedback on assessment

Personalised feedback on student performance on logbook and reflective reports.

Availability

Courses

This module is Core for:

- Year 1 of DESA-H221 Undergraduate Civil and Infrastructure Engineering (Non-integrated Degree Apprenticeship)