Joint Board of Moderators (JBM)

Guidelines for Developing Degree Programmes 2026

Revision history

Version	Revision	Date	Details of amendments
1	2	April 2026	Name of Permanent Way Institution (PWI) changed to Railway Engineering Institution (RailEI) Reference to Higher Education Institution (HEI) updated to Higher Education Provider (HEP) Section 2.2.5 HP1 – wording amended to include Equality Act 2010 as an example Section 2.4 and 2.5 – wording amended to make it clear that both individual investigative project and group design project must be passed Section 2.7 – Wording on first paragraph amended for clarity Section 2.14 – wording amended to reflect that the chair of IAB must be from industry Section 4.4 – addition of 'Awarding of non-accredited qualifications'.
1	3	September 2026	Section 3.3 – Wording amended for clarity

Foreword: How to use these guidelines

These guidelines are organised into four sections

Section 1 introduces the guidelines, provides contexts and explains the JBM's approach to accreditation.

Section 2 describes the accreditation requirements of AHEP and those set by the JBM for undergraduate programmes of study such as BSc, BEng and MEng, leading to IEng, partial CEng, and CEng. The JBM guidance and requirements are not limited to learning outcomes but also cover the way that higher education providers (HEPs) should provide a learning journey for their students. Our guidance in this section sets out the fundamental requirements that your programme will need to meet in order to attain accreditation.

Section 3 explains how the guidance and requirements in Section 2 apply to other programmes of study such as HNC, foundation and master's degrees leading to EngTech, IEng and CEng.

Section 4 covers some additional guidance and requirements that are directly relevant to the accreditation process.

There is further information on how to apply for accreditation, and what to expect from the process in companion documents which are downloadable from the JBM website, alongside submission documents, and contact details should you wish to discuss any aspect of accreditation with our knowledgeable team.

Additionally, the JBM is developing a resource library of documents, guidance materials and web links to support HEPs with teaching, curriculum planning, accreditation processes, professional development and other relevant material, accessible via the JBM website.

1. Introduction

Civil engineering encompasses a wide range of disciplines including structures, transport, geotechnics, water and environmental engineering. Their work in designing, building and maintaining infrastructure means that civil engineers are in a unique position to tackle some of society's biggest challenges, including new ways to reduce waste and consumption, manage carbon and make the world a safer and more inclusive place.

The pace of change of new technologies and innovations means that graduate civil engineers must be technically proficient, practical, articulate, numerate, literate, imaginative, versatile, confident and inquisitive. They need to be able to think critically and act ethically, understanding their working environment, the resources available to them, the economic viability of their projects, the society in which they operate, the 'big picture' of the world around them and their professional responsibilities.

The JBM's partnership with the universities, colleges and other institutions who deliver the education of our future civil engineers has never been more important. We see tackling today's extraordinary, interlinked challenges (including climate change, biodiversity loss, pollution and resource scarcity) as central to the education of civil engineering students and these guidelines should be read with this in mind.

The 2026 revision

Given the breadth of the civil engineering profession and the need for civil engineers to apply their skills holistically to create sustainable solutions, in this revision of 'Guidelines for developing degree programmes' we have deliberately sought to emphasise the flexibility available to higher education providers (HEPs) to design degree programmes which are bespoke in character; the aim is to encourage institutions to think creatively and play to their strengths, while working within the JBM requirements as set out in this document.

As in the previous edition, the Guidelines maintain a focus on holistic, sustainable design. Crucially, all graduates must still develop the core technical competencies necessary for professional practice in civil engineering, having acquired the core fundamental knowledge and ability to apply engineering principles.

This edition also consolidates and harmonises guidance from several other JBM documents into what we hope will be a single and more user-friendly resource for everyone involved in the accreditation process.

1.1. About the Joint Board of Moderators (JBM)

Five professional engineering institutions make up the JBM:

- Institution of Civil Engineers (ICE)
- Institution of Structural Engineers (IStructE)
- Institute of Highway Engineers (IHE)
- Chartered Institution of Highways and Transportation (CIHT)
- Railway Engineering Institution (RailEI)

We coordinate accreditation activities for educational programmes in the built environment, in the civil, structural, transport and associated engineering disciplines, working closely with educationalists and experts from industry.

1.2. The context of accreditation

The Engineering Council has created the overall requirements of the Accreditation of Higher Education Programmes (AHEP) and the Approval and Accreditation of Qualifications and Apprenticeships (AAQA) in engineering, in line with the UK Standard for Professional Engineering Competence (UK-SPEC). UK-SPEC has standardised the academic requirements for professional registration. This document refers to the fourth edition of AHEP.

The JBM is licensed by the Engineering Council to accredit engineering degree programmes that partially or fully satisfy the academic requirements for Incorporated Engineer (IEng) or Chartered Engineer (CEng). The JBM also approves programmes leading to Engineering Technician (EngTech).

In addition to the need to comply with the Engineering Council's general requirements and more specific learning outcomes, the JBM has a number of its own, civil engineering-specific, requirements which must be met, and these are set out within these guidelines. Programmes accredited by the JBM must therefore cover

- AHEP (or AAQA) learning outcomes and requirements,
- JBM threads,
- JBM core subjects, and
- other JBM requirements.

Additional relevant guidelines and requirements which HEPs in the UK must take into account include the current versions of QAA's Subject Benchmark Statement Engineering and The Frameworks for Higher Education Qualifications of UK Degree-Awarding Bodies.

Inevitably there are overlaps between these requirements; often, students will be able to develop a range of skills and attributes at the same time (for example in the same module[1]). We believe that this rich, layered learning experience brings its own benefits and synergies.

These guidelines are intended primarily for HEPs and other educational establishments seeking accreditation (partial IEng, IEng, partial CEng, and CEng) of provision including foundation degrees and bachelor's and master's level programmes, by JBM. Their relevance to programmes of study leading to EngTech are also explained.

These guidelines present guidance and requirements on the development of programmes of study. For other documentation on submission for accreditation, accreditation visits, apprenticeships, further learning, and other JBM requirements, please visit the JBM website.

1.3. The JBM approach

While the guidelines that follow set out a range of requirements, the JBM does not view accreditation as a wholly prescriptive exercise; it is also a developmental process, based on a positive dialogue between HEPs and the JBM. Our fundamental approach is well established and in this new revision of the guidelines we aim to allow, facilitate and encourage the development of innovative provision and support degree awarding institutions in developing new programmes.

It is intended that, typically, for a three or four-year full-time undergraduate programme:

- the JBM core subjects will constitute one third or more of the curriculum
- the JBM threads, together with other requirements such as the individual investigative project and design projects, and the AHEP learning outcomes will also constitute approximately one third of the curriculum
- The remaining time will be available for each HEP to develop their programmes creatively, with their own focus, e.g. subject combinations which deepen or broaden students' appreciation of engineering or allow them to explore relevant subject combinations.

A richness of provision across the education sector is essential to meet the wide-ranging demands of industry and society. We encourage HEPs to develop programmes in ways that make the best use of their strengths and provide students with stimulating and relevant educational experiences. Programme design must be approached thoughtfully and HEPs will be expected to have a rationale for the structure and

[1] In this document, the term module refers to a self-contained component contributing to a larger programme of study. Each module usually carries a set number of credits (for instance 10 or 20 credits) and is typically assessed through assignments, exams, etc.

focus they have chosen for their offerings. As required by the QAA, it is essential that all programmes enable students to develop their critical thinking skills.

While all degree programmes are required to address the fundamental knowledge, skills and attributes outlined in these guidelines, programmes may differ considerably in their style and content from one HEP to another, and we encourage this diversity of provision.

2. Undergraduate programmes of study

2.1. AHEP requirements and learning outcomes

AHEP defines the criteria that engineering degree programmes must meet to be accredited by Professional Engineering Institutions (PEIs). Each HEP must show how all relevant and current AHEP requirements are addressed - as part of your application for accreditation, you will accordingly need to submit a mapping table showing where each of the current AHEP learning outcomes is met, at the appropriate level, for each of your programmes of study.

Importantly, each AHEP learning outcome need only be demonstrated once per programme at the required level (so, coverage in just one module may be enough for a particular learning outcome). In many cases, AHEP learning outcomes must be achieved at a high academic level (say Level 6 for undergraduate programmes) and so teaching will be required in prior years of the programme to ensure that students are prepared for the AHEP learning outcome at the point of formal assessment.

The current version of AHEP and AAQA learning outcomes are designated variously as T, H, F, B, C and M according to their accreditation or approval level (such as M12 or H12). In this document, they are referred to simply as learning outcomes (LO) and are taken to apply at the relevant academic level (such as LO12).

Demonstrating the AHEP learning outcomes

One clear way for HEPs to demonstrate that a single AHEP learning outcome is achieved by all students graduating from a programme is:

i. nominate a module that **all** graduating students must take and pass
ii. in that module, the learning outcome should be clearly described in the **module specification**. While it may align with the relevant AHEP learning outcome, the description should be tailored to the specific context and content of the module; verbatim copying is discouraged, as it rarely provides the clarity or relevance needed for effective programme design
iii. in the module, the AHEP learning outcome is **taught** to all students, or they are directed to learn independently
iv. finally, in that module, the student’s attainment of the AHEP learning outcome is appropriately **assessed**.

2.2. JBM threads

The AHEP learning outcomes describe what must be delivered in engineering programmes in general; the threads, conversely, are distinct areas of skills, knowledge and attributes which industry requires from graduates who intend to make a career specifically in civil engineering (as opposed to other engineering disciplines). Alongside the specific technical content, it is the threads that give civil engineering programmes their distinctive character.

There are five threads which act as areas - or themes - of learning:

- Design
- Sustainability
- Health and safety and risk management
- Professionalism and ethics
- Humane practice

These threads are intended to be woven across programmes, linking different modules; they also enable students to develop professional attributes by *doing*. Each thread should be embedded whenever suitable opportunities arise throughout your programme and the JBM will expect to see them practised and reflected upon repeatedly as students develop. There is further guidance in each of the individual thread descriptions below.

Structure of the threads

Each thread is broken down into 'elements' which more fully describe its requirements. There is necessarily some degree of overlap between elements of different threads; this is intentional and reflects the interconnected thinking and attributes expected of good graduate civil engineers.

Equally, some threads are also intimately connected to others (for instance the Sustainability thread strongly influences the Design thread). While these connections and overlaps are not always explicit in the individual thread descriptions, making these connections in your programmes is important to creating a rich learning environment within which your students develop and learn to think holistically.

Assessment of the threads

Unlike the AHEP learning outcomes, the JBM threads are not outcome-based assessment requirements – they are themes which are developed over time in student learning, development and engagement. Coverage of the threads in a programme may be demonstrated through specific learning outcomes (e.g. module assessments), but the JBM will primarily look for evidence of their extent, and how well, they are delivered in your programme; they must be integrated into the teaching and learning and clearly feature throughout.

As the threads are different in nature to the AHEP learning outcomes, their assessment also takes a different form. This assessment is based partly on your submission documentation, partly on the information given in presentations by your programme team and partly on the discussions which take place during the accreditation visit.

As part of your application for accreditation, you will need to provide

a) a mapping table showing where each JBM thread is integrated into your teaching and learning activities. As part of this table, you will need to self-rate the occurrence of each thread as being "primary" or "contributory." A template for this is provided in the submission documentation
b) a brief written narrative for each thread in each programme of study.

During the accreditation visit,

- you will be asked to make a brief presentation to the visit team covering each JBM thread. This will be followed by question and answer period, allowing an exploration of your approach to delivery.
- the visit team will also look for evidence of the delivery of threads in its discussions with your students, the Industrial Advisory Board and teaching staff, and also in its reviews of assessments.

Together, these will contribute to the visit team's assessment of the strength of the development of the skills, knowledge and attributes in each of the JBM threads by your students over the course of their studies.

The visit team will be keen to develop its understanding of the way threads are delivered through dialogue with the programme team and others during the visit. Discussion is expected to focus on the strength of the delivery of the threads rather than their simple presence or absence.

This process is designed to encourage teaching staff to engage in a reflective and forward-thinking review of their programme content and support them in the ongoing development and integration of each of the threads, ensuring they are meaningfully embedded across all programmes of study. The ultimate goal is to enable graduates to cultivate deep, well-rounded skills, knowledge and attributes, reflecting the breadth and values of the civil engineering profession.

Descriptions of **strong** coverage of each of the threads are given in the sections describing each of the threads below. Indicators of weaker coverage of a thread are:

a) absence of the thread from one or more years of study,
b) absence of one or more elements of the thread,
c) superficial coverage of one or more elements of the thread.

Threads that are only weakly covered are likely to be subject to accreditation requirements or recommendations in visit reports.

2.2.1. Design thread

Introduction

Design describes a process of imagination and creativity which applies to engineering activities, whether the requirement is to produce an artefact, a process, or a conceptual framework. Design activity must be exploratory and innovative in outlook to meet global challenges. Much civil engineering design must be resilient[2].

Aim

The aim of the design thread is to help your students develop the attributes necessary for devising sustainable, safe, inclusive, economical and creative solutions, and to give them opportunities to demonstrate their design competency and develop their practical civil engineering skills (including creating designs with buildability).

Extent of Design thread

Design should be explicitly taught and practised in relation to the AHEP learning outcomes 5 and 6 (LO5 and LO6). The authenticity of the design problem may extend beyond the context of the project to also include the resources (LO4), tools (LO12 and LO13), practices (LOs14 to 18) and behaviours (LOs 7 to 11) which a civil engineer might be expected to utilise in practice.

Programmes of study must incorporate authentic, progressively more complex design experiences to ensure your students develop the practical judgement and critical and iterative thinking essential to design and which cannot be adequately acquired through theoretical study alone or compressed into final-year projects.

Design elements

D1. Design criteria

Students can define the design criteria of a project, accounting for a range of factors (such as sustainability, budget, stakeholders' needs, consequences for systems and site contexts) in relation to a project brief and graduates will have developed or challenged a brief for a project more than once.

D2. Creative design

Students can produce creative solutions to increasingly complex problems. Graduates are prepared to embrace each opportunity to lead on creative design solutions, going beyond standard solutions. Furthermore, they recognise the systemic barriers to change across our industry and society and can suggest creative ways forward.

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[2] In the document "Encouraging resilient assets using BREEAM", resilience is defined by the BRE as 'the capacity of built assets and infrastructure to endure acute shocks and chronic stresses while successfully adapting to long term changes'.

D3. Sustainable design

Students can measure the impact (quantitatively and qualitatively) of their designs on environmental, social, and economic systems (including in relation to the climate and biodiversity emergencies) considering construction and materials, their supply chains and waste. Going beyond this, graduates will have participated in regenerative design projects that seek to repair, restore, or improve the conditions they encounter rather than merely reducing harm.

D4. Appraising, maintaining, reusing and adapting existing infrastructure

Students can assess existing civil engineering infrastructure and construction, using knowledge of historic materials, processes and guidance, together with present data, to predict and extend or improve future performance.

D5. Design process and communication

Students can recognise and participate appropriately in the different stages of the design process, providing suitable outputs for that stage. Students develop, model and communicate design ideas, both physically and in the abstract, including through hand sketching and approximate modelling.

D6. Design for construction

Students can develop sufficiently detailed construction method statements, demonstrating an understanding of safety and stability during each phase of construction and deconstruction (or demolition) works in relation to both temporary and permanent works for a proposed scheme of their design.

Delivery of the Design thread

The environment within which design takes place is important and can shape the design process itself. It is suggested that you create conditions for students to carry out their design work which are like those in a good professional design office. Additionally, the Industrial Advisory Board (IAB) and visiting professionals from industry can provide invaluable advice in setting up and in running design projects in authentic ways.

The process of good design is iterative, requiring reflection along the journey and an ability and willingness to revisit previous design choices to improve them. It is suggested that you provide interim stages where students are given feedback and are subsequently required to critically review and improve their work.

Practice is essential to develop the skill of design. It is expected that, in addition to specific design projects, your programmes of study include regular open-ended design assessments that become progressively more complex and challenging.

Interdisciplinary design projects can provide excellent learning experiences particularly in relation to elements D1, D5 and D6.

2.2.2. Sustainability thread

Introduction

Sustainability, including consideration of climate change and biodiversity loss, presents profound global challenges. Students benefit from an educational approach that recognises both the historical environmental impacts of civil engineering infrastructure development and the profession's role in creating sustainable solutions for the future.

Civil engineering graduates must be able to view civil engineering projects as interconnected parts of larger economic, ecological and social systems, rather than isolated technical solutions. They must think beyond immediate project requirements and examine how their work fits into broader cycles of, for instance, resource use, ecosystem function and intergenerational responsibility; in short, designing holistically.

Aim

The aim of the sustainability thread is to attune your students to the need to design and engineer civil engineering projects that reduce negative environmental outcomes and create positive ones, while meeting society's infrastructure needs sustainably. Students will understand that engineering designs should minimise the use of natural resources and can provide wider societal benefit.

Extent of Sustainability thread

Sustainability should be explicitly taught and practised in relation to the AHEP learning outcomes 6 and 7 (LO6 and LO7).

In addition, sustainability should be included in the teaching and learning of the core subjects (*see Section 2.3 Core subjects*) as an embedded topic. As such sustainability should be well evidenced and explicitly taught and assessed in every year of each of your programmes of study.

Sustainability elements

S1. Essential contexts

Students can explain the historical development of sustainability and the climate and biodiversity emergencies, including major scientific findings, agreed protocols and goals, and the prevailing economic and political systems within which the damage to the climate and biodiversity has developed.

Students are aware of the implications of current practices and are able to identify and design the mitigations and adaptations necessary in relation to both the changing climate and the scarcity of resources (including energy and water).

S2. Environmental and social interdependence

Students develop holistic, systems thinking, moving from narrow project-focused approaches to understanding civil engineering infrastructure as part of the broader ecological and social systems of the planet. This progression leads to element *S6 Range of design principles*.

S3. Ethics

Students can discuss the fairness of the impacts of the climate and biodiversity emergencies, considering fair shares, climate justice, vulnerable populations and marginalised communities (such as the most affected people in the most affected areas of the global crises), future generations and non-human stakeholders (ecosystems, species, natural systems).

S4. Perspectives on sustainability

Students can discuss sustainability in various contexts (such as the Brundtland Report, UNSDGs, Convention on Biological Diversity (CBD), Net Zero, the circular economy, regenerative design, degrowth, donut economics, systems associated with indigenous people). Students understand the differences and can articulate why a particular definition may be appropriate or inappropriate for a project, then choose suitable metrics accordingly.

S5. Design criteria

Students can interrogate the purpose of a project, identify its stakeholders and the positive and negative impacts on them and then reason how to improve, challenge or refuse to accept the design criteria, if necessary, based on elements *E1 Formal professional conduct frameworks* and *E3 Personal ethical frameworks*.

S6. Range of design principles

Graduates have practised a range of design approaches and are able to differentiate between the impacts of a range of principles of design:

a) historical and commonly current design practices (business as usual, economical designs, focussing on short term cost and functionality)
b) efficiency based design (minimising resource use/waste and carbon emissions but no active contribution to environmental restoration)

c) net-zero design (integrating carbon counting and off-setting, biodiversity compensation[3] and renewable energy)
d) regenerative design (actively improving ecosystems and social conditions).

Delivery of Sustainability thread

The enhanced requirements for students to learn more thoroughly about sustainability (elements S1 to S4) may require you to set aside time solely for the teaching and learning of sustainability.

Effective approaches combine experiential learning (working on authentic civil engineering problems), perspective-taking (seeing issues from multiple viewpoints), and reflective practice (critically examining assumptions and values). Design projects often provide the best opportunities for these.

Collaboration with other disciplines (for example, ecology or social sciences) should help to build systems thinking, and engagement with communities could lead to more ethical approaches, developed from an understanding of lived experience.

2.2.3. Health and safety and risk management thread

Introduction

The decisions that client organisations, designers, contractors, asset owners and managers and many others make in the execution of civil engineering projects have an impact on the health, safety and wellbeing of others. The impact is on those who are directly or indirectly involved with a project throughout its life, from design to deconstruction (or demolition). Legislation puts duties onto all people involved in realising projects, and students must understand the seriousness of these duties and develop a mind-set that enables them to fully discharge their responsibilities. In addition to the fulfilment of statutory obligations, good safety risk management is part of a successful and buildable design.

Aim

The aim of this thread is for your students to develop a health and safety-conscious mindset that encompasses both physical and mental wellbeing, and a fundamental grasp of the practical application of risk management. This includes understanding all forms of risks to project success and recognising how workplace cultures can significantly impact outcomes and individual wellbeing.

Extent of Health and safety and risk management thread

Health and safety and risk management should be explicitly taught and practised in relation to the AHEP learning outcome 9 (LO9). In addition, it should be an embedded topic linked to design projects (LO5 and LO6) and linked to engineering practice (LO12 to LO18).

Knowledge of construction (and deconstruction) is an integral part of health and safety and risk management (*see Section 2.3 Core subjects*) and should be clearly evidenced in this subject area.

Health and safety and risk management elements

H1. Law and regulations

Students are aware of current, key legislation relating to health and safety, in their country of study. In the UK, this includes, for instance:

- the Health and Safety at Work etc. Act 1974 (The Health and Safety at Work Order 1978 in NI)
- the Construction (Design & Management) Regulations 2015 (students should be able to apply the CDM approach of coordinated design risk management)
- the Building Safety Act 2022

[3] Both offsetting and biodiversity compensation are widely debated, with critics questioning their effectiveness, potential to delay meaningful climate action, and ability to deliver genuine environmental benefits.

H2. Risk assessment and management

Students can apply the concepts of hazard and risk to creatively identify and then eliminate or reduce risks from their designs. Risks must include health and safety, mental wellbeing, project and environmental risks. Wellbeing is strongly linked to workplace culture, which everyone has the power to influence. The mitigation of risks should use a risk reduction hierarchy and be continually reviewed on a project. Students can identify and explain unusual or rare health and safety risks and distinguish these from ordinary or minor risks. Finally, students can define, quantify and communicate any residual risks.

H3. Design for safety

Students integrate safety considerations into all stages of their design processes. These must consider whole-life safety including the construction, use, operation and maintenance, and deconstruction (or demolition) phases. This requires a practical understanding of buildability and temporary works.

H4. Construction safety

Students can discuss the common hazards and their control measures in construction, including build, operate, maintain and in addition, refurbish and deconstruct (or demolish), relating to for instance: working at height, moving objects, excavations, and asbestos. This involves applying practical knowledge of buildability and temporary works to real-world construction scenarios.

Delivery of Health and safety and risk management thread

Construction site visits can provide an excellent learning opportunity for health and safety *(see Section 2.10 Construction site visits).*

Design projects allow students to think through the buildability of their designs and their stability in both the permanent and temporary conditions; risks and hazards can be identified, prioritised and managed.

Laboratory testing and field work *(see Section 2.9 Laboratory testing and field work)* require hazards and risks to be assessed and managed. They should also, at least, require students to evidence that they have engaged in all necessary health and safety training, reviewed necessary risk assessments and conducted themselves appropriately.

2.2.4. Professionalism and ethics thread

Introduction

When a student enrols on an accredited programme of study they commence their journey towards a career as a professional engineer. The JBM believes that professionalism and ethics must be integrated and developed within teaching and learning throughout students' engineering education to develop their understanding of the relationship between technical decisions and moral consequences. Many ethical decisions are embedded in sustainability, health and safety, and humane practice, and so your graduates must be able to think clearly about these topic areas and additionally be able to move beyond them through a broader, more holistic understanding (through systems thinking) to hold up their own personal ethics and the ethics of the institutions that they will come to represent.

Recent graduates may not have the authority in industry to control decision making but they must have the ability to critically review the whole or part of a project and to communicate their analysis clearly to others; ideally, graduates will have the confidence to challenge when they consider it appropriate.

Aims

The aim of this thread is to enable your students to develop a professional and ethical identity to carry forward into their working lives: professionals who are trusted to work in the interests of employers, clients, the public, all people around the world and the natural ecosystems of the planet.

Your programme of study should encourage and enable graduates, as they progress in their careers, to attain a professional qualification with one or more of the JBM member institutions and become involved in the activities of their professional engineering institution(s).

Extent of Professionalism and ethics thread

Professionalism should be explicitly taught and practised in relation to the AHEP learning outcomes for the engineer and society (LO7 to LO11) and most of the learning outcomes for engineering practice (LO14 to LO18).

Financial viability is a dominant factor in many civil engineering projects, and commercial awareness is one of the Engineering Council's defining characteristics of accredited programmes. This is more specifically covered in the AHEP description of engineering practice and in learning outcomes 5 and 15 (LO5 and LO15). As part of their professional journey, students must develop commercial and financial awareness in accordance with the requirements of AHEP.

Ethics should be explicitly taught and practised in relation to the AHEP learning outcome for ethics (LO8). In addition, it should be an embedded topic linked to the learning outcomes for sustainability (LO7), health and safety (LO9) and equality, diversity and inclusion (LO11).

Professionalism and ethics elements

P1. Professional engineering institutions (PEIs)

All students must be introduced to each of the JBM member institutions and learn about professional career paths open to them within the range of discipline areas in civil engineering.

P2. Culture of professionalism

Students recognise the importance of workplace culture in determining the success of addressing sustainability, health and safety and inclusive design. They also learn the principles of how to create a successful culture.

P3. Personal accountability

Each student develops professional behaviours, assuming responsibility for the timeliness and quality of their work, learning from mistakes and feedback for personal development, earning trust through consistent and ethical practice and appreciating that sustainability, health and safety and inclusive design are all key attributes of a professional engineer.

P4. Interdisciplinary working

Students work in interdisciplinary teams. As a minimum they take on different civil engineering roles (such as structural, geotechnical, transport engineer). Additionally, where possible, students gain experience of the rewards and challenges of working in teams with other disciplines both within and outside civil engineering and understand the value that a civil engineer can bring to projects.

E1. Formal professional conduct frameworks

Students have read - and can apply to real life scenarios - the current Statement of Ethical Principles by the Engineering Council and the Royal Academy of Engineering or a code of professional conduct of one of the JBM member institutions. They are required to recognise and explain the potential consequences of non-compliance with these codes in key areas such as corrupt practices, bribery, keeping knowledge and skills up to date and acting within competence.

E2. Stakeholder awareness

Students can consider the ethical implications of decision making on multiple stakeholders, including vulnerable populations and marginalised communities (such as those living in economically and politically disadvantaged countries, who face the greatest risks from climate change and biodiversity loss, despite having contributed the least to these global problems), and future generations, and the impacts on biodiversity and the ecosystems of our planet. Students appreciate the effects that follow their design decisions (for instance, through global chains of interactions), including where these effects are not part of the costs or benefits to those directly involved with the project.

E3. Personal ethical frameworks

Each student develops a personal ethical framework for professional decision making. Through exploring concepts such as fairness, intergenerational responsibility, and the implications of environmental damage, graduates will be better equipped to recognise ethical dimensions in their work and understand their professional agency[4]. They are enabled to choose employers whose values align with their own and to advocate for project improvements or even to decline involvement in projects that conflict with their values, recognising that such decisions may come at a personal cost.

Delivery of Professionalism and ethics thread

It is essential that your students regularly interact with professionally qualified academics, technicians and visiting professionals from industry to assist them on their social and professional journey as engineers.

Summer, semester and yearlong placements in industry are excellent ways for students to progress their professional development. Programmes that arrange, promote or otherwise enable students to gain professional experience while studying are encouraged. Some HEPs take advantage of these work-based opportunities by assisting students in gaining an EngTech qualification.

Working on a range of challenging design projects gives students the chance to tackle messy and complex problems, including consideration of issues which are not just technical; it gives them the chance to practise their professional attributes in deeper and more effective ways than traditionally taught and examined courses of study. This is especially so of wider ranging interdisciplinary projects. The inclusion of environmental impact assessments and equality impact assessments as part of design project work is a simple way to begin to think about stakeholders.

To develop ethical reasoning, it is suggested that you present your students with ambiguous or complex ethical problems where there is not a single “right answer” and instead they must reason a position (even if they find the process challenging). Design projects in different parts of the world can provide excellent contexts for ethical discussions.

2.2.5. Humane practice thread

Introduction

Humane practice emphasises respect, fairness, empathy, and responsibility both in the workplace and towards all people and communities affected by engineering decisions, including all those with protected characteristics under equality legislation. It involves understanding and addressing structural barriers and historical injustices, and equipping students to act with awareness, integrity, and inclusivity in their professional practice.

Humane practice must be integrated and nurtured within teaching and learning throughout students’ engineering education. This includes inclusive design and practice, understanding and including all stakeholders (not just those with power and influence) and working towards justice and equity through ongoing work to recognise and address the legacies of racism, colonialism, and exclusion, in ways that reflect the local context of the HEP.

A key part of humane practice is equity which requires more than treating everyone the same; it requires providing what each person needs to achieve fair outcomes, recognising that people start from different places and face different barriers.

Recent graduates may not have the authority in industry to control decision making but they must have the ability to critically review the whole or part of a project and to communicate their analysis clearly to others; ideally, your graduates will have the confidence to challenge when they consider it appropriate. Humane practice is about positive engagement with the world.

[4] It may be necessary to first cover the foundations of ethics and to provide students with the vocabulary and intellectual tools to think about ethics (morality, justice, duty, rights, virtues and values). Then students can go on to consider the application of ethical principles to civil engineering.

Aims

The aim of this thread is for your students to be given opportunities to consider diverse requirements, stakeholders and perspectives through the design of complex civil engineering projects and to consider both the local and global impacts of their work including along supply chains and waste flows.

Extent of Humane practice thread

Humane practice should be explicitly taught and practised in relation to the AHEP learning outcome 11 (LO11). In addition, it should be an embedded topic linked to design projects (LO5) and engineering practice (LO12 to LO18).

Humane practice elements

HP1. Law

Students are aware of current, key legislation relating to diversity, equity and inclusion, in their country of study. For example, the Equality Act 2010 (which in turn includes Section 149 the Public Sector Equality Duty).

HP2. Stakeholders

Students value both local communities and the wider population when planning, designing, and constructing civil engineering projects. Students can consider the impacts of decision making on multiple stakeholders, including vulnerable populations and marginalised communities (such as the most affected people in the most affected areas of the global crises), indigenous peoples and future generations. Students can appreciate the indirect impacts of their design decisions, through global chains of interactions, even when the impacts are not part of the direct costs or benefits of a project.

HP3. Design and humane practice

On a local scale, students learn to create environments, products and systems that are usable by all people, to the greatest extent possible, without the need for adaptation (for example designing infrastructure that serves everyone from the outset: accessible transport and inclusive public spaces). Local impacts may be addressed by restorative justice which focusses on repairing harm caused by infrastructure projects and addressing the needs of affected communities.

On a global scale, students demonstrate empathy in their decision making. To do this they must understand the links between engineering, extraction and colonialism and how the climate and biodiversity emergencies have a disproportionate impact on the people described in *HP2 Stakeholders*.

HP4. Inclusive practice and teamwork

HEPs are able to provide evidence of how they create an inclusive environment for students, such as: evidence-based support for underrepresented students, classrooms where all perspectives are valued, structured team formation (in group projects, etc.) to create diverse groups in place of self-selected ones, requiring student reflection on inclusive practices, assessment criteria that reward inclusive collaboration and not just technical outcomes and finally, a structured approach to conflict resolution.

Delivery of Humane practice thread

Group design projects provide excellent opportunities for your students to research and learn for themselves about the many stakeholders of their civil engineering projects and how their engineering decisions affect a wide range of people. Visiting lecturers from industry and from other disciplines provide fresh perspectives for students and reinforce the importance of this topic area.

Embedding inclusive design principles alongside normal design teaching and the teaching of environmental justice alongside technical subjects will help your students develop good habits early and to learn how civil engineering infrastructure can affect communities.

HP4 Inclusive practice and teamwork reflects the importance of creating the right culture in each HEP and making explicit the steps taken to do this, allowing students to both learn about and to experience inclusive practice.

2.3. Core subjects

2.3.1. Programme requirements

JBM accredited degrees must include a minimum core of subject specific content to place them within JBM's civil engineering remit and equip all students with a basic knowledge of civil engineering.

Complementary to this, each HEP is encouraged to provide a wider breadth and depth of education by providing a range of opportunities for studying further civil engineering subjects and additional subjects beyond the core.

2.3.2. Rationale for composition of programme

You should have a rationale for the composition of each programme you put forward for accreditation, which explains its overall aim and how this aim is achieved through the make-up of modules of study.

Your rationale will need to

a) cover the choices of named subjects and specialisms in the programme
b) include a consideration of the depth of coverage of each subject, including an assessment of:
    (i) the minimum essential knowledge required of all your graduates
    (ii) the knowledge that is required of graduates wishing to specialise in a particular area (such as structures, geotechnics or transport)
    (iii) the more advanced topics that may be research specialisms within a university but will be of limited relevance to most graduates
c) consider the level of coverage of any given aspect of a subject, i.e.:
    (i) whether your graduates should be able to apply it confidently as a matter of routine, or
    (ii) whether graduates should know and be comfortable with the material at graduation but will usually need to remind themselves of its details before attempting to apply it during their careers, or
    (iii) whether the material is something of which graduates should have an awareness but will not usually personally need to apply.

During the accreditation visit you will be asked to make a brief presentation to the visit team covering the rationale for each of your programmes, which will be followed by a question and answer period to further explore your approach to programme design.

The visit team will be keen to allow you to demonstrate a thoughtful and structured approach to programme design; this part of the accreditation process aims to encourage teaching staff to engage in reflective and forward-thinking review of their programme content to support their ongoing development and build on their strengths.

2.3.3. The six core subjects

The JBM's six core subjects are described in Table 1, including the minimum coverage required for these subjects.

Three **primary core subjects**, selected by your programme team, must be taught to a foundational level and then developed more deeply than the others such that students are able to understand underlying principles and confidently apply their knowledge to analyse, design and evaluate performance (typically, they will be prepared to carry out some of the basic tasks of a graduate working in industry). If you wish, you may choose to go beyond this requirement and provide more in-depth coverage (at higher academic levels); this would enable your students to develop advanced and novel approaches.

The remaining three **secondary core subjects** must be taught to a foundational level such that your students

- develop a basic understanding of some of the fundamental principles and standard methods
- are able to apply these to straightforward problems in the discipline area
- can see how they connect to other discipline areas within the field of civil engineering.

Construction may be taught as a distinct subject or may be incorporated with other subjects and design projects, allowing a more contextual understanding.

Table 1 JBM core subjects and minimum, foundational, coverage required

Core subject	Minimum coverage
Materials	Civil engineering material properties and behaviour. This would typically be achieved by covering a range of materials to varying depths.
Structures	Equilibrium and compatibility. Analysis of statically determinate and indeterminate structures. Analysis of load paths and global stability.
Geotechnics	Basics of geology and soil formation. Behaviour of soils, rock mechanics, consideration of groundwater. Geotechnical site investigation.
Fluid mechanics	Principles of fluid flow, pipe flow, open channel flow and fluid loading on structures. Basics of water supply, drainage and flood management.
Construction, site investigation and surveying	The measurement of sites, methods of setting out for construction and concepts of mapping systems such as GIS. Introduction to construction methodologies and management, basic contractual and regulatory frameworks.
Transport	Planning, designing and managing transport systems covering a range of modes appropriate to different circumstances. Principles of design for transport infrastructure such as highways and railway track.

2.3.4. Time to be spent on core subjects

Coverage of the primary and secondary core subjects must amount to a minimum of one third of your programme of study.

If programmes of study are designed such that core subjects occupy more of the curriculum than this, then there should be a rationale to explain this academic approach (for example the programme may be structured to allow students to specialise in certain areas).

As mentioned in Section 1.2 *(The context of accreditation)*, inevitably there are overlaps between the requirements on programmes of study, but teaching approaches will be able to address more than one requirement at the same time so that core subjects can be delivered alongside threads and AHEP learning outcomes.

2.3.5. Enabling subjects

Mathematics, computer software tools and research methods are ‘enabling’ subjects that must be taught to a level and coverage that allows them to support students’ academic work in other subjects. They are covered elsewhere as follows: for mathematics, see AHEP learning outcome 1 (LO1) and for computer software tools, see LO3 and Section 2.8 *Artificial Intelligence*. For research methods, see Section 2.4 *Individual investigative project*.

2.3.6. Additional subjects, including subjects beyond ‘traditional’ engineering

The teaching of the minimum level of core subjects, extended by design and other projects, should allow space in a programme for you to be able to widen student’s experience, allowing them to pursue specialist interests and to broaden and deepen their knowledge as engineers and as thoughtful and responsible members of society.

Providing your students with an introduction to other discipline areas within civil engineering allows them to build a broader understanding of the field as a whole. Enabling them to describe basic ideas and recognise relevance to civil engineering could build interest for future study or work.

Civil engineers must design with people and planet in mind. We strongly encourage the provision of opportunities to study additional subjects that support students in developing social awareness, considering diverse human needs, and understanding connections between their work and the planet's interconnected ecosystems.

You may select additional subjects according to your programme’s own ethos and specialisms; this can include teaching from other engineering disciplines and subject areas beyond engineering. Suggested additional subjects covering both engineering and wider issues, include, but are by no means limited to:

- public health
- environmental engineering
- architectural engineering
- renewable energy technology
- mechanical, electrical and chemical engineering subjects
- economics
- politics
- philosophy
- human geography
- ecology
- sociology
- project management
- business studies
- languages
- history or philosophy of science and engineering

2.4. Individual investigative project

In the final year of full-time BSc and BEng programmes (i.e. IEng, partial CEng) and in one of the final two years of full-time MEng programmes (i.e. CEng), undergraduate students must successfully undertake and pass an investigative project of significant credit value (typically at least 30 credits[5]), of a non-routine nature and with each student producing their own individual output.

The project should be of a civil engineering nature and provide scope for initiative, creative thinking, and understanding of the research method. It should be intellectually challenging and individually assessed.

To enable your students to successfully complete their individual investigative projects they must be introduced to a range of research methods: techniques for ethically conducting research, including reviewing literature, qualitative and quantitative data collection and analysis, interpretation and reporting.

It is expected that the investigative project will extend beyond a desk study to include the creation of new data. To allow students to demonstrate their communication skills in a subject where they have developed

[5] Based on the Credit Accumulation and Transfer Scheme (CATS), 10 credits equate to 100 notional hours of study and so a full undergraduate academic year has 120 credits.

a deep understanding, and to demonstrate academic rigour, the final assessment must include a viva (i.e. an in-person, face to face presentation followed by a question-and-answer session). In exceptional circumstances, where this may be impractical, justification of other approaches is required. See Section 2.7 *Academic rigour of assessments*.

Where research work is being undertaken by staff within the department, steps should be taken to ensure that your students are exposed to and are aware of these activities.

For apprenticeship programmes, the individual investigative project may form the End Point Assessment, dependent on the requirements of the apprenticeship standard.

2.5. Group design project

Design projects are an important means of introducing a professional approach to engineering studies. They are excellent means of covering and integrating the AHEP learning outcomes, the JBM threads and core subjects. It is recommended that each year of study includes group and individual design projects or open-ended design work, allowing your students to develop their skills through practice. These opportunities to learn require feedback and may or may not be formally assessed. See Section 2.2.1 *Design thread*.

Within the final two years of full-time study (or equivalent for part-time study), all BSc, BEng and MEng undergraduate students (i.e. IEng, partial CEng and CEng) must undertake and pass an intellectually challenging group design project, of significant credit value, which ideally should be an interdisciplinary group design project. The term interdisciplinary encompasses the various disciplines of civil engineering such as geotechnics, structural, transport engineering, etc. and, if feasible within an HEP, it can additionally encompass disciplines beyond civil engineering. This latter expanded definition may bring greater richness to the learning experiences.

The group design project should pull together the various strands of the programme of study, particularly addressing design synthesis and creativity in civil engineering. Ideally, the assessment should be against criteria for both the process leading to the final project product and the outcome itself. Finally, it must be demonstrated that each student's mark fairly reflects their own contribution and achievement in the project.

2.6. Open-ended assessments

An open-ended assessment task does not have a single correct answer (and may even not have a clearly defined question). It allows students to show their understanding through a variety of approaches, interpretations, or solutions. Assessments can be, for instance, essays, design projects, case studies, or problem-solving tasks where many valid responses are possible.

Programmes of study in civil engineering must prepare graduates who are capable and confident in tackling real world problems. Open-ended assessments can help cultivate a reflective, problem-solving mindset in preparation for meeting the challenges that graduates will face in industry and also give your students the opportunity to integrate and apply their knowledge and skills.

Open-ended assessments are a good opportunity for HEPs to address the JBM threads and other requirements and so we recommend that programmes include them whenever appropriate and possible. This may take several forms, including design project work, investigative work, open-ended coursework or exam questions.

2.7. Academic rigour of assessments

See also Section 2.12 Distance learning programmes.

The authenticity of students' work in assessments may be undermined by the use of generative tools and other methods, including having someone else author submissions on their behalf. It is appreciated that some assessments may purposefully allow students to make use of GAI (for instance in coding). Where this is the case, learning outcomes should be clear as to what is expected of the students (for instance, the students may have to show their efficient use of GAI together with a critical review of its outputs). The key is that the performance of each student is accurately assessed as intended.

Although the JBM does not prescribe specific methods for maintaining academic rigour, you are expected to take all reasonably practicable steps to ensure that your assessment of each of your students' performance is a genuine reflection of their individual achievement. Simple measures include:

a) face to face, in person invigilated exams
b) face to face, in person vivas (i.e. presentations with question-and-answer sessions)
c) spending time with students during project work or investigative projects, discussing their ideas and seeing their work develop.

Where the JBM considers that academic rigour is lacking in a programme of study this will impact on an accreditation outcome.

2.8. Artificial intelligence

Introduction

The term artificial intelligence (AI) includes generative artificial intelligence and the integration of AI into the tools and workflows used in civil engineering, including applications such as AI-assisted design, optimisation and simulation. The term is intended to encompass both current and emerging developments and technologies.

The ways in which AI is used in teaching and learning and research in HEPs are continuing to evolve. AI has potential for use in planning, teaching, assessing, giving feedback, teaching programming, improving communication, aiding in research. AI-enhanced engineering practice in industry is similarly developing.

HEPs offering JBM accredited programmes are expected to stay abreast of developing practices in academia and in industry and prepare their teaching and learning appropriately.

Assessing students

AI can boost student work quality, but it may also allow students to bypass essential skills and understanding (like using structural analysis software to create bending moment diagrams without grasping the underlying concepts). As a result, assessments must be carefully designed to ensure that intended learning outcomes are met. Requiring students to reference what is their own work and what has been completed with the aid of AI strengthens academic rigour. See Section 2.7 *Academic rigour of assessments*.

Student Learning

You must provide an environment where your students can learn the strengths and weaknesses of AI and its use as a tool, including ethical and intellectual property concerns, energy impacts and data security. Importantly, your students should develop critical thinking skills to assess outputs, including understanding:

a) the relevance and the limitations of outputs
b) how to verify and validate AI generated material, particularly within a context.

These critical thinking skills are already covered at Level 5 and above by the current edition of the QAA The Frameworks for Higher Education Qualifications of UK Degree-Awarding Bodies. At lower academic levels, students must develop these skills to an appropriate level.

2.9. Laboratory testing and field work

Laboratory testing and field work are a hands-on way to develop competence, critical thinking, and an appreciation of real-world complexities in engineering design and material behaviour. They are a requirement of undergraduate programmes of study accredited by JBM.

Both laboratory testing and field work are deemed to fall under the AHEP learning outcome LO12 (which, for BEng (partial CEng) and MEng (CEng) programmes of study, must be met at Level 6). Student laboratory participation is favoured over laboratory demonstrations by technicians.

Your programmes of study should include sufficient laboratory and field work to give your students hands-on experience of how civil engineering materials behave under loading. Students should report on their work, demonstrating understanding, connecting it to taught theory and real-world engineering contexts, and reflect on limitations, errors, and simplifications. Each programme of study should have a rationale for the practical activities chosen.

As guidance for HEPs developing new programmes of study - and for the core subjects of structures, materials, geotechnics, fluid mechanics and surveying - the level of testing and field work presented in Table 2 below is typical of the provision in three-year full-time degree programmes of study. Shorter or longer undergraduate programmes should have a proportionate amount of testing and field work according to academic requirements.

Table 2 Typical extent of laboratory work in a three-year full-time degree

Subject Area	Laboratory testing
Structures and Materials	Tension, compression, bending and deflection tests of linear and non-linear materials, including buckling. Concrete: mix by hand or machine, slump test, cast (cubes or cylinders), density measurement, compression test.
Geotechnics	Soil classification (Atterberg limits, sieve analysis), compaction, permeability, direct shear, unconfined compression tests
Fluid Mechanics	Flow measurement (Venturi, orifice, weirs), Bernoulli's principle, pipe friction, steady open channel flow with weirs and hydraulic jumps
Surveying	Levelling, total station, GPS/GIS applications

Notes for table

(i) Where transport is taught to a deeper than foundational level, it is recommended that programmes of study include relevant testing and field work.

(ii) Concrete making and testing are commonly included in current undergraduate programmes, however the climate and biodiversity crises are moving the civil engineering industry towards lower impact materials for new construction (such as earth bricks) which should be considered for inclusion in laboratory testing regimes. Nevertheless, understanding concrete and its properties remains vital for civil engineers who will need to work with the legacy of our existing concrete infrastructure.

Incorporating Non-Destructive Testing (NDT) and Semi-Destructive Testing (SDT) into programmes of study is essential for equipping your students with the skills needed for a circular economy, where maintenance, adaptation, repurposing and life extension of infrastructure take precedence over new construction.

NDT and SDT may be applied to several fields of study such as dams, highways, water treatment works, retaining walls and structures. These may be incorporated into programmes as laboratory testing, field work, coursework, demonstrations by testing houses or other professionals. Testing may be of individual elements or entire structures. Dimensional surveys can be supplemented by the noting of visual characteristics and the measurement of strength, stiffness, moisture and degradation.

Experimental work that extends beyond routine testing in the laboratory can be a good learning opportunity and is encouraged. Field courses in subject areas such as surveying, geology and environmental engineering can be good learning opportunities, particularly where these subjects form an integral part of the programme and these too are strongly encouraged.

2.10. Construction site visits

Visits to live construction sites help to ground students' theoretical studies in the real world. For all programmes of study equivalent to three and four-year full-time undergraduate courses, it is a requirement that, as a minimum, all graduating students have undertaken at least one visit to a live construction site during their studies. While arranging visits to live construction sites can be challenging, the educational benefits justify the effort.

Visits to completed and functioning civil engineering works are also strongly encouraged (e.g. to a railway station or sewage treatment works) but cannot take the place of visits to live construction sites.

Additional visits to other kinds of construction-related sites (or for instance, steel fabricators, precasting yards or a local quarry) can provide richness to your student's learning and are also encouraged.

2.11. Industrial placements in degree programmes

All graduates can enhance their academic knowledge and employability by gaining some industrial experience or training during their degree programmes. This may be obtained from yearlong industrial placements, shorter industrial placements as part of a module and vacation industrial placements. Your students should be made aware of the opportunities that a placement brings for learning and professional development. Apprenticeship degrees will always involve workplace learning.

Where industrial experience is an integral part of your programme of study:

- ✓ you must prepare for and monitor the experience in the same way as other parts of your programme, and your students must be formally assessed
- ✓ the placement should be of such length as to allow students to participate to an appropriate depth and breadth, to gain relevant experience, and to learn within the workplace environment; it is generally accepted that, to achieve these aims, a placement will be of 9 to 12 months' duration (or two shorter equivalent periods)
- ✓ you must make clear the requirements and the responsibilities for finding an industrial placement, together with arrangements for undertaking, monitoring and the assessment of the placement
- ✓ an appropriate member of your programme team and the student should undertake a risk assessment and agree any control measures necessary
- ✓ you should ensure that each student's mentor and line manager in their placement is identified.

For an industrial placement year in a degree programme, arrangements must be in place for monitoring and review of placement activities. Instances of monitoring and review must occur at least once for each placement and those placements longer than 6 months should have at least two monitoring instances. You should monitor sufficiently to ensure authenticity, safety and well-being. The HEP staff member should meet the mentor and the student's line manager (if that is a different person) and a record of the student's learning and development should be made following each visit.

Initial Professional Development (IPD) gained throughout the industrial placement may be formally recorded and assessed and could contribute to formal IPD requirements when students eventually enter graduate employment. Industrial placements can provide sufficient experience for a successful EngTech application prior to graduation. Details of the IPD, training and membership requirements of each of the JBM member bodies can be found on their websites (links to which can be found on the JBM website).

Where a student has been placed on a provider's registered training scheme, the training reports can be used to record professional development and assess progress. Assessment can be based on a portfolio of evidence, including reports and presentations.

Other industrial placements

For industrial placements that are shorter than the yearlong placements described above, the same principles apply, although, due to the reduction in time spent on the placements, monitoring visits and interim assessments may be reduced accordingly.

Additionally, full time students gain valuable industrial experience through working in the civil engineering industry during their period of study, for instance, working over the summer or suspending their studies to work informally in industry for an entire academic year. This is commendable.

2.12. Distance learning programmes

Introduction

Reference should also be made to the relevant parts of the current version of the Engineering Council's Guidance Note on Academic Accreditation.

Currently, accreditation is not limited to any particular mode of delivery, therefore, distance learning programmes are not excluded. In general, distance learning is a mode that does not require the student to attend classes or events at particular times or at particular locations.

A wide range of programmes may be offered as distance learning, from whole degrees to individual modules. Students may follow a degree programme that is based on all distance learning/projects. Conversely, students may complete some distance learning modules/projects as part of their degree programme while the remainder of their programme is campus based. The following guidelines refer to distance learning that contributes in part or in whole to complete programmes.

Accreditation requirements

The same accreditation requirements apply to distance learning programmes as for any other type of programme delivery but there are additional considerations for distance learning programmes. Their inherent flexibility - often so attractive to potential students - can also pose challenges for accreditation. Issues that are over and above the usual accreditation process and which will require additional evidence from HEPs are:

a) the open-ended nature of distance learning programmes
b) the robustness of systems in support of students
c) access to laboratories and site visits
d) the involvement of a range of delivery partners
e) confirming the authenticity of students
f) students' meaningful participation in group work

There is further information on each below.

The open-ended nature of distance learning programmes

Accreditation of engineering degrees is framed by intake date, but students can take a significant number of years to complete distance learning degrees. Where the programmes you offer are available on a distance learning basis you will need to specify in your accreditation submission document the maximum length of time permitted for completion of each of your distance learning programmes. The JBM normally limits this maximum length to eight years.

A graduate of a distance learning programme who has studied over an extended period may have completed modules from several different versions of the programme and as a result the combined learning experience may not form a coherent whole. You will therefore need to keep the JBM informed of programme modifications (see Section 4.3 Programme modifications); mapping may be additionally needed to demonstrate that final awards meet the current requirements of the Engineering Council and the JBM.

The robustness of systems in support of students

Programmes delivered by distance learning must be underpinned by a sound delivery platform. You will need to provide evidence that the communications systems in place enable interaction between students and both their tutors and peers, so that distance learning students are not disadvantaged by comparison with campus-based students. There should be appropriate access to student, academic and administrative services, and timely feedback on assignments. The JBM will require access to the delivery platform - where appropriate, in advance of a visit - as part of the accreditation process.

Greater than normal emphasis will be placed on the delivery and communications systems within your institution and you may be required to provide more detail about this than is required for campus-based programmes.

Access to laboratories and site visits

Some learning outcomes - including the AHEP engineering practice learning outcome 12 (LO12) *practical and workshop skills* - are most appropriately demonstrated through practical work. The JBM will consider a range of ways by which this may be demonstrated that need not necessarily be limited to campus laboratories. For example, work-based distance learning students may be able to achieve the required outcomes through workplace activity.

Compared to on-campus programmes of study, there is a need for a greater emphasis on the systems in place to ensure that practical skills-based activities are developed, and you may be required to provide additional submission documentation to demonstrate how distance learning programmes achieve skills-based outcomes. Programmes may include mandatory on-campus course components.

The requirement for a minimum of one visit to a live construction site for undergraduate programmes of study still applies; this may be obtained through work-place activity, but you will be required to evidence it for all distance learning students.

The involvement of a range of delivery partners

The Engineering Council requires that the JBM normally visits all campuses involved in delivery of programmes as part of the accreditation process and this applies to distance learning provision. Where some of the programme is delivered by a provider other than the awarding institution, visits are also required to the provider, unless the awarding institution can demonstrate that systems are in place to ensure that the relevant specified learning outcomes are being delivered by the provider.

Confirming the authenticity of students

See also Section 2.7 Academic rigour of assessments.

You must have robust systems in place to ensure that each student is who they say they are, and that the work being assessed is their own work. Robust systems could include the following:

a) the use of recognised centres outside of the UK such as British Council offices
b) academic staff from the home academic institution holding assessments in regional centres
c) candidates attending residential courses
d) candidates taking examinations in the UK at the same session as their UK based fellow students
e) for students completing individual research projects, the requirements that they must attend an in-person face to face viva or, where the identity of the candidate has been confirmed face to face, an online video viva.

Students meaningfully participating in group work

Distance learning students face significant barriers to meaningful participation in group-based assignments and design projects due to geographical separation, time zone differences and varying personal circumstances. You must plan, design and monitor collaborative learning experiences that accommodate these constraints with measures such as flexible group formation and collaborative technology platforms. Additionally, you should consider facilitating regional meetups or short residential components to help with relationship building.

2.13. Direct entry to undergraduate programmes

Where your undergraduate programmes allow direct entry into the ultimate or penultimate year of study, you will need to show that you have robust, transparent processes for confirming that students entering directly have completed sufficient prior learning (considering both Engineering Council and JBM requirements) and in particular have achieved the relevant AHEP learning outcomes for their entry point. With appropriate verification systems in place, direct entry into IEng or CEng accredited programmes is acceptable.

In the UK, this includes students on 2+2 programmes (where students complete two years at a partner institution abroad before transferring to complete their final two years in the UK). Where collaborative frameworks are strong and well-established and verification systems can be shown to be adequate, visits to overseas partner institutions should not be necessary. However, for newer or less robust partnerships additional verification, possibly including a visit to the overseas partner institution, may be required.

2.14. Industry involvement and the Industrial Advisory Board

In the same way that professional experience can enrich a student's learning, the JBM believes that programmes of study can also benefit considerably from engagement with the civil engineering profession. We therefore require evidence that you are maintaining strong, effective and visible links with the civil engineering profession.

You will be required to establish and run an effective Industrial Advisory Board (IAB) directly relevant to your civil engineering programmes of study, as follows:

a) the IAB must include several (suggested minimum of four) industry members with a range of civil engineering expertise and a range of experience in the industry, from client organization, consulting and contracting backgrounds and from large and small companies
b) the IAB chair must be an industrialist and not an academic
c) the IAB should meet at least twice a year, and its meetings minuted.

We recommend that your IAB includes industrial members who are professionally registered. The advice that the IAB provides will depend on the HEP and the particulars of the programmes of study you offer, but might include the following:

- which aspects of the programme might be dropped or reduced to make way for emerging priorities. This is the single most important contribution which the Board can make to an HEP, given the thought, vision and bravery which is required to do so
- planning programmes of study and individual modules in relation to the perceived needs of industry
- professional training year placements
- possibilities for workplace and other forms of distance learning
- providing visiting speakers on specific topics
- providing opportunities for visits to live construction sites
- sponsorship of taught students in a fee-paying environment
- external links with potential sponsors of research

- sponsorship of research projects and research students.

As evidence of strong, viable and visible links between departments and the profession, you should ensure that local practising engineers become involved with the education of your students by, for example, giving appropriate lectures, internal talks, assisting with design projects, acting as industrial tutors and mentors, and enabling students to make site visits.

2.15. Professional involvement

Benefits of professional involvement

JBM accreditation signifies that degree programmes meet the standards required for professional registration (EngTech, IEng or CEng) and provide graduates with a recognised pathway to international mobility through frameworks such as the Washington, Sydney and Dublin Accords. It also strengthens the credibility and quality assurance of a civil engineering degree.

The JBM consists of five Professional Engineering Institutions (PEIs), each focused in different ways on the different disciplines within civil engineering. Engagement with these individual PEIs provides added richness and context to programmes and provides practical benefits:

- it helps align academic content with evolving industry needs, particularly in areas such as sustainability, ethics, communication and CPD
- both students and staff benefit from access to technical publications, CPD events, mentoring and networking opportunities
- PEIs can also offer scholarships, awards and competitions that support academic and professional development.

Ways of developing professional involvement

The JBM encourages HEPs to get involved with individual PEIs and to promote student engagement by:

a) appointing Student Liaison Officers (SLOs): these are staff who act as points of contact with all five PEIs represented by the JBM
b) promoting student membership: encouraging students to register as free members of one or more of the five JBM PEIs
c) promoting career and professional registration awareness: with support from local PEI branches, delivering sessions on professional pathways and registration (EngTech, IEng or CEng)
d) supporting PEI activities within the HEP: publicising and encouraging participation in PEI events, competitions and awards

2.16. Professional qualifications of teaching staff

Teaching and technical staff delivering accredited programmes must be competent in their discipline and professional registration (EngTech, IEng, and CEng) helps demonstrate this, alongside relevant teaching qualifications. Professionally qualified teaching staff also serve as positive role models, reinforcing the value of professional practice and inspiring students to pursue similar professional recognition. We therefore encourage HEPs to pay fees for registration and subscriptions for staff as part of their commitment to staff development and professionalism.

Demonstrating a professionally qualified teaching staff

At least 50% of all teaching staff delivering accredited degree programmes must be professionally qualified. Where this threshold is not met, you are required to outline a strategy for achieving compliance; this includes a clear and annually updated action plan.

Due to the interdisciplinary nature of civil engineering, teaching staff may be members of a range of relevant professional institutions (both UK-based and international) and may hold registration at various levels from EngTech to CEng. Additionally, markers of industry leadership such as ICE Fellow will also be considered.

You must demonstrate how you support staff in becoming professionally qualified. To this end your submission for accreditation will need to include a professional qualifications table listing all individuals teaching (or directly supporting learning) on civil engineering programmes, including lecturers, technicians, and visiting lecturers who make a significant contribution. Examples of making a significant contribution to a programme of study include mentoring on student projects, including design projects or delivering the equivalent of 25% of a module.

The table must include the following:

a) professionally qualified staff, including their qualifications and disciplines,
b) professionally qualified visiting lecturers from industry, with their qualifications and disciplines,
c) aspiring staff currently working towards a professional qualification, with their discipline and anticipated registration date,
d) remaining staff who are not professionally qualified, including their disciplines.

The professional qualifications table - explanatory notes

(i) Given the breadth of civil engineering and the shared foundational principles across engineering disciplines, staff registered with the Engineering Council will be considered.
(ii) Civil engineering programmes encompass a wide range of topics requiring expertise from disciplines such as geology, environmental science, planning, building and architecture. Staff who are professionally qualified through appropriate institutions in these fields will also be considered.
(iii) Overseas professional qualifications may be acceptable where they are deemed equivalent, particularly those recognised by the International Engineering Alliance or in countries where engineering is a regulated profession.
(iv) Only professional bodies that require a peer-reviewed assessment of competence (including qualifications, experience, and ethical standards) are acceptable for the purposes of the table. Memberships that do not require such assessment (e.g. Affiliate or Student membership of ASCE) do not meet accreditation expectations.
(v) Teaching qualifications such as FHEA or SFHEA should not be included in the professional qualifications table as they do not directly relate to the professional aspects of civil engineering.
(vi) Technicians involved in laboratory or workshop instruction must also be included in the table. They are encouraged to seek EngTech registration where appropriate.

Support from the JBM member bodies

The five institutions forming the Joint Board of Moderators (JBM) are committed to supporting staff seeking professional qualifications, including academic staff. Upon request, the institutions can assist you by:

a) supporting the development of institutional policies and strategies for staff professional development
b) reviewing staff profiles in relation to professional qualification status
c) assisting individual staff in preparing applications for professional registration.

Many staff may already meet the eligibility criteria for professional registration but have not yet pursued it. During an accreditation visit, we encourage you to discuss staff professional development with the visiting panel to highlight ongoing efforts and support needs.

Contact details for the individual PEIs who make up the JBM can be found on the JBM website alongside additional support, provided by JBM member institutions, for academics seeking professional registration.

2.17. Entry levels and cohort support

As guidance for HEPs developing new programmes, the minimum academic entry levels presented in Table 3 below are typically adhered to by HEPs offering civil engineering programmes of study. The UCAS tariff points outlined are based on achievements in three A Levels (or equivalent), where an aggregate of 168 UCAS tariff points is the maximum attainable.

Table 3 Typical minimum achievement levels for entry onto accredited degree programmes

Accreditation level	Degree type	Minimum expectation (UCAS tariff points)
CEng	MEng	120
Partial CEng, IEng	BEng	88
IEng	BSc	48

You will need to provide evidence of how students are admitted to programmes of study, including a rationale for each programme's minimum entry standards.

For BEng and MEng programmes with joint intake, minimum entry requirements may be set at the BEng level, provided that MEng graduates as a whole achieve appropriate academic standards.

Programmes of study may be undertaken by cohorts of students with wide ranges of ability and experience and so all HEPs must provide evidence of how all cohort entry extremes are supported. Two scenarios are described below.

- Mathematics A Level, or its equivalent, is normally a requirement for entry onto MEng and BEng programmes. Where A Level mathematics is not an entry requirement, an explanation of how the students lacking A Level mathematics are supported is required.

- Students entering programmes through the A Level route may be joined by those entering with other comparable qualifications or via foundation courses, an explanation of how each cohort is supported appropriately to ensure the performance of all students is required.

3. Other civil engineering programmes of study

Much of the guidance and many of the requirements presented in Section 2 also apply to civil engineering programmes of study at other levels, including:

- 2.6: Open-ended assessments
- 2.7: Academic rigour of assessments
- 2.8: Artificial intelligence
- 2.11: Industrial placements in degree programmes
- 2.12: Distance learning programmes
- 2.14: Industry involvement and the Industrial Advisory Board
- 2.15: Professional involvement
- 2.16: Professional qualifications of teaching staff

This section gives guidance on how the key aspects of the JBM requirements in Section 2 should be interpreted in relation to postgraduate programmes, foundation degrees, and Engineering Technician (EngTech) programmes of study.

3.1. Postgraduate programmes of study

The requirements for, and defining characteristics of, a master's degree in engineering (other than the integrated master's) are described in the current version of AHEP, together with the required learning outcomes which will be reviewed as part of any accreditation assessment.

All of the required AHEP learning outcomes must be met at the appropriate academic level as specified by the Engineering Council. As part of your application for accreditation, and for each programme of study, you will need to submit a mapping table showing where each required AHEP learning outcome is met.

Type I and Type II degrees

The JBM accredits two types of master's degrees, which are differentiated according to their suitability to enable particular groups of graduates to meet the Further Learning requirements for Chartered Engineer (CEng). See Table 4 below.

> **Type I MScs** are designed for IEng graduates (i.e. with a degree accredited as fully meeting the academic requirement for registration as an Incorporated Engineer). Type I MScs can also be combined with partial CEng degrees. So, Type I MScs are typically suitable to be combined with accredited BSc or BEng degrees.
>
> **Type II MScs** are designed for partial CEng graduates (i.e. with a degree accredited as partially meeting the academic requirement for registration as a Chartered Engineer). So, Type II MScs are typically suitable to be combined with BEng degrees.

Table 4 Summary of Type I and Type II degrees

Does combination meet CEng academic base?	Type I MSc	Type II MSc
BEng (partial CEng)	Yes	Yes
BSc (IEng)	Yes	No

The degrees are differentiated by the AHEP learning outcomes that must be covered at master's level (NQF Level 7 or SQF Level 11). See Table 5 below.

Graduates of IEng degrees, enrolled on a Type I MSc degree, have already met learning outcomes LO8 to LO10 and LO18 and so the Type I MSc degree need only cover the remaining learning outcomes LO1 to LO7 and LO11 to LO17.

Graduates of partial CEng degrees, enrolled on a Type II MSc degree, have already met learning outcomes LO6 and LO8 to LO15 and LO18 and so the Type II MSc degree need only cover the remaining learning outcomes LO1 to LO5, LO7, LO16 and LO17.

Table 5 AHEP learning outcomes required for Type I and Type II MSc degrees, showing minimum cognitive levels of achievement (M is the EngC designation for a learning outcome at master's level)

AHEP LO	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18
JBM Type I	7	7	7	7	7	6	7				6	6	6	6	6	7	7	
JBM Type II	7	7	7	7	7		7									7	7	

Doctoral programmes that cover the same learning outcomes as the master's programmes are treated in the same way.

A graduate of a Type I or Type II master's programme whose underpinning bachelor's degree is not accredited for CEng with further learning (i.e. partial CEng) will need to complete an academic assessment with their preferred JBM institution, as this is not automatically acceptable to the Engineering Council for the purposes of professional registration. This is regardless of the master's programme being Type I or Type II. Academic assessment is not required for an accredited master's graduate whose underpinning bachelor's degree is accredited for CEng with further learning.

JBM Threads

See Section 2.2 JBM threads.

It is expected that a proportion of the threads will be present within postgraduate programmes at appropriate academic levels. You are encouraged to embed the most appropriate threads within your programmes and to align your coverage with the specific nature and focus of each programme.

Due to the wide range of types of postgraduate programmes, there is no intention to be prescriptive on which elements of threads should be present. Nevertheless, the threads are considered to represent good practice in teaching and learning and so you should have a rationale as to why particular threads and elements have been included or omitted, in alignment with your programme's aims. Completion of a threads mapping table as described in Section 2.2 *JBM threads* for each programme of study is required to allow discussion of coverage of threads at master's level.

Core subjects

See Section 2.3 Core subjects.

There are no requirements for postgraduate programmes of study regarding the JBM core subjects. Nevertheless, programmes of study accredited by JBM must be strongly related to the field of civil engineering; as such it is likely that one or more of the core subjects will be present.

Individual investigative project

Many master's level programmes include a significant individual investigative project. Where this is the case, this should be of a non-routine nature and with each student producing their own individual report. The project should provide scope for initiative, creative thinking, understanding the research method, and should be intellectually challenging and individually assessed.

Support must be given to students who have not previously learned research skills. They must be introduced to a range of research methods: techniques for ethically conducting research, including reviewing literature, qualitative and quantitative data collection and analysis, interpretation and reporting.

The investigative project will extend beyond a desk study to include the creation of new data. To allow students to demonstrate their communication skills in a subject where they have developed deep understanding, and to demonstrate academic rigour, the final assessment must include a viva (i.e. an in-person, face to face presentation followed by a question-and-answer session). In exceptional circumstances, where this may be impractical, justification of other approaches is required. See Section 2.7 *Academic rigour of assessments*.

This section applies where individual investigative projects form part of a programme of study. Although this is a common arrangement, the JBM has no requirement for an individual investigative project to be present within a postgraduate programme. The absence of an individual investigative project module from a programme of study creates space for other modes of learning, such as individual and group design projects.

Entry levels and cohort support

You will need to provide evidence of how students are admitted to your programmes of study, including a rationale for each programme's minimum entry standards.

Programmes of study may be undertaken by cohorts of students with wide ranges of ability and experience. For postgraduate programmes of study, this may include graduates of cognate or non-cognate degrees. You will need to provide evidence of how cohort entry extremes for each of your programmes are supported.

3.2. Foundation degrees

Introduction

Foundation degrees meet the educational base requirements for registration with the Engineering Council as an Engineering Technician (EngTech) or partly satisfy the educational base requirements for registration with the Engineering Council as an Incorporated Engineer with the addition of Further Learning (partial IEng).

Foundation degrees must include an element of work-based learning which must be based on authentic, productive work and cannot be simulated by an alternative. There must be integration of learning in academic modules and the workplace. There are limits to the number of credits of work-based learning set by the JBM. The minimum credit tariff for a Foundation degree is 240 credits, of which 90 credits must be at the level of the qualification. See Table 6 below.

Table 6 Foundation degree credits and work-based learning

Academic level	Number of credits	Work based learning
4	-	-
5	Min. 90	Min. 10 credits
Total	240	Min. 30 / Max. 40 credits

General

Successful graduates of Foundation degrees can continue their learning and so meet the academic base to apply to register as an Incorporated Engineer. This may be achieved through completion of a top up degree which may be the final academic year of a BSc in Civil Engineering.

Thus, in order not to hamper the progression of graduates of Foundation degrees, the breadth and depth of learning on a Foundation degree is expected to be equivalent to the first two years of a three-year, full time IEng degree such as a BSc (hons).

AHEP

The requirements for and defining characteristics of a Foundation degree are described in AHEP, together with the required learning outcomes which will be reviewed as part of any accreditation assessment.

All of the current AHEP learning outcomes must be met at the academic level specified by the Engineering Council as appropriate for each programme of study. As part of your application for accreditation, and for each programme of study, you will need to submit a mapping table showing where each AHEP learning outcome is met.

JBM threads and core subjects

See *Section 2.2 JBM threads* and *Section 2.3 Core subjects*.

All of the JBM threads must be present at an appropriate academic level and in both the academic and workplace learning of Foundation degrees.

Minimum foundational coverage of the JBM core subjects is given in *Section 2.3 Table 1* at levels that are appropriate for a three-year full-time degree such as BSc. A programme of study lasting the equivalent of two full-time years of study must cover the core subjects to a proportionate degree and to an appropriate academic level. It is recommended that your coverage of the core subjects amounts to a minimum of one third of the programme of study.

Laboratory testing and field work

See *Section 2.9 Laboratory testing and field work*, which applies to all levels of undergraduate programmes of study. Laboratory testing and field work should be included in the programme of study to a proportionate degree and at an appropriate academic level.

Construction site visits

See *Section 2.10 Construction site visits*, which applies to all levels of undergraduate programmes of study.

Foundation degrees include a significant degree of work-based learning which could provide excellent opportunities for visits to live construction sites. In any case, it is recommended that all students are given the opportunity to visit a live construction site at least once during their studies.

Work-based learning

The aim of work-based learning modules is to credit the students' knowledge and skills which have been gained in the workplace. The modules will also enable the student to integrate the knowledge and skills they have acquired during their formal academic study part of the programme into the workplace environment.

The emphasis of work-based learning will vary depending upon the HEP and the work placement, but it should be in a distinctive area appropriate to the work placement. Any arrangement of work-based learning should encourage the employer/supervisor to be involved in ensuring that the student is receiving appropriate agreed experiences.

Good practice in relation to industrial placements is given in *Section 2.11 Industrial placements in degree programmes* and reference should be made to this guidance.

Direct Entry to Foundation degrees

See Section 2.13 Direct entry to undergraduate programmes

Entry levels and cohort support

You will need to provide evidence of how students are admitted to your programmes of study, including a rationale for each programme's minimum entry standards.

Programmes of study may be undertaken by cohorts of students with wide ranges of ability and experience. You will therefore also need to provide evidence of how cohort entry extremes for each of your programmes are supported.

3.3. Engineering Technician (EngTech) programmes of study

Introduction

This section comprises guidelines for academic programmes of study meeting the educational requirements for Engineering Technician (EngTech) registration. The JBM is licensed by the Engineering Council to approve or accredit programmes of study which could be accepted as a qualification for EngTech as per UK-SPEC and which are at Level 3 (or SCQF level 6) or above.

Reference should be made to the current version of Approval and Accreditation of Qualifications and Apprenticeships (AAQA), which sets out the learning outcomes that must be met, the requirements for approval or accreditation and the evidence that professional engineering institutions should seek in order to confer approved or accredited status.

In the UK, a Higher National Certificate (HNC) in civil engineering, or similar, would be a suitable programme of study for consideration for approval or accreditation. Other types of programmes may be suitable also, but for convenience, all will be referred to in this section as HNC programmes.

General

An HNC course is a Level 4 qualification, equivalent to the first year of a three-year full-time BSc or BEng degree and as such provides a foundation for further study which could, for instance, become the academic base for IEng or partial CEng.

Thus, in order not to hamper the progression of graduates of HNC programmes, the breadth and depth of learning on an HNC programme are recommended to be equivalent to the first year of a three-year, full-time degree, which is also at Level 4.

AAQA

The defining characteristics of an HNC programme of study are described in the current version of AAQA together with the required learning outcomes that will be assessed as part of any approval or accreditation assessment.

All of the current AAQA learning outcomes must be met at the academic level specified by the Engineering Council, as appropriate for each programme of study. As part of your application for approval or accreditation, and for each programme of study, you will need to submit a mapping table showing where each AAQA learning outcome is met.

JBM threads and core subjects

See *Section 2.2 JBM threads* and *Section 2.3 Core subjects*. All of the JBM threads should be present at an appropriate academic level in the programme of study.

Minimum coverage of the JBM core subjects is given in *Section 2.3 Table 1* at levels that are appropriate for a three-year full-time degree such as BSc. Thus, an HNC, or other programme of study lasting the equivalent of one full time year of study, should cover the core subjects to a proportionate degree and to an appropriate academic level. Coverage of the core subjects should amount to a minimum of one third of your programme of study.

Laboratory testing and field work

See *Section 2.9 Laboratory testing and field work*, which applies to all levels of undergraduate programmes of study. Laboratory testing and field work should be included in the programme of study to a proportionate degree and at an appropriate academic level.

Construction site visits

See *Section 2.10 Construction site visits*, which applies to all levels of undergraduate programmes of study. Any work-based learning in the programmes of study could provide excellent opportunities for visits to live construction sites. In any case, it is recommended that all students are given the opportunity to visit a live construction site at least once during their studies.

Entry levels and cohort support

You will need to provide evidence of how students are admitted to their programmes of study, including a rationale for each programme's minimum entry standards.

Programmes of study may be undertaken by cohorts of students with wide ranges of ability and experience. You will also need to provide evidence of how cohort entry extremes for each of their programmes are supported.

3.4. Apprenticeships

The guidelines and requirements in this document apply equally to the qualifications associated with civil engineering apprenticeships that are put forward for accreditation.

4. JBM further requirements

The following additional guidance and requirements are included in this document as they cover issues that regularly occur during accreditation visits. This is not an exhaustive list, and you are advised to visit the JBM website for a comprehensive set of the current JBM guidance and requirements.

4.1. AHEP compensation and condonement

Reference should be made to the current version of the Engineering Council's Compensation and Condonement Policy. All accredited programmes of study, for students commencing their studies in September 2022, must comply with the requirements of the Engineering Council on compensation and condonement.

4.2. Risk based approach to accreditation

Reference should be made to the current version of the Engineering Council's Risk-based approach to accreditation visits – policy statement and to the current JBM guidance on risk-based accreditation. A short introduction to this approach is presented here.

A new programme of study without an output cohort must satisfy several criteria to be eligible to be accredited at the time of application. In all cases, monitoring is needed until at least one cohort has completed the programme and their output can be reviewed.

New programmes of study must satisfy the normal relevant Engineering Council and JBM requirements. To be eligible for treatment under the risk-based approach, they must demonstrate that the risk of the final output not being at an acceptable level is low. Judgements made by the JBM will be based on output seen at the most recent JBM full accreditation visit and your programme being demonstrated to satisfy the following criteria:

a) the HEP has experience of running similar programmes at the same level
b) there is reasonable commonality of programme content across all years (normally considered to be in the region of 70%) with other accredited programmes at the level proposed. If more than 30% of a recognised programme is additional or new, an accreditation visit may not be waived.
c) adequate resources (facilities and staff) are in place or there is a clear commitment to future investment (within an acceptable timescale) to provide such resources
d) appropriate procedures are in place for assessing and assuring the quality of programmes at the level proposed
e) no significant issues arose during the most recent accreditation visit and any requirements of that visit have been, or are being, addressed
f) no adverse changes have occurred within the department's resources or governance since the most recent accreditation visit
g) samples of output are provided as soon as they are available and give reassurance to the JBM that the standard is appropriate.

Over and above the normal submission requirements, you will be required to submit:

a) a mapping table demonstrating commonality between each proposed new programme and currently accredited programme(s)
b) a summary of any significant programme changes to related accredited programmes since the last JBM visit
c) projected student numbers
d) an outline of the internal validation procedures
e) indication of the resources – including staffing and facilities – which are currently in place to support the programme or an action plan (with timescales) which shows that adequate resources will be provided.

4.3. Programme modifications

It is possible that an accredited programme that is subsequently modified may, as a result of these changes, no longer meet the requirements of the Engineering Council and the JBM. On that basis, the programme should lose its accreditation.

It is therefore essential that the accreditation status of a programme matches the programme as it is being taught by an HEP. You must notify the JBM of

a) any planned substantial modifications to your accredited programmes
b) any major changes during the period of accreditation that might affect the delivery of the specified programme outcomes. Major changes are defined as

    i. new modules replacing existing ones and
    ii. changes to the majority of the learning outcomes within existing modules, that collectively amount to more than 30% of an accredited programme.

The changes may occur over a single academic year or may take place over a number of years since the previous accreditation.

4.4. Awarding of non-accredited qualifications

Where students receive a non-accredited qualification, for example, at a partner institution that has not been included in the accreditation process, it is a JBM requirement that certificates and transcripts for the non-accredited qualification are clearly differentiated from those for the accredited qualification. Ideally, non-accredited degrees should have a different course title. As a minimum, the study location should be clearly shown on the certificate.

4.5. Website wording

The JBM require that the accredited status of your programmes of study is clearly indicated on your website and in publicity material. It is recommended that you refer to the JBM guidance on website wording for accredited courses.