



Accreditation of Academic Programmes Guidance

for CEng, IEng and EngTech



For any questions or to arrange an accreditation visit, please contact membership@cibse.org or +44(0)20 8772 3650

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Section 1: Accreditation of academic programmes

This guidance is provided for course providers such as universities, colleges and employers intending to submit documentation for accreditation of academic programmes by the Chartered Institution of Building Services Engineers (CIBSE). An accreditation visit by a CIBSE team will be required. This guidance covers both undergraduate and postgraduate programmes.

1.1 Why seek accreditation?

The accreditation of a programme by a recognised professional statutory body is a mark of assurance that the programme meets the standards set by a profession. In the UK, the Engineering Council (EC) sets and maintains the standards for the engineering profession and the overall requirements for accreditation. The EC licenses Professional Engineering Institutions (PEI) including CIBSE to undertake the accreditation within these requirements – interpreting them as appropriate for their own sector of the profession – and maintains the register of accredited programmes. CIBSE uses the accreditation process to assess whether specific educational programmes provide some or all of the knowledge, understanding and skills for both eventual membership and EC registration in a particular category.

Accreditation is an accepted and rigorous process that commands respect both in the UK and internationally. It helps students, their parents, employers, and advisers choose quality degree programmes. It also confers market advantage to graduates from accredited programmes both when they are seeking employment and also when in due course, they decide to seek professional qualification. Some employers require graduation from an accredited programme as a minimum qualification.

The accreditation process gives educational institutions a structured mechanism to assess, evaluate, and improve the quality of their programmes. In an important development, the UK Quality Assurance Agency for Higher Education (QAA) has, since 2006, adopted the standards in the EC's UK-SPEC as the subject benchmark statement for engineering. This alignment was strongly supported by the academic community and further strengthens the case for accreditation as well as assisting in reducing the regulatory burden on the higher education sector.

Increasingly the advantages of professional accreditation are being recognised internationally. The UK engineering profession participates in several major international accords, including those in Europe, which establish the 'tradability' of engineering and technology qualifications. In each case the system of accreditation applied in the UK is fundamental to the acceptance of UK qualifications. With increasing globalisation, such accords and frameworks are assuming growing importance with employers as a means by which they can be confident in the skills and professionalism of the engineers involved. An accredited programme also has a market advantage for education providers wishing to attract international students to the UK.

1.2 What is involved?

The accreditation process is essentially one of peer review; it is applied to individual programmes not to the department or institution overall. A provider seeking accreditation for an engineering programme should approach the CIBSE Membership Department for information.

Where relevant, joint visits with two or more PEI's is an option and can reduce the overall costs of accreditation. These can be organised through the auspices of the Engineering Accreditation Board (EAB) or arranged through CIBSE, and further details are available from the CIBSE Membership Department.

Where programmes are offered collaboratively with other providers, or on a franchised basis, the accrediting institution will normally expect to visit all partners involved in delivering the programme, although this requirement may be waived in certain circumstances.

Programmes may be accredited as fully or partially meeting the educational requirement for registration as Engineering Technician (EngTech), Incorporated Engineer (IEng) or Chartered Engineer (CEng). Qualifying phrases such as 'provisional accreditation' and 'partial accreditation' are not used.

All BEng (Hons) degrees accredited as partially meeting the academic requirements for CEng status will also be accepted as accredited degrees for IEng registration.

1.3 Output standards

Under the United Kingdom Standard for Professional Engineering Competence (UK-SPEC) published by the Engineering Council, the decision whether to accredit a programme will be made on the basis of the programme delivering the specified learning outcomes. These outcomes are described in the Engineering Council document "The Accreditation of Higher Education Programmes Fourth Edition" (AHEP 4) and can be found on the EC website www.engc.org.uk/ahep4th. They are set out in Appendix A of this guidance.

Accredited engineering programmes provide the exemplifying levels of understanding, knowledge and skills for professional competence. The output standards therefore need to be read in the context of the generic statements of competence and commitment for Chartered Engineers, Incorporated Engineers, and Engineering Technicians as set out in UK-SPEC.

As the output standards for degrees leading to IEng registration differ from those for degrees leading to CEng registration, and the UK-SPEC envisages that degrees will be accredited for one or the other, but not both.

1.4 Exemplifying qualifications

Accredited engineering programmes provide the exemplifying levels of understanding, knowledge and skills for professional competence. The output standards set out by the Engineering Council for the accreditation of higher education programmes need to be read in the context of the generic statements of competence and commitment for Chartered Engineers, Incorporated Engineers and Engineering Technicians as set out in the UK-SPEC available on www.engc.org.uk/ukspec4th.

The exemplifying academic awards are:

Chartered Engineer (CEng):

- An accredited Bachelors degree with honours in engineering or technology, plus either an appropriate Masters degree or engineering doctorate accredited by a Licensee, or appropriate further learning to Masters level*
- An accredited integrated MEng degree
- An accredited Bachelors degree with honours in engineering or technology started before September 1999
- Equivalent qualifications or apprenticeships accredited or approved by a Licensee, or at an equivalent level in a relevant national or international qualifications framework**

Incorporated Engineer (IEng):

- An accredited Bachelors or honours degree in engineering or technology
- An accredited Higher National Certificate (HNC) or Higher National Diploma (HND) in engineering or technology started before September 1999

- An HNC or HND started after September 1999 (but before September 2010 in the case of the HNC) or a Foundation Degree in engineering or technology, plus appropriate further learning to degree level
- A National Vocational Qualification (NVQ) or Scottish Vocational Qualification (SVQ) at level 4 that has been approved by a Licensee, plus appropriate further learning to degree level*
- Equivalent qualifications or apprenticeships accredited or approved by a Licensee, or at an equivalent level in a relevant national or international qualifications framework**

Engineering Technician (EngTech)

- Successful completion of an apprenticeship or other work-based learning programme approved by a Licensee
- Alongside appropriate working experience, holding a qualification, approved by a Licensee, in engineering or construction set at either:
 - level 3 (or above) in the Regulated Qualifications Framework or National Qualifications Framework for England and Northern Ireland
 - level 6 (or above) in the Scottish Credit and Qualifications Framework
 - level 3 (or above) in the Credit and Qualifications Framework for Wales
- Alongside appropriate working experience, holding equivalent qualifications or apprenticeships accredited or approved by a Licensee, or at an equivalent level in a relevant national or international qualifications framework**

* See: www.engc.org.uk/ukspec4th for qualification levels and HE reference points

**For example, UNESCO's International Standard Classification of Education (ISCED) framework

AHEP 4th edition includes learning outcomes for such qualifications. (See appendix A)

It is important to note that the listing of different learning outcomes does not imply a compartmentalised or linear approach to learning and teaching. Throughout each programme, a number of different learning outcomes are likely to be delivered concurrently through, for example, project work.

The process of accreditation will include an assessment of whether graduates are achieving these outcomes. Accrediting institutions may judge that a certain level of achievement at graduation is necessary to secure the outcomes.

1.5 Academic content

The following guidance is not intended to be prescriptive and is essentially indicative in nature. CIBSE seeks to encourage new and imaginative interpretations of Building Services Engineering and does not wish to impose a definitive course structure or curriculum. Course Leaders are encouraged to contact the Institution for further clarification of these notes or to discuss any ideas or possible contentious issues at an early stage of course planning.

To be accredited as meeting the academic requirements for membership of CIBSE, a course must be first and foremost an engineering programme. It must meet the learning outcome requirements of AHEP 4 and follow the CIBSE guidance on accredited courses.

To meet the academic requirements for **Chartered Membership** of CIBSE either an accredited MEng or an accredited BEng (Hons) plus suitable further learning is required.

To meet the academic requirements for **Associate Membership** of CIBSE an IEng degree or equivalent is required.

To meet the academic requirements for **Licentiate Membership** of CIBSE an approved level 3 NVQ or SVQ or higher in an engineering discipline is required.

See Section 1.4 on Exemplifying Qualifications.

1.6 Common content for undergraduate programmes

Core engineering principles (science, mathematics and engineering analysis)

A sound base of engineering principles and mathematics must be embedded in the course and will consist of 30-35% of course content. Mathematical skills must include pure mathematics relevant to engineering principles and statistics and should be 5-10% of course content.

Other essential elements include:

- Material Science
- Thermodynamics and Heat Transfer
- Engineering Mechanics and relevant Physics.
- Fluid Mechanics
- Electrical and Electronic Principles
- Control Theory and Instrumentation

Design and innovation

The fundamental engineering subjects should be taught in the context of design. It is expected that the substantial design project in the later years of the programme will cover many of the AHEP learning outcomes, but students should have had the opportunity to begin to develop many of these earlier in the year.

A substantial design project is an essential part of the course and should enable students to consider a wider range of design issues including sustainability, ethics, inclusive design, health and safety (see appendixes C, D, E, F). The design project is also a good opportunity to embed commercial understanding and construction and project management skills.

It is expected that the design project will provide students with opportunities to develop communication skills through formal presentations. Group projects provide important opportunities for developing abilities to work as a team and to communicate technical and design ideas with peers.

Multi-disciplinary design experiences are encouraged as it is essential that students are prepared for multi-disciplinary working when they graduate. In particular, opportunities for students to work with other departments such as architecture and other engineering disciplines are encouraged. These experiences may be non-credit bearing but compulsory.

It is essential students studying for MEng and BEng qualifications experience working on a group design project.

Individual investigative projects

Students undertaking programmes accredited as partially or fully meeting CEng requirements are required to carry out a substantial individual investigative project.

For all students this is an opportunity to analyse complex problems at the forefront of their discipline. Students may develop further practical and lab-based skills, or computational techniques. It can be an opportunity to broaden their understanding of engineering by combining engineering analysis skills with a deeper understanding of society and culture in which the engineering takes place. The individual project can be a good opportunity for students to demonstrate their ability to use risk management processes.

Although often a standalone research project it is possible for the investigative project to form a part of the design project provided there is a substantial individual investigative element.

If an MEng project is undertaken at a later stage in the degree than BEng, then this is an opportunity for students to demonstrate their ability to formulate problems and reach substantiated conclusions whilst working with incomplete and uncertain data.

The individual investigative project is a great opportunity to demonstrate many of the prescribed learning outcomes, and it is well worth aligning marking criteria and module learning outcomes with the Engineering Council criteria.

Practical and experimental skills

Students are expected to have opportunities to develop practical lab-based skills and to develop their understanding of engineering fundamentals. Visits to the laboratories will be required as part of the accreditation visits. The Accreditation Panel is interested in how the laboratories support students learning and the laboratory tour should be set out to provide this information.

It is well accepted that virtual labs and use of computer simulation alone does not provide a suitable experience for students to learn engineering fundamentals, although may provide excellent learning opportunities alongside practical laboratory experiences

The engineer and society (sustainability, risk, ethics, inclusion, security)

AHEP 4 includes an increased focus on inclusive design, sustainability and ethics as well as explicit consideration of security risks and mitigation. Students are expected to be able to evaluate environmental, social, and ethical impacts of their solutions, taking consideration of a whole life approach and the circular economy and minimising any adverse impacts. They should be able to recognise the wider impacts of their engineering on society adopting an inclusive approach to design. They need to demonstrate their ability to identify, manage and mitigate risks associated with their projects (See appendixes C, D, E, F for further details).

Engineering practice, professionalism and communication skills

In order to prepare for a career in engineering students should be exposed to relevant aspects associated with the practical application of engineering concepts, including project management, team working, communication skills and the commercial context of their work. Masters level students in particular should have opportunities to reflect on their effectiveness in these areas to support continual improvement.

Specialist technical subjects

Specialist technical subjects specific to the discipline of building services engineering should comprise about 40% of the course. The following list provides typical courses. Building services is a broad profession and each degree programme may not cover the entire list and the proportion and depth of coverage in each area may vary.

- Heating
- Ventilation
- Air-conditioning and refrigeration
- Acoustics and vibration
- Lighting (daylight and artificial)
- Electrical installation
- Electrical power systems
- Building Thermal Performance and Dynamic Thermal Modelling
- Building Information Modelling
- Utility services
- Control engineering

- Building transportation
- Construction law
- Students may also be given opportunities to cover in depth other related topics related to the field of building services engineering whether technical, management, social, environmental or cultural.

Industrial Input to degree programmes.

There should be strong and viable links between the Department/School and the profession. It is essential that local practising engineers are involved with the programme by, for example, giving guest lectures, assisting with design projects, acting as industrial tutors and enabling site visits. Regular site visits should be an important part of the programme.

Links with industry should also be used to review and develop the programme, ensuring it meets the requirements of industry. It is strongly recommended that an Industrial Liaison Panel is set up for this purpose that meets regularly to advise on programme content, implement change and identify local and national needs for graduate employment. Appendix H provides a suggested terms of reference for the Industrial Liaison Panel. Where a department does not include an Industrial Liaison Panel that meets these requirements substantial and convincing evidence of industrial input to programme design and review will be required.

1.7 Compensation and condonement

AHEP Fourth edition sets out revised rules regarding compensation and condonement which must be met for accreditation to be granted.

These are:

- In the consideration of the accreditation of engineering degree programmes, CIBSE must ensure that, regardless of options taken and allowing for the maximum number of credits permitted as failed by provider's regulations, all students will achieve all AHEP learning outcomes.
- Evidence that all AHEP learning outcomes are met by all variants of each programme must be provided before accreditation can be granted.
- No condonement of modules delivering AHEP learning outcomes is allowed.
- A maximum of 30 credits in a Bachelors or integrated Masters degree programme can be compensated, and a maximum of 20 credits in a Masters degree other than the integrated Masters degree.
- Major individual and group-based project/dissertation modules must not be compensated

The Engineering Council defines compensation as:

- "The practice of allowing marginal failure (i.e. not more than 10% below the nominal pass mark) of one or more modules and awarding credit for them, often on the basis of good overall academic performance."

The Engineering Council defines condonement as:

- "The practice of allowing students to fail and not receive credit for one or more modules within a degree programme, yet still qualify for the award of the degree."

The Engineering Council 'Guidance Note on Compensation and Condonement' can be found under 'useful documents' at: www.engc.org.uk/ahep

1.8 Accreditation of Foundation degrees

Foundation degrees may be accredited by CIBSE as partially meeting the requirements for IEng registration.

CIBSE will consider requests to accredit Foundation degrees. In doing so, and before agreeing to undertake accreditation, the department/school will be expected to provide information on the degree similar to that for Bachelors degrees (see section 2). For educational providers seeking accreditation of Bachelors or Masters degrees as well as Foundation degrees additional information is required.

This would include information about:

- The degree awarding body and its relationship with any other FD programme provider(s)
- Progression opportunities
- Careers' information and guidance given to the FD students
- How the quality of any provision in the workplace is assured by the degree awarding body
- Systems for the accreditation of prior learning/experiential learning

A visit to the education provider will normally be undertaken, including each franchisee. However, mechanisms to reduce the resource required for a visit will be explored.

CIBSE will be free to decide whether to approve Foundation Degrees as exemplifying qualifications towards EngTech registration if the degree meets the required learning outcomes (appendix A). CIBSE may wish to accredit a FD leading to a Bachelors degree even if that Bachelors degree is not accredited.

Section 2: How to apply

When a provider believes it has a programme that would benefit from accreditation by CIBSE it should contact CIBSE Membership at membership@cibse.org. Providers are encouraged to open a dialogue with CIBSE early in the planning stage of new programmes.

Joint accreditation visits can be organised by the Engineering Accreditation Board (EAB) which acts as a single point of contact. EAB-organised visits are appropriate when accreditation is sought for either mixed discipline degrees or a range of engineering courses by a number of Engineering Council Licensed Members. EC provides the Secretariat for EAB and further information is available at www.engab.org.uk.

Once accredited a programme appears in the full list maintained by CIBSE and also EC, available at <https://www.engc.org.uk/education-skills/course-search/recognised-course-search/>

Additionally, accredited qualifications will normally appear in the UK section of the FEANI Index of recognised European qualifications (www.feani.org). An accredited programme may also provide the basis for professional recognition by other PEIs.

2.1 Accreditation of new programmes

If you're seeking accreditation of a new programme without a full cohort of student output, please contact the CIBSE Membership Department at membership@cibse.org in the first instance.

You will initially be required to submit detail of your new programme(s) for review by the Accreditation Panel. In your communication please be clear about any cross over with existing programmes

accredited by CIBSE. The Panel will consider all new programmes on a case-by-case basis, and upon initial review will confirm the appropriate route to accreditation.

2.2 The accreditation process

General information

Decisions concerning the accreditation of programmes are made by the CIBSE Accreditation Panel which meets three times a year and, if necessary, will arrange interim meetings. Judgements are made on the basis of the submission document submitted by the provider and the report of the accreditation team following the visit.

A full accreditation visit lasts for two days and follows a standard format. It is carried out by an accreditation team normally comprised of two academic members and one or two industrialists plus a secretary. The team is selected based on their experience relevant to the applicable registration category, additional information can be found in Appendix I. Occasionally the accreditation team may be accompanied by one or more observers, such as a trainee moderator, an EC representative or representatives from international professional bodies. Visits may cover both undergraduate and postgraduate programmes, in this case full information for all courses considered must be submitted.

The accreditation team will not include members that have served (or are currently serving) as staff members, external examiners, consultants or advisers to the provider making an accreditation submission in the preceding three years.

Full accreditation visits are usually carried out every five years as required in the UK-SPEC. Although the principal aim of accreditation visits is to assess compliance with the CIBSE guidance, the accreditation team will always try to adopt a supportive approach and create a helpful atmosphere throughout each visit. The accreditation team will highlight any examples of good practice as well as identifying any suggestions for improvement or further development.

2.3 Pre-visit arrangements

The provider seeking accreditation of its programmes will normally be given six months' notice of the visit. Prior to the visit the provider will be contacted by CIBSE to discuss dates and when basic arrangements are confirmed CIBSE will provide full names and contact details of the accreditation team. The provider has the right to object to one or more of the team members but, in doing so, must provide a written explanation for the objection.

No later than eight weeks before the visit, the provider is required to provide a copy of the submission document to CIBSE Secretariat. A copy of the proposed visit programme should be sent to CIBSE within four weeks of the accreditation visit. For the recommended programme for accreditation visits for academic programmes please refer to section 2.7.

2.4 Fee for Accreditation

The fee for accreditation is £1,500 + VAT payable for all new and re-accreditations.

This fee covers the administration and accreditation period of your programme(s) for a maximum of five years. Any required interim visits are also included in this fee. Each Education Provider that requires an accreditation visit will be liable for the fee and it is payable per visit. If required, hotel accommodation and sustenance for the Visiting Panel is to be arranged and paid for by the Education Provider. There may be additional costs for Education Providers who require a visit outside of the UK, these instances will be dealt with on a case-by-case basis. Further advice is available from CIBSE.

There is no restriction on the number of programmes that may be submitted per accreditation visit, providing they can be dealt with in a single set of submission documentation and are on the same delivery site.

The fee is payable to CIBSE when the submission is due, at least eight weeks before the visit. To make the payment a purchase order will need to be raised, emailed to CIBSE and then an invoice will be dispatched to you to pay.

2.5 Submission for accreditation

The submission should be made in the form of a report detailed in the CIBSE accreditation application form. The application form gives all the information needed to form a full submission for accreditation. For easy reference, the report should use the numbering and labelling shown in the application form. Additional information may be submitted at the discretion of the provider.

The accreditation submission report should not make reference to documents stored on a Virtual Learning Environment (VLE). Where a VLE is used, it is not acceptable to simply provide a link to the VLE with the submission report and to expect the visit team to find the relevant documents (for documents submitted prior to the visit and those provided at the visit).

Additionally, please take note of the following:

- If more than one programme is being considered for accreditation, any information common to each course must be clearly cross-referenced
- If sections and tables within the template are expanded, the information supplied must be easily readable and concise

2.6 Electronic submission of application form and supporting material

The provider will provide electronic versions of all accreditation documents/reports and related materials. The completed submission, appendices and all linked folders/documents should be submitted via a file sharing service (e.g., Dropbox, Google Drive, OneDrive) to CIBSE no later than eight weeks before the accreditation visit.

The submission is to be organised into the following five folders:

- Main Submission
- Matrices
- Module Sheets
- Programme Specifications
- Examination Sheets

Any additional documentation required to support the application is to be placed in the 'Main Submission' folder, with each document clearly titled. For example, external examiner reports, quality assurance reports or industrial liaison panel minutes.

2.7 Additional information required during the visit

Please be prepared to produce the following (as appropriate) during the accreditation visit:

- Marked examination scripts (the examination papers, model answers, and marking schemes will normally be included by the provider as part of the submission document).

- Marked samples of coursework (with feedback given to students).
- Individual projects and dissertations (including the marks and marking schemes used in the assessment).
- Marked design project work (including drawings).
- Marked laboratory reports.
- Marked class tests (or other similar in-class assessments).
- Copies of poster displays.
- Industrial training reports submitted by students and employers (sandwich programmes only).

All samples should include examples of poor (including fails), average and excellent work. Where the cohort being accredited is small and part of a larger class the samples should be for the specific cohort. However, if this does not apply then a full range of marks examples from other students within the module can be included to demonstrate the marking range.

Any student work that is to be inspected should be set out in a room set aside for the accreditation team with appropriate labels so that the team can clearly identify the module of study, the year of study and the programme associated with each item of work. The mark a piece of work has received should be clearly available on the work.

2.8 Programme for accreditation visit

A suggested programme for a two-day accreditation visit:

FIRST DAY

09.30 - 10.00	Preliminary meeting of the accreditation visiting panel
10.00 - 10.30	Meeting of the visiting Panel with Head of Department or School and programme leaders. 10-minute presentation outlining changes to degree courses since the last visit.
10.30 – 11.00	Courtesy call on Principal/Vice Chancellor/Director
11.00 - 12.00	Tour of facilities – discussion with coffee
12.00 – 13.00	Lunch break
13.00 - 14.00	Private meeting of the accreditation Visiting Panel
14.00 - 15.00	Meeting of the accreditation team with representatives of the Industrial Liaison Committee or its equivalent

SECOND DAY

09.30 – 10.30	Meeting with students
10.30 – 11.00	Private meeting of the accreditation Visiting Panel
11.00 – 12.00	Meeting with academic staff
12.00 – 12.30	Private meeting of the accreditation Visiting Panel
12.30 – 12.45	Final meeting of the accreditation team with Head of Department/School.

2.9 After the accreditation visit

The decisions of the CIBSE Accreditation Panel for each of the programmes submitted for accreditation will normally be one of the following:

1. Accreditation for five years, with or without recommendations for implementation by the provider
2. Accreditation for less than five years, subject to certain requirements being met immediately following the visit or in a set time frame. The remaining period of accreditation will be granted subject to the successful completion of a review visit or a review of a paper submission. The review visit will be carried out to assess the specific concerns identified by the Accreditation Panel in the full visit report
3. That a resubmission be made, after recommended remedial action has been taken
4. That accreditation is not recommended

In the event of accreditation being withdrawn from a previously accredited programme, none of the students enrolled on a programme of learning at the time of a full accreditation visit will be adversely affected by any decision taken by the CIBSE Accreditation Panel.

The definition of a 'recommendation' and a 'requirement' is:

- A '**recommendation**' is intended to assist the awarding institution and is directed to programme enhancement. It does not require implementation in order for accreditation to be conferred. For example, the accreditation team may feel that the educational provider could do something in a more efficient way or there may be practice from elsewhere that the institution may benefit from exploring. After consideration by the provider, the recommendation may or may not be acted upon. However, whatever the outcome, it should be reported on during the next visit to demonstrate that it has been considered.
- A '**requirement**' is something that must be completed in order for CIBSE to consider conferring accreditation. This will normally be reported on by the provider in an action plan that is requested by the Accreditation Panel and there will be a deadline for its implementation. The requirement may specify making a change or ask for the development of a plan of action.

2.10 Review visits

A review visit is normally recommended following an accreditation visit where the accreditation team has identified a number of concerns or requirements for action and a period of accreditation of less than five years has been granted. In some cases, a review visit is required to assess the output from a programme of learning that was not available for inspection at the last full accreditation visit.

A review visit normally lasts one day and is carried out by an accreditation team comprised of one academic member, one industrial member and a visit secretary. Either the academic member or the industrial member of the review team should normally have been a member of the accreditation team conducting the previous full accreditation visit.

The principal aim of a review visit is to determine if the provider has taken appropriate satisfactory action to address all the concerns identified by the accreditation team following the last full accreditation visit. In some cases, it is also to inspect the output from programmes of learning that was not available for inspection at the last full accreditation visit, to judge if the appropriate output standards have been achieved.

The provider should prepare a submission document explaining how the concerns raised by the CIBSE Accreditation Panel following the last full accreditation visit have been addressed. The document should also describe any significant changes that have occurred since the last full visit. This is to help the accreditation team gain an up-to-date understanding of the situation in the school or department at the time of the review visit.

Such changes may include new staff appointments, staff departures, increased investment in relevant teaching and research, any changes in the management and organisational structures, etc. An output standards statement is required for each programme submitted for re-accreditation (see section 2.3).

The review visit programme should be tailored to suit the specific aims of the review visit identified in the accreditation visit report. This should normally start with a private meeting of the accreditation team (to last one hour) followed by a meeting of the team with the senior academic staff. It is usually not necessary to meet with all academic staff, students, the Vice-Chancellor (or Principal or Chief Executive) or with members of the Industrial Liaison Panel unless such meetings will help to demonstrate how the provider has addressed the concerns raised by the CIBSE Accreditation Panel. A tour of facilities is not required unless this was included in the reasons for the review visit. Most review visits can normally be completed between 10:00 and 16:00.

Following the review visit the procedure as described above for full accreditation visits will apply to review visits.

Section 3: Procedure for review of CIBSE accreditation decisions

3.1 General requirements

CIBSE will advise academic institutions of their right to a review of a decision if a request for accreditation of a particular programme is rejected. Any request for a review will be considered in accordance with the following procedures.

3.2 Grounds for review

The grounds on which a review shall be approved shall be:

- That there is evidence of administrative, procedural or other irregularity in the conduct of the visit or the meetings of the Accreditation Panel at which the decision was taken.
or
- That information has become available which would influence the decision and which was not and could not have been available at the time of the visit.

3.3 Stages of the review

1. The applicant provider must submit a written notice of intent to request a review to the Secretary of the Accreditation Panel within 15 days of the receipt of the Institution's decision.
2. A detailed report stating grounds for seeking a review, together with a fee of £100, returnable at the discretion of the Review Panel, shall be submitted to the Secretary of the Accreditation Panel within 30 days of the receipt of the Institution's decision.
3. The chair of the CIBSE Professional Practices Committee shall nominate a Review Panel, consisting of three serving CIBSE members drawn from the Education, Training and Membership (ET&M) Committee and its executive panels, who have had no involvement in the accreditation decision or with the provider's concerned.
4. The provider will be notified of the composition of the Review Panel and may object to particular members' inclusion in writing. The CIBSE President shall determine whether or not to change the membership of the Review Panel.
5. The Review Panel shall convene to consider the original submission for the visit, the visit report and decision, and the provider's appeal report. The Review Panel may at their discretion meet

with members of the original accreditation team and/or the Head of Department or School (or their nominee) of the provider. They may also arrange to visit the provider for further investigation. Such discussions and the meeting of the Review Panel shall be conducted in confidence. The Review Panel will prepare a written report of its decision within 100 days of receipt of the report from the provider setting out the case for review.

6. The Review Panel report will be submitted to the Chair of the Education Training and Membership Committee, who shall report it to the provider and to the next meeting of ET&M.
7. During the period of the review, the outcome of the accreditation process will be suspended.

3.4 The decision

The Review Panel may decide that:

1. The original Accreditation Panel decision will stand.
2. The report will be amended in accordance with the Review Panel's recommendations and the original Accreditation Panel decision will be revised in accordance with the Review Panel's recommendations.
3. The Accreditation Panel and the Education, Training and Membership Committee will be informed of the decisions of the Review Panel.

Appeal decisions are notified to the Engineering Council.

Section 4: Appendices

Appendix A – Degree Learning Outcomes

[Defining characteristics and learning outcomes – AAQA first edition and AHEP fourth edition](#)

Appendix B – Output Standards Matrix

Please refer to accompanying attachment.

Appendix C – Design & Innovation

This appendix has been written to provide further detail on key aspects required in an undergraduate building services degree. The main principles of this appendix must be met, however evidence of achieving every bullet point within the appendix is not required.

CIBSE requires that design is integrated into existing teaching and learning and must be pervasive throughout the engineering education programme; a design thread will therefore run through the programme.

In engineering a central activity is design, and the interpretation and execution of design. This may be as an individual or as part of a team involved in creative activities for which imagination, intuition, intellectual rigour, and choice are orchestrated to arrive at a particular solution; or as part of the engineer's role in developing new products, markets or strategic ideas; or on site, seeking to interpret and translate into reality someone else's design. Whatever the role, the engineer will normally be involved in the design process requiring the exercise of continuous judgement, adaptation, modification, ingenuity and nearly always a need for imagination and flair. In proposing solutions, deciding how they can be built and managing parts or all of the process from conception to production, the intellectual activities that are often referred to as "engineering design" play a central role. It is vital, therefore, that engineers receive in their early education a thorough grounding in those activities that are central to the design process.

The environment in which design projects are undertaken is extremely important. The design studio is the designers equivalent of the building site, and in much the same way it needs to contain the materials, tools, information and other resources for student design teams to perform effectively. Providers should endeavour to provide an environment and resources for students to undertake design work that reflects the best to be found in engineering practice. Such design studios should thus include facilities to allow and encourage the students to draw, make physical models, relax, reflect and obtain stimulation and inspiration.

Aims

The aim of undergraduate design teaching is to provide students with the basic design skills to allow them to progress smoothly into engineering practice. Students should have opportunities to explore broad design problems with no obvious solution. They should be supported in taking a holistic design approach, accounting for the implications on people and the environment. They should be enabled to evaluate their designs in the context of whole life carbon.

Knowledge and understanding

The art of engineering design is probably best explored by examining some of the activities in which the design engineer is involved. While not exhaustive, the following represent some of the more important design attributes of a competent engineer:

- An understanding that design is a creative process in which experience and a thorough knowledge of historical precedent can inform both intuition and conscious choice
- An ability to cope with the uncertainties associated with the multitude of factors making up the design brief. It is rare for a unique solution to emerge, and more commonly there will be any number of possible solutions for which the "best" solutions will represent an intelligent compromise
- An ability to 'think outside the box'. Could a better design be achieved if unnecessary constraints (explicit or implicit) in the brief were renegotiated?
- An ability to interact with clients to help both client and other team members develop a better understanding and definition of the brief and the functional, social and economic objectives.
- An ability to question the brief, the purpose and its broader implications on people and the environment
- A knowledge of how to gather relevant information on environmental and planning issues, site conditions, material suppliers, collaborators, specialists and other contractors. All this information is needed to inform the design process
- An ability to sort and synthesise all information so that proposed solutions can be tested against the criteria identified in the brief and the overall functional, social and economic objectives
- Be comfortable working in a system which enables people to work together, and which allows them to plan and track progress towards a developing solution. This applies to both the subcomponents of design and the overall design process
- An ability to justify the chosen solution to stakeholders

Although the above suggests a sequential pattern of inception through conception to production, it is rare that the art of design can be performed in such a linear set of steps. There is almost always a need for backtracking. Design can be thought of as a "highly iterative process" involving "necessary compromises between conflicting needs, possibly with flashes of brilliant intuition, but also much hard work, self-criticism and discussion" in which "both visual and engineering understanding need to be combined from start to finish" of the design process (James Sutherland in "Bridge Design" The Royal Fine Art Commission, Seminar, 29 October 1992, HMSO).

Students will undertake a variety of different design tasks over the course of their studies and design teaching should form a thread running through the programme. Design should be based on realistic projects. In practice design is almost always a team activity and as such students should work in groups for a substantial part of their design learning.

Creativity is a mental process involving the generation of new ideas or concepts, or new associations between existing ideas or concepts. Real engineering projects are all unique and hence their design requires creativity. It is important that students develop their creative skills through design projects and other activities within their studies.

Intellectual ability

Design activity is capable of achieving a wide range of learning objectives. The emphasis in a particular degree programme will be expected to be varied, but should seek to cover an appropriate range of the following objectives:

- Develop a stimulating environment for creative, clear and logical thinking
- Stimulate and encourage student interest and appreciation of engineering as an intellectual and professional activity
- Make students more responsible for their own learning and intellectual development.
- Develop the habit of and ability for effective independent learning
- Provide a platform for the improvement of oral and written presentation skills, both individually and as part of a team

- Encourage clear communication through sketching and drawing
- Develop an appreciation of the importance of the study of engineering history, the forces that have shaped that history and equally, how engineering developments have affected our material culture
- Appreciate the relationships between art history, architecture and engineering, as part of the development of greater visual awareness
- Through the study of past failures, develop an appreciation of the causes of failure and the need to "think failure to avoid it"
- Raise awareness of the complexity of engineering systems, and the need to listen to and interpret client needs, so as to be able to develop clear briefs
- Provide a context in which the principles of engineering science, and other parallel taught courses, may be applied in the creative design process
- Develop an appreciation that everything we do in design can be seen as a process that can be harnessed to encourage creativity
- Increase awareness of and develop the skills for planning, tracking and evaluating the processes in design
- Understand how the construction method, issues of safety and legislation, and the concepts of buildability can drive design
- Understand how economy, sustainability, ethics, politics, and the impact on society can affect design
- Understand how to identify and assess risks throughout the design process and decide on methods of elimination and/or control
- Contextualise their theoretical studies

Practical skills

The student should be able to:

- Demonstrate through design work, project, coursework and/or examinations a strong awareness of and commitment to the principles of sustainable development
- Demonstrate that they can evaluate the process in design

General transferable skills

The student should be able to:

- Demonstrate team working skills, particularly the ability to discuss wide ranging and conflicting design drivers
- Demonstrate an understanding of the importance of diversity and inclusivity in their teamwork
- Demonstrate clear visual communication skills through their sketching and drawing
- Develop their creative skills through design projects and other activities within their studies
- Communicate knowledgeably about design issues especially to those with a non-technical background.

Method of teaching, learning and assessment

Design is best taught by giving students the opportunity to practise, albeit within an education environment and utilising case studies, reflective learning and other techniques as appropriate. It is recognised that high level design skills and experience are often hard to find within providers. As such, it is encouraged that practising engineers have an involvement both in the development and delivery of design teaching. Typically, this can be achieved through advice on setting projects and

partial supervision of group design projects. In addition, any connections to clients and contractors would be beneficial.

A proper understanding and relevant skills in relation to Sustainability as well as Health & Safety are fundamental to the teaching and practice of design. Moreover, design projects provide a natural place for students to demonstrate their knowledge and practise their skills in relation to sustainability and Health & Safety. It is recommended that the three sets of guidance in Appendixes C, D and E are considered together, especially in relation to teaching and learning methodology and assessment.

Appendix D – Sustainability/Engineer and Society

This appendix has been written to provide further detail on key aspects required in an undergraduate building services degree. The main principles of this appendix must be met, however evidence of achieving every bullet point within the appendix is not required.

Building services engineers have a significant impact on the built environment, and it is essential that our graduates are able to understand, communicate and exert influence to ensure that the buildings they engineer provide a positive benefit to the people who use them whilst minimising and mitigating negative consequences.

Universities have a responsibility to ensure students graduate with:

- The awareness of the implications of their design on people and the environment
- The ability to quantify the impact of their building on the environment
- The ability to communicate their ideas and work as a multidisciplinary team to achieve desired outcomes

Knowledge and Understanding

- Be aware of the implications of climate change, international protocols associated with climate change and sustainable development including low carbon agenda and the circular economy and how this impacts on engineering, design and construction
- Be aware of the need to design buildings to mitigate their impact on climate change, adapt and be resilient to future climate scenarios to ensure longer term sustainability
- Ensure that they take account of the context of environmental, economic, political, interdisciplinary, health, global and social issues, and other dimensions including ethics, inclusivity and environmental justice in dealing with engineering problems
- Understanding of resource scarcity and the need to consider whole life carbon through product manufacture, construction, use, end of life and benefits of reuse
- Understanding of energy supply, transportation, water and wastewater management, its importance, and the critical nature of such infrastructure to society
- Understand the tools available to analyse the whole life carbon of buildings and their limitations

Intellectual Ability

- Assess the performance of their building beyond technical aspects to consider wider interdisciplinary implications on people and the environment such as: impacts of biodiversity, water, connectivity and transport, inclusivity, and health and wellbeing.
- Develop ability to critically evaluate claims made in promotional material regarding sustainability/energy and carbon savings in order to make appropriate design decisions.
- Develop the ability to critically evaluate assumptions built into industry practices in order to be able to recognise where these are appropriate and where alternative approaches are needed to address sustainability requirements
- Use quantitative analysis and computational methods as appropriate to analyse and minimise operational energy and carbon performance of buildings/systems
- Evaluate the embodied carbon associated with a building alongside operational carbon to inform design decision making
- Demonstrate consideration of circular economy within their designs including resource efficiency, flexibility and adaptability and ethical resourcing

- Design for adaptability ensuring a project remains fit for purpose over a considerable useful life span

Practical Skills

- Demonstrate through design work, projects, coursework and/or examinations a strong awareness of and commitment to the principles of sustainable development and the need to respond to the climate and biodiversity emergencies

General Transferable Skills

- Communicate design decisions, including quantitative assessments clearly to non-specialist audiences
- Demonstrate team working skills, particularly the ability to discuss wide ranging and conflicting design drivers
- Develop confidence in own subject area and ability to communicate ideas to influence clients and wider design teams

Learning and Assessment Methods

Teaching of sustainability should be embedded throughout many aspects of the taught curriculum, including design projects, dissertation projects, coursework, and examinations. Where the subject forms the focus of a particular unit, case studies of (and site visits to) particularly good examples of projects where the ethos of sustainability has been embraced profoundly should be considered. In such cases students should be encouraged to be critically evaluate the performance of the case study and opportunities where designers /owners are open to these conversations are particularly encouraged.

CIBSE recommends that the three sets of guidance in Appendixes C, D and E are considered together, especially in relation to teaching and learning methodology and assessment.

Appendix E – Health and Safety Risk Management

This appendix has been written to provide further detail on key aspects required in an undergraduate building services degree. The main principles of this appendix must be met, however evidence of achieving every bullet point within the appendix is not required.

Context

The decisions individuals make in the execution of building services engineering projects have an impact on health and safety of those who are directly or indirectly involved with the project, throughout its life from design to demolition. Legislation puts duties onto all people involved in realizing projects, and students must both understand the seriousness of these duties and develop a mind-set that enables them to fully discharge their responsibilities.

Aims

A thread of health and safety risk management running through the programme will enable students to become tuned to the need to manage health and safety risks and have a basic grasp of the practical application of risk management.

Knowledge and understanding

The thread of health and safety risk management running through the programme, should enable a student to:

- Understand the concepts of hazard and risk
- Identify hazards
- Estimate risks by attributing severity and likelihood to the identified hazards and be able to sort these risks in priority order
- Understand how risks can be mitigated and the importance of communicating residual risks to others
- Understand that all decisions, whether in design or construction, potentially have an impact on how safe a project is to build, operate, maintain and demolish
- Be aware of key legislation relating to health & safety including:
 - The Health and Safety at Work etc. Act 1974
 - The Workplace (Health, Safety and Welfare) Regulations 1992.
 - The Management of Health & Safety at Work Regulations 1999.
 - The Construction (Design & Management Regulations 2015).
 - The Building Safety Bill 2021 (when published)
- Understand the meaning of competency of individuals
- Understand how changes on a project require a reassessment of risks
- Understand the potential for specific project risks, for instance security risks and the need to consider both risks to physical as well as digital infrastructure

Intellectual Abilities

The student should be able to:

- Demonstrate the process of identifying hazards, estimating and prioritising risks, mitigating risk, and managing residual risks and reviewing the risks in the light of the progress of the project. This may be in the context of a design project or laboratory experiment. This includes using a risk management process to manage building safety risks
- Explain current industry initiatives in respect of health and safety risk
- Explain project-specific risks and why it matters to distinguish these from common risks

Practical Skills

The student should be able to:

- Prepare a risk assessment from scratch for an aspect of project work (laboratory or field work) which documents the risks which are specific to the work
- Conduct themselves appropriately when undertaking field or laboratory work

General Transferable Skills

- Ability to think out of the box and challenge assumptions
- Ability to work in a team to identify and mitigate risks
- Ability to communicate risks and mitigation

Method of Teaching, Learning and Assessment

Teaching would be both through specific modules and by raising awareness of the behaviours and attitudes required throughout the degree programme. Case studies of failures, site visits and practical laboratory work are all important vehicles for teaching this subject. Input from industrialist would be particularly valuable for giving students an appreciation of how health and safety risks are managed on projects.

A proper understanding and relevant skills in relation to health and safety as well as sustainability are fundamental to the teaching and practice of design. Moreover, design projects provide a natural place for students to demonstrate their knowledge and practise their skills in relation to sustainability and health and safety. CIBSE recommends that the three sets of guidance in Appendices C, D and E be considered together, especially in relation to teaching and learning methodology and assessment.

Appendix F – Professionalism, Ethics, Inclusion and Integrity

This appendix has been written to provide further detail on key aspects required in an undergraduate building services degree. The main principles of this appendix must be met, however evidence of achieving every bullet point within the appendix is not required.

CIBSE recognises that from the first day that students enrol on an accredited programme of study they have commenced on their career as a professional engineer. CIBSE hopes that with the right encouragement these students will progress to work in the industry and go on to achieve a professional qualification. Furthermore, given the impact engineers have on the world, it is essential that our graduates graduate with an understanding of ethics and confidence to act in the face of questionable practice.

Aims

Upon graduation students should have a broad understanding of interrelated social, economic and environmental issues including how core skills can be used to assist these issues. They will understand standards of ethical and professional conduct, and the importance of these in enhancing social, economic and environmental attributes of their projects and workplaces, in order to deliver engineering for public good.

Students should be encouraged to take up membership of CIBSE and have an active role in membership and extra curricula activities such as CPD events, committee involvement in order to develop their broader understanding and interest in the profession.

Knowledge and Understanding

Ethics should form an integral part of the degree programme.

- Understand the nature of professional responsibility
- Understand professional codes of conduct and professional responsibility
- Understand practical difficulties of bring about change
- Understand limits of their own technical competence in solving complex problems, and appreciate the benefits of working with a wide range of disciplines
- Recognise the importance of social inclusion and diversity in developing design solutions
- Behave with fairness, inclusion and respect in the treatment of others

Intellectual Ability

- Be able to identify the ethical elements in decisions
- Be able to address and resolve problems arising from questionable practice
- Develop critical thinking skills and professional judgement
- Develop a professional ethical identity to carry forward in their working life
- Ability to evaluate the merits and demerits of options/feasibility assessment

Practical and generable transferrable skills

- Collaborate with other professionals to solve problems and develop designs
- Demonstrate team working skills
- Communicate technical information clearly to a non-specialist audience
- Learn independently
- Demonstrate importance of honesty, integrity and ethics

Appendix G – Industrial Placements in Degree Programmes

Introduction

An industrial placement, which is a necessary and integral part of the provider degree programme, should be prepared for and monitored in the same way as all other parts of the programme.

These guidance are to be used when students spend a period of time on Industrial Placement(s) as part of a provider degree programme. The placement should be of such a length as to allow the student to participate in an appropriate depth and breadth of experience, generally accepted to be in the order of twelve months or two six-month periods. The relevant parts of the guidance should be used when students spend vacations working in the construction industry and for formal site visits as part of the degree programme.

Preparation

The provider should ensure that all students are formally made aware, in good time, of the responsibility (student or provider) for finding industrial placements and this, along with the arrangements for preparing for and monitoring industrial placements, should be made clear in the programme handbook.

A briefing meeting should be held, normally within the three months before the start of the placement, at which an explanation should be given as to what should be achieved from the placement. This should be an opportunity to discuss likely learning outcomes from the placement and the relationship between theory and practice. Details of the Initial Professional Development (IPD) requirements for progression to professional registration as Engineering Technical, Incorporated Engineer or Chartered Engineers should be outlined to students.

The briefing should particularly include a safety presentation explaining safety legislation and its effect in particular work locations. Reference should be made to the document 'Health & Safety Guidance for the Placement of HE students' ASET/USA: March 1997 (published by CVCP & obtainable from UCEA).

As soon as practicable after the start of the placement, the provider should ascertain the name of a suitable senior person, within the employer's organisation, who will act as a 'mentor' to the student.

Mentoring

The arrangements for monitoring visits to the place of work by provider staff should be explained to students. Visits should be made at least twice in an academic year. The member of staff should always have a meeting with the 'mentor' and possibly with the student's line manager if that is a different person. A written report on the visit should be prepared and its contents discussed with the student at the time.

Completion

The whole period of placement should be recorded in a Training Report which should be submitted to the provider. It should be used as a basis for a debriefing session at which individual students should assess and be assessed on their achievements. The student should keep all of their reports for future use.

Appendix H – Terms of Reference for the Industrial Liaison Panel

Terms of Reference - Industrial Liaison Panel

Course: XXXXXXXXX

Background

Building services engineering courses are designed to ensure that students are fully prepared to enter the workplace with up to date and relevant academic knowledge reinforced with practical experience. To achieve this the Engineering Council require input from practicing engineers who play a vital role in the learning process.

Members of the ILP

The number of people involved in the formation of an Industrial Liaison Panel (ILP) is not limited but typically a group of between five and ten members is ideal. This should include enthusiastic practicing engineers from the region who can actively be involved.

Part-time courses often enrol students who are already employed, and it is their employees who would be ideal candidates to join the group as they have a vested interest in the output.

A good mix of background is beneficial which could include consulting engineers, contractors, product suppliers and input from the local CIBSE region is encouraged.

Deliverables

The purpose of the ILP is to promote the following processes:

- To be aware of course content and to assess relevance with a view to providing suggestions which should be considered in the next iteration of the curriculum
- To advise on future trends in expectations placed on graduates by the profession
- To provide opportunities for students to gain hands on experience by facilitating visits to real life systems
- To support the project element of the course with real life building floor plans from a range of sectors which can be used by students
- To contribute as an 'Expert panel' to provide comment and feedback on students' project work.
- To provide opportunities for students to attend industry/networking events
- To advise on opportunities for student's internships or student placements
- To advise on opportunities for staff secondments/exchange between the provider and relevant industry leaders
- To organise an annual meeting of students and industry as an evening lecture or networking event
- To formally meet twice a year to discuss and organise all of the above with a documented outcome

Appendix I – CIBSE Accreditation Team

The CIBSE Accreditation Team, frequently referred to as the Visiting Panel (VP), is comprised of members from the CIBSE Accreditation Panel and Moderators. The team is selected based on their experience relevant to the applicable registration category while ensuring that it comprises of at least two academics and one industrialist. A CIBSE secretariat will also form part of the team and will undertake reasonable steps to avoid any conflicts of interest.

It is a requirement for the CIBSE Accreditation Panel to undertake training every two years. The training encompasses a full run-through of an accreditation visit, as well as a thorough review of key accreditation documents and guidance.