

# GUIDANCE NOTES

## ICTTECH PROFESSIONAL REGISTRATION

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The first step to completing your Professional Review  
with the Institute of Highway Engineers

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Guidance notes for:

**Information Communication Technology Technician**

(Standard and Individual Route)

Professional Registration



## About this booklet

This set of guidance notes is your first step in gaining Information Communication Technology Technician (ICTTech) professional registration through the Institute of Highway Engineers. It provides you with information and guidance, to ensure the relevant paperwork is completed to the required standard as quickly and easily as possible. Please read this booklet in conjunction with the ICTTech application form as the two are designed to go hand in hand.

## Before you begin

In order to obtain ICTTech registration you will need to be an existing IHE member, or a member of one of our Professional Affiliate Partners. Please refer to our website at [www.theihe.org/membership](http://www.theihe.org/membership) if you need to apply for IHE membership.

To gain Engineering Council registration, engineers and technicians prove their competence and commitment in a professional review of their portfolio submission to the IHE. Anyone who meets the competence and responsibility standards can become an ICTTech – there's a route to suit all competent technicians.

Many will have a BTEC, NVQ level 3 or SQV Level 6 (or equivalent) qualification. Others will have gained the necessary skills, knowledge and experience through a non-academic route because of their practical experience in the highways industry.

Applicants don't usually get called to interview, however the IHE reserves the right to interview applicants to maintain the integrity of the Professional Review process.

There are many benefits of ICTTech registration, these include:

- Tangible evidence to your employer and potential employers of your proven competence as a professional technician.
- Recognition by the worldwide engineering community.
- Ongoing career progression, as you establish your professional credentials within the industry.
- The use of the ICTTech MIHE post-nominals after your name.
- Gives you an advantage over those who have no professional registration.

As a professional member of the Institute you'll have the same access to information and networking opportunities as Incorporated and Chartered Engineers.

This booklet provides guidance and clarification of the five requirements of ICTTech standard contained within the Information Communication Technology Technician (ICTTech) Standard laid down by the Engineering Council. These are:

- A.** Use ICT knowledge and understanding to apply technical and practical skills.
- B.** Contribute to the design, development, configuration, testing, commissioning, instillation, deployment, operation, migration or maintenance of ICT solutions, products, processes, systems, services or applications.
- C.** Accept and exercise personal responsibility.
- D.** Use effective communication and interpersonal skills.
- E.** Make a personal commitment to an appropriate code of professional conduct, recognising obligations to society, the engineering profession and the environment.

## Completing the application form

To keep your application as clear as possible, we would request the following:

- If completing this form by hand, please write in BLOCK CAPITALS and in black ink.
- Please complete only the relevant fields – We have included guidance as to which sections should be left blank if they are not relevant.
- You should aim to complete this form with as much detail as possible. This will reduce the instances where we need to ask you for more information at a later date.
- Remember to include any required documentation with your application when you see this symbol – Please tick the relevant box on the checklist at the back of the application form.
- Please post your completed application form, along with your submission, to:



**Membership, Institute of Highway Engineers, Floor 4, Euston House, 24 Eversholt Street, London, NW1 3DP.**

**Important:** ITAI and ACostE members should send your application as described above, to the following address.

ACostE members should send your application directly to The Association of Cost Engineers:  
ACostE Administration Office, Lea House, 5 Middlewich Road, Sandbach, Cheshire, CW11 1XL

ITAI members should send your application directly to the Institute of Accident Traffic Investigators at:  
ITAI, PO Box 16057, Solihull, West Midlands, B93 3GL

## And finally

We hope you find the pathway to ICTTech application a simple process. The Institute of Highway Engineers is committed to helping you achieve the career benefits that professional registration can bring.

Please contact us on: 0203 874 3066 or email us at [professionalreviews@theihe.org](mailto:professionalreviews@theihe.org) if we can provide any assistance or guidance at any stage of your application.

## Section A

In this section we give some general guidance and background to making your ICTTech submission with the IHE.

### 1. Entry routes and requirements

Before you start compiling your ICTTech submission, you will need to establish which route of application you're going to take. Two routes are available, 'standard' and 'individual'. Choosing which one is applicable for you will depend on the training and qualifications you have undertaken so far in your career. Both routes will require you to demonstrate your competency in applying proven techniques to solve problems and supervise works or people.

#### Standard Route

If you have a National Certificate or Diploma in engineering or an equivalent National Vocational Qualifications Framework level 3 qualification such as a NVQ3, HNC or HND in engineering, and are working at the right level, you should use this route to apply for your ICTTech with the IHE. This pathway recognises your previous qualifications and the competency you have demonstrated in achieving these.

These qualifications will need to be approved or accredited by an licenced Engineering Council Institute, such as the Institution of Engineering and Technology (IET) or BCS, The Chartered Institute for IT.

More information on approved and accredited courses can be found here:

[www.engc.org.uk/education-skills/course-search](http://www.engc.org.uk/education-skills/course-search)

Standard Route applicants don't usually get called to interview as they have already proven to be competent in their area of work by holding an NVQ level 3 qualification. However, the IHE reserves the right to interview applicants to maintain the integrity of the Professional Review process.

#### Individual Route

If you have other qualifications which do not fulfil the Standard Route criteria, or none at all, but can demonstrate competence and commitment to the appropriate depth and level through your work experience, then you can be individually assessed. You will need to provide similar documentation as for the Standard Route but you will need to explain more about your work and demonstrate your engineering knowledge.

Typically, applicants for this route have:

- Work experience at supervisory level but few or no qualifications
- Level 2 Entry Level qualification in an appropriate engineering discipline
- A NC or ND

Applicants don't usually get called to interview, however, the IHE reserves the right to interview applications to maintain the integrity of the Professional Review process.

You will need to indicate in the left hand column next to each assessment question where you have met the Engineering Council Learning Outcomes.

## 2. Getting started

### Help and support – Mentors

Getting the right help and support is crucial to ensuring you are successful in achieving ICTTech registration.

You are responsible for your own development and pathway to producing your ICTTech submission, but support from a colleague or mentor enables you to try out ideas and keep a focus on objectives. Good mentors will try to ensure that the engineers they work with gain confidence and independence as a result of their one-to-one relationship, and are empowered to take full and effective responsibility for themselves.

The Institute of Highway Engineers has produced a short booklet explaining the roles and responsibilities of both mentors and applicants. Please refer to our website at <https://members.theihe.org/page/formsandguidance> (log in required) for more information.

### Creating your folder

All submissions must be presented in a single ring binder or lever arch folder. You should use file dividers to enable us to easily identify the relevant parts of your evidence folder and cross reference these with the section headings in the ICTTech application form.

The coversheet provided in section 1 of the application form must be affixed to the front of your folder.

**Please note:** *Submissions presented in any other style of folder or binding, or without the coversheet affixed will be returned to you.*

Where required, you should give sufficient evidence using at least two schemes from your work experience to show that you have meet the required objectives. No more than half a dozen small evidential documents per question are required and excess evidence is likely to be rejected.

## Section B

In this section we will guide you through completing the IHE ICTTech application form. The application form pulls together your personal details, aims to assess some of your skills and knowledge, as well as providing a checklist for your additional documents.

Guidance on all sections of the application form is detailed below.

### 1. The coversheet

Please complete the coversheet in section 1 at the front of the application form. This must be affixed to the front of your folder.

All submissions must be presented in a single ring binder or lever arch folder. You should use file dividers to enable us to easily identify the relevant parts of your evidence folder. These should cross reference with the relevant sections of this form.

**Please note:** *Submissions presented in any other style of folder or binding, or without the coversheet attached will be returned to you.*

### 2. Your details

Please complete all fields in this section.

### 3. Current employment details

Please complete all fields in this section.

### 4. Area of specialism

Please tick *one* of the listed categories of highway specialism that best describes the specialist area of your ICTTech submission. This information is essential for us to identify reviewers in your field that can assess your submission.

### 5. Route of application

Use this section to indicate if you hold the necessary qualifications to apply via the Standard Route or if you will be making an application via the Individual Route.

### 6. Your CV

We require an up-to-date copy of your CV covering your employment, academic and training history. This CV should be no more than two pages in length.

### 7. Higher and further education

Please complete this section in chronological order as per the instructions on the application form.

## 8. Your qualifications

We require copies of your certificates for the further and higher education courses you have listed in section 7. These should be authenticated (signed and dated) by either your Line Manager, Proposer or Seconded who can confirm that these are true copies of the original certificates. Do not send us original certificates as these will not be returned to you.

## 9. Career history

Please complete this section in chronological order as per the instructions on the application form.

## 10. Your current job

We require a copy of your current Job Description to be attached with your application. Self employed applicants should produce a one page document describing your direct clients.

## 11. Mapping your organisation

You should supply the IHE with a clear organisation chart that identifies the structure of your organisation. This organigram should be of a hierarchical design and you should clearly highlight our own position on it. Self employed applicants do not need to complete this section.

## 12. Continuing Professional Development

Continuing Professional Development is the systematic maintaining, improving and broadening of your knowledge and skills and the development of personal qualities necessary for the execution of professional duties throughout your working life. Most employers require you to keep a personal CPD record and you can submit this as evidence in your folder. If your employer does not require this, a blank CPD record form can be downloaded from the members area of our website at <https://members.theihe.org/page/cpdhub> (log in required)

The IHE recommends you record your CPD using the Engineering Council Mycareerpath tool. If you use this, please export your CPD record and print it out. It can then be included in your evidence folder.

Please ensure you submit evidence of Continuing Professional Development and demonstrate how you intend to meet your obligations to CPD in the future by submitting a forward plan.

More information on CPD can be found in the members area of our website at <https://members.theihe.org/page/cpdhub> (log in required)

*This should be essential reading before making your professional review submission.*

## 13. Assessment questions

Competence is the ability to carry out a task to the required standards. To achieve this you will need to demonstrate that you have the level of knowledge and skills required to achieve ICTTech registration. Competence is developed by a combination of formal and informal learning, training and experience.

The Engineering Council expect professional registrants to be competent in five broad areas:

- A.** Knowledge and understanding
- B.** Design and development of processes, systems, services and products
- C.** Responsibility, management or leadership
- D.** Communication and inter-personal skills
- E.** Professional commitment

The three assessment questions are designed to provide you with an opportunity to demonstrate the Engineering Council statement of competence as detailed in the grid we have provided in this booklet. Please read the statements and guidance carefully and bear this in mind as you answer each of the assessment questions. Where you feel you have met an area of the Engineering Council statement of competence in your answer please indicate this in the right hand margin provided.

Your answers to the three assessment questions in the ICTTech application form depend on the route you will be applying through.

### **Standard route** (Approved Level 3 Qualifications)

Your formal educational qualifications demonstrate the necessary knowledge that underpins each of the five competences. Therefore, you should aim to complete each question using approximately 500 words per question. Sufficient evidence should be submitted to demonstrate achievement of the competency statements. Not more than half a dozen small evidential documents per question are required.

### **Individual route** (without exemplifying qualifications)

Applicants without exemplifying qualifications applying via the Individual Route should complete the three questions and demonstrate the use and understanding of engineering principles. Each question should be completed using approximately 750–1000 words. No more than half a dozen small evidential documents per question are required.

As an Individual Route candidate, you will need to demonstrate the educational Learning Outcomes in your submission that Standard Route applicants have achieved by having an exemplifying qualification. These Learning Outcomes are six areas of engineering learning you will need to demonstrate through the three assessment questions and are as follows:

#### **1. Science and mathematics**

Engineering is underpinned by science and mathematics.

As an ICTTech you will need to demonstrate:

- 1.1 A descriptive, formula-based knowledge and understanding of the scientific principles underpinning relevant current technologies.
- 1.2 Knowledge and understanding of relevant mathematics, including numerical and data analysis, that is necessary to support the application of technical and practical skills.



## **2. Engineering analysis**

Engineering analysis involves the application of engineering concepts and tools to the solution of ICT problems.

ICTTech Technicians will need:

- 2.1 To understand the limitations of standard tests and measurements relevant to their field of activity.
- 2.2 Know-how to use the results of engineering analysis for the purpose of developing solutions to well-defined ICT problems.
- 2.3 To apply appropriate solutions to well-defined ICT problems using methods specific to their field of activity.

## **3. Design**

Design at this level involves the awareness of an economically viable product, process or system to meet a defined need.

ICTTech Technicians will need:

- 3.1 Awareness of business, customer, and user needs.
- 3.2 Awareness of constraints on the design process including environmental and sustainability limitations, ethical, health, safety, security and risk issues, intellectual property, codes of practice and standards.
- 3.3 Knowledge that supports design for the purpose of developing solutions to well-defined ICT problems.
- 3.4 Know-how to contribute to the design and/or the design process.
- 3.5 Know-how to communicate their work to technical and non-technical audiences.

## **4. Economic, legal, social, ethical and environmental context**

ICT activity can have impacts on the environment, on commerce, on society and on individuals. ICTTech Technicians therefore need the skills to manage their activities and to be aware of the various legal and ethical constraints under which they are expected to operate, including:

- 4.1 Understanding the need for a high level of professional and ethical conduct in ICT and a knowledge of professional codes of conduct.
- 4.2 Knowledge of the commercial, economic and social context of the ICT processes.
- 4.3 Understanding the requirement for ICT activities to promote sustainable development.
- 4.4 Awareness of relevant legal requirements governing ICT activities, including personnel, health & safety, contracts, intellectual property rights, product safety and liability issues.
- 4.5 Awareness of risk issues, including health & safety and environmental risk.

## **5. Engineering practice**

This is the practical application of ICT knowledge and skills. This can include:

- 5.1 Know-how to use relevant materials, equipment, tools, processes, or products.
- 5.2 Knowledge of procedures and practices for industry standard operations and processes.
- 5.3 Know-how to use and apply information from technical literature.
- 5.4 Know-how to use appropriate codes of practice and industry standards.
- 5.5 Awareness of quality issues and the potential for continuous improvement.
- 5.6 Awareness of team roles and the ability to work as a member of an ICT team.

## **6. Additional general skills**

ICTTech Technicians must have developed transferable skills, additional to those set out in the other learning outcomes, and that will be of value in a wide range of situations, including the ability to:

- 6.1 Apply their skills in problem solving, communication, information retrieval, working with others and the effective use of general IT facilities.
- 6.2 Plan self-learning and improve performance, as the foundation for lifelong learning/CPD
- 6.3 Plan and carry out a personal programme of work.
- 6.4 Exercise personal responsibility, as an individual or as a team member.

## Statements of competence and commitment

In your responses to the three assessment questions you will need to reference all the Statements of Competence and Commitment defined in the Engineering Council Information Communication Technology Technician (ICTTech) Standard.

The following grid sets out the Engineering Council's Statements of Competence and Commitment with IHE guidance alongside and suggests typical documents you could select to illustrate your experience.

If you are a member of our Professional Affiliate partners (the Institute of Accident Traffic Investigators, ITAI, or The Association of Cost Engineers, ACostE) you should contact these Institutes directly for specific guidance to assist you with your application. Your Institute will be best placed to supply you with specific guidance in your area of engineering expertise.

A. Use ICT knowledge and understanding to apply technical and practical skills.		
Engineering Council Statement of Competence	IHE Guidance	Examples of evidence
A1. Apply ICT principles in an analytical and systematic approach, to solve problems and contribute to continuous improvement.	The reviewers will be looking for evidence that you have the know-how to do complete tasks in support of scheme design and delivery. They will be looking for evidence that you were able to go beyond the immediate requirements and use your initiative and your experience to solve a problem or improve a process. You should be familiar with the ICT principles which pertain to your work area and the techniques and procedures to put these principles to work.	<ul style="list-style-type: none"> <li>• Knowledge of specifications such as TOPAS TR2500A.</li> <li>• Preparing data sets.</li> <li>• Understanding of the principles of data collection and validation.</li> <li>• Knowledge and application of computer programs such as SCOOT, MOVA, Configurators and Emulators.</li> <li>• Coding.</li> <li>• Adherence and application of standards and research such as UG405.</li> <li>• Setting up of ICT systems which may include Wireless MESH, ADSL, SDSL and other linking and data collection systems.</li> </ul>
A2. Review, select and use appropriate techniques, procedures and methods to undertake activities.	<p>In your submission, show you:</p> <ul style="list-style-type: none"> <li>• Know which ICT principles apply to your work area and tasks.</li> <li>• Use your knowledge to give technical advice.</li> <li>• Identify problems or improvements and can identify options, explain why you picked the 'right one'. You could describe an application which had problems or simply didn't work and explain why along with the changes you made or recommended and the outcome.</li> <li>• You could refer in your submission to technical documents, relevant standards, codes of practice and legislation, computer programs and research papers.</li> </ul>	

**B. Contribute to the design, development, configuration, testing, commissioning, installation, deployment, operation, migration or maintenance of ICT solutions, products, processes, systems, services or application.**

Engineering Council Statement of Competence	IHE Guidance	Examples of evidence
B1. Identify and/or respond to problems with ICT solutions, services or infrastructure and apply suitable methods to seek the causes and to guide the development of satisfactory solutions.	<p>In your submission, show you:</p> <ul style="list-style-type: none"> <li>• Have applied your technical expertise at an appropriate level to identify the source of a problem and decide how best to solve it.</li> <li>• Assist in identifying client needs and the support require to the application teams.</li> <li>• Exercise technical judgement and give guidance.</li> <li>• Perform analytics and give guidance based on findings.</li> <li>• Manage tasks and relevant areas of work.</li> <li>• Identify the appropriate tools to use.</li> <li>• Introduce new techniques or exploit existing ones.</li> <li>• Describe how what you do contributes to best practice and to continuous improvement eg ISO 9000, Tikit.</li> <li>• Understand the requirements for data protection.</li> </ul>	<ul style="list-style-type: none"> <li>• Traffic Signal Controller configurations.</li> <li>• MOVA data sets.</li> <li>• SCOOT validation data.</li> <li>• Linking architecture designs.</li> <li>• Testing results and reports.</li> <li>• Fault management records.</li> <li>• Technical reports and communications.</li> <li>• Contributions to policies and/or meetings which address security of information.</li> </ul>
B2. Select, organise and use resources effectively to complete ICT tasks, with consideration for factors such as cost, performance, confidentiality, security, quality and availability of service, health, safety and environmental impact.		
B3. Configure or maintain ICT systems to provide satisfactory performance and quality of service.		
B4. Secure and protect ICT systems from intrusion, damage, attack or data loss.		

**C. Accept and exercise personal responsibility.**

Engineering Council Statement of Competence	IHE Guidance	Examples of evidence
C1. Work reliably and effectively on ICT tasks without close supervision, to the appropriate codes of practice.	<p>The reviewers will be looking for evidence of our personal accountability level, and how you personally identified and agreed what had to be done and to what standard on a typical project. They also want to establish how you allocated work, reviewed, progressed and followed up.</p> <p>In your submission, show you:</p> <ul style="list-style-type: none"> <li>• Work efficiently under minimum supervision.</li> <li>• Contribute to planning tasks by identifying and agreeing what had to be done and to what standards on a typical project.</li> <li>• Comply with relevant regulatory and practice requirements.</li> <li>• Make technical decisions and give advice within capabilities.</li> <li>• Take responsibility for your actions within your capabilities, assist, supervise and advise others.</li> <li>• Accept responsibility for completing tasks to time, resources and costs and to quality standards.</li> <li>• Manage yourself.</li> </ul>	<ul style="list-style-type: none"> <li>• Minutes of meetings.</li> <li>• Compliance with quality management systems.</li> <li>• Programmes of work / programming tasks.</li> <li>• Work instructions.</li> <li>• Understanding of, and working to, time and budget constraints.</li> <li>• Specifications, reports and technical communications.</li> <li>• Appraisals undertaken by yourself or your employer.</li> </ul>
C2. Accept responsibility for work of self or others.		
C3. Accept, allocate and supervise technical and other tasks.		
C4. Be aware of and/ or involved in continuous quality improvement.		

D. Use effective communication and interpersonal skills.

Engineering Council Statement of Competence	• IHE Guidance	• Examples of evidence
<p>D1. Use oral, written and electronic methods for the communication in English of technical and other information.</p> <p>D2. Work effectively with colleagues, clients, suppliers or the public, ensuring that ICT tasks undertaken are effectively linked to related tasks, and be aware of the needs and concerns of others, especially where related to diversity and equality.</p>	<p>In your submission, show you:</p> <ul style="list-style-type: none"> <li>• Select appropriate ways of communicating eg diagrams, sketches, plans, photographs, internet, audiovisuals, reports.</li> <li>• Communicate fluently verbally and in writing.</li> <li>• Respond effectively and efficiently to received communications.</li> <li>• Advise and inform others on technical procedures.</li> <li>• Establish and maintain effective working relationships with colleagues, clients and others.</li> <li>• Give clear and accurate instructions.</li> <li>• Take an active part in team meetings.</li> <li>• Meet commitments in an efficient and timely manner.</li> </ul>	<ul style="list-style-type: none"> <li>• Use of correct engineering terminology.</li> <li>• Understanding of delegated responsibilities.</li> <li>• Awareness of contractual obligations.</li> <li>• Use of various media to convey ideas.</li> <li>• Letters, reports, minutes, emails</li> <li>• Drawings, spreadsheets.</li> <li>• Responses to public enquiries.</li> <li>• Work instructions.</li> <li>• Presentation material prepared by you.</li> <li>• Appraisals undertaken by your employer.</li> <li>• Conducting / contributing to public consultations.</li> <li>• Contributing to team / technical meetings.</li> </ul>

E. Make a personal commitment to an appropriate code of professional conduct, recognising obligations to society, the profession and the environment.

Engineering Council Statement of Competence	IHE Guidance	Examples of evidence
E1. Comply with the Code of Conduct of your institution.	In your submission, show you:	<ul style="list-style-type: none"> <li>• Knowledge of IHE's Code of Conduct.</li> <li>• Awareness of legal obligations (duty of care).</li> </ul>
<p>E2. Manage and apply healthy, safe, secure systems of work, and be aware of appropriate hazard identification and risk management systems.</p> <p>This could include an ability to:</p> <ul style="list-style-type: none"> <li>• Identify and take responsibility for own obligations for health, safety and welfare issues</li> <li>• Apply systems that satisfy health, safety and welfare requirements.</li> </ul>	<ul style="list-style-type: none"> <li>• Know your organisation's goals and ethos.</li> <li>• Demonstrate your discussion or position on typical ethical challenges.</li> <li>• Behave appropriately and professionally.</li> <li>• Demonstrate integrity.</li> <li>• Base opinions or statements on adequate knowledge and are objective and truthful.</li> <li>• Know the purpose of professional institutions.</li> <li>• Know the duty of an engineer under EC and IHE Codes and Rules of Conduct.</li> <li>• Participate in institution activities particularly supporting your local branch by attending meetings, provide careers/school advice, read journals.</li> <li>• Refer to your company's standing orders, equal opportunities and conduct statements (but do not include them.)</li> <li>• Design or plan safe systems.</li> <li>• Provide evidence of applying current safety requirements.</li> <li>• Select appropriate equipment.</li> <li>• Carrying out risk assessments to identify potential hazards and plan how to deal with them.</li> <li>• Provide examples of good practice.</li> <li>• Work safely and ethically.</li> <li>• Accept responsibility for your own and other's safety.</li> <li>• Are aware of emergency measures.</li> </ul>	<ul style="list-style-type: none"> <li>• Awareness of environmental management systems.</li> <li>• Understanding and application of current safety requirements relevant to your own work (e.g. Health &amp; Safety at Work Act 1974, COSHH, CDM, CSCS card, New Roads &amp; Street Works Act 1991, Permits to Dig, Working in Confined Spaces, Regulation (EU) 2016/679 General Data Protection Regulation, Computer Misuse Act 1990).</li> <li>• Understanding and application of risk assessment methods and actions taken to minimise risk to data, health, safety, society or the environment.</li> <li>• Environmental awareness.</li> <li>• Active engagement with IHE at a local level CPD record, including reflection on learning.</li> <li>• Protection of data through loss/corruption, inappropriate access, breach of security, loss of system performance.</li> <li>• Evidence of system testing, training, project review.</li> <li>• Awareness of obligations for data disposal.</li> <li>• Awareness of hardware disposal and the disposal of hazardous components.</li> </ul>
<p>E3. Show you are aware of and apply good practices that protect other people, organisations or the environment from harm caused by the operation of ICT systems.</p> <p>Undertake ICT work in a way that contributes to sustainable development.</p>	<ul style="list-style-type: none"> <li>• Show that you have received formal safety instructions relating to your place of work (such as a CSCS safety test in the UK) or an update on safety regulations. An example would be COSHH.</li> <li>• Company safety policy, relevant legislation, codes of practice, transport and road safety good practice.</li> <li>• Assess and control risk to health, safety, society and the environment.</li> <li>• Undertake methodical assessment of risk in specific projects.</li> <li>• Take actions to minimise risk to society or the environments.</li> <li>• Comply with environmental regulations.</li> <li>• Are aware of and adopt, where possible, sustainable practices.</li> <li>• Actively seek to keep up to date by studying new standards or techniques.</li> </ul>	<ul style="list-style-type: none"> <li>• Environmental awareness.</li> <li>• Active engagement with IHE at a local level CPD record, including reflection on learning.</li> <li>• Protection of data through loss/corruption, inappropriate access, breach of security, loss of system performance.</li> <li>• Evidence of system testing, training, project review.</li> <li>• Awareness of obligations for data disposal.</li> <li>• Awareness of hardware disposal and the disposal of hazardous components.</li> </ul>
<p>E4. Carry out and record CPD necessary to maintain and enhance competence in ICT, including:</p> <ul style="list-style-type: none"> <li>• Undertake reviews of own development needs.</li> <li>• Plan how to meet personal and organisational objectives.</li> <li>• Carry out planned (and unplanned) CPD activities.</li> <li>• Maintain evidence of competence development.</li> <li>• Evaluate CPD outcomes against any plans made.</li> <li>• Assist others with their own CPD.</li> </ul>	<ul style="list-style-type: none"> <li>• Show that you have received formal safety instructions relating to your place of work (such as a CSCS safety test in the UK) or an update on safety regulations. An example would be COSHH.</li> <li>• Company safety policy, relevant legislation, codes of practice, transport and road safety good practice.</li> <li>• Assess and control risk to health, safety, society and the environment.</li> <li>• Undertake methodical assessment of risk in specific projects.</li> <li>• Take actions to minimise risk to society or the environments.</li> <li>• Comply with environmental regulations.</li> <li>• Are aware of and adopt, where possible, sustainable practices.</li> <li>• Actively seek to keep up to date by studying new standards or techniques.</li> </ul>	<ul style="list-style-type: none"> <li>• Environmental awareness.</li> <li>• Active engagement with IHE at a local level CPD record, including reflection on learning.</li> <li>• Protection of data through loss/corruption, inappropriate access, breach of security, loss of system performance.</li> <li>• Evidence of system testing, training, project review.</li> <li>• Awareness of obligations for data disposal.</li> <li>• Awareness of hardware disposal and the disposal of hazardous components.</li> </ul>
<p>E5. Exercise responsibilities in an ethical manner.</p>	<ul style="list-style-type: none"> <li>• Made use of magazines or attended lectures by IHE.</li> <li>• Networking in order to keep abreast of change.</li> <li>• Prepare and maintain a personal action plan.</li> <li>• Keep CPD records of your training and professional development activities.</li> <li>• Give an example of where you have applied ethical principles.</li> <li>• Respect for life, law and the public good.</li> <li>• Responsible leadership.</li> <li>• Listening and informing.</li> </ul>	<ul style="list-style-type: none"> <li>• Environmental awareness.</li> <li>• Active engagement with IHE at a local level CPD record, including reflection on learning.</li> <li>• Protection of data through loss/corruption, inappropriate access, breach of security, loss of system performance.</li> <li>• Evidence of system testing, training, project review.</li> <li>• Awareness of obligations for data disposal.</li> <li>• Awareness of hardware disposal and the disposal of hazardous components.</li> </ul>

## 14. Document matrix

Please map how your evidence documents meet the learning objectives in a document matrix. An example of this would be:

Doc. No.	Doc Name	A1	A2	B1	B2	B3
1	Drawing of roundabout design	✓			✓	
2	CAD drawing of approach junction		✓			✓

## 15. Statement by applicant

You must sign and date the declaration in section 15. *We will not accept any application without this declaration signed.*

## 16. Completing your submission

Please follow the guidance in the application form regarding our required format for ICTTech submissions.

All submissions must be presented in a single ring binder or lever arch folder. Any other style of folder or binding, or without the coversheet affixed will be returned to you.

Please send your complete submission and this form to:

**Membership**  
**Institute of Highway Engineers**  
**Floor 4, Euston House**  
**24 Eversholt Street**  
**LONDON NW1 1DB**

**Please note:** *We reserve the right to reject and return any submission that does not include all of the documents and attachments marked on the checklist at the back of this form, or with sections of this application form incomplete or left blank unless not required.*

**Important:** ITAI and ACostE members should send your application as described above, to the following address.

ACostE members should send your application directly to The Association of Cost Engineers:  
ACostE Administration Office, Lea House, 5 Middlewich Road, Sandbach, Cheshire, CW11 1XL

ITAI members should send your application directly to the Institute of Accident Traffic Investigators at:  
ITAI, PO Box 16057, Solihull, West Midlands, B93 3GL

## 17. Electronic copy of your submission

Please follow the guidance in the application form and supply us with a digital copy of your ICTTech folder and any documents you have submitted on a writeable CD or USB memory stick.

## 18. Employer proposal statement

Section 18 details the employer proposal information we require from you. We cannot pass your submission to a reviewer without an employer proposal statement. Self employed applicants should ask a recent client to complete this section.

## 19. Proposer and seconder

Please ask your proposer and seconder to complete all fields in this section.

## 20. Payment form

The fee required as part of paying for your ICTTech application comprises of (2020 rates):

IHE ICTTech professional review fee: £85.00

Engineering Council ICTTech registration entry fee (collected on their behalf by the IHE): £18.40

Please check our website for up-to-date fee information.

An additional upgrade to your membership fee might also be required. If you are currently a Student, Apprentice or Associate member, you will be required to pay the difference between your current annual membership fee and the annual fee for IHE Member grade of £131.00.

If you are a member of the Institute of Traffic Accident Investigators or The Association of Cost Engineers, an additional £65.00 administration fee is required to process your application.

**Please note:** ACostE and ITAI applicants should contact the appropriate Institute directly to arrange payment of your application fee. The IHE will receive your payment directly from ACostE or ITAI.

## 21. Checklist

This section provides you with an opportunity to ensure you have included all the applicable documents and paperwork we have asked for. It also helps us to ensure we have received all of your submission when we process your application.

## Section C

In this section we have provided some useful additional documents that will assist you in answering the three assessment questions.

### 1. Code of Conduct

**This Code of Conduct sets out the commitment of members of the Institute of Highway Engineers to a code of ethics and conduct.**

IHE members make a professional commitment to act responsibly with regard to safety and the environment, to act ethically, to maintain and develop their competence and to support new and prospective entrants. All members agree to abide by the IHE Code of Conduct which requires:

“Every Corporate Member of the institute at all times to so order his or her conduct as to uphold the dignity and reputation of the profession and to maintain his or her technical and professional competence and to safeguard the public in matters of safety, health and otherwise pertaining to the work of the Institute”.

The Memorandum and Articles provide for disciplinary action if a member is found to have breached the Code. However, the expectation is that members abide by the code because they recognise the duty they owe society and themselves to uphold the standing of their chosen profession. Copies of IHE's disciplinary procedures and Equal Opportunities policy are available from the office or the website.

The IHE Code is based on Engineering Council (UK) guidance.

- You are obliged as an IHE member to maintain and record **Continuing Professional Development**. Your CPD should be guided by, and recorded in, a Personal Development Plan. More information on CPD and the IHE's guide to planning your development, can be found in the member's area of our website. IHE is required to monitor members' compliance with this obligation by the Engineering Council (UK). Every Professionally Registered member, except those who have declared they are no longer professionally active in the profession, is required to submit a record of their CPD when requested by the Institute as part of an annual sample. Any member who persistently fails to engage with this process will automatically lose their IHE membership.
- IHE is committed to **equality of opportunity** for everyone applying for membership and for the Professional Review and to removing any barriers to applicants and members achieving their full potential. In turn we expect members not to discriminate and to promote equal opportunities.

#### **Your Professional Ethics**

Council has adopted the following statement of rules elaborating on the Code of Conduct. The statement is binding on all members.

#### **Members are expected to:**

1. Hold paramount the safety, health and welfare of the public and the protection of the environment in the practice of their profession.
2. Maintain and improve their competence:
  - Demonstrate commitment to maintaining professional competence through self managed CPD
  - Take responsibility for and manage their CPD
  - Support the learning and development of others:
    - Be prepared to act as a mentor
    - Encourage employers to support professional development
    - Share professional expertise and knowledge
    - Provide support for the learning of others
    - Contribute to the activities of their professional body



3. Undertake technological tasks for others if qualified by training or expertise and after full disclosure of any pertinent limitations.
4. Accept responsibility for work carried out under their supervision, treat subordinates fairly and without bias and advance their learning and competence.
5. Avoid real or perceived conflicts of interest where possible and disclose them to affected parties when they do exist.
6. Avoid disclosing confidential information acquired in the course of work, without the consent of the parties concerned or unless disclosure is clearly in the public interest, for instance under the Public Interest Disclosure Act.
7. Provide objective and truthful information when giving advice or criticism, making public statements or advertising/publicising services; advice should include clear statements of the impact and consequences of engineering decisions and projects.
8. Reject bribery in all its forms.
9. Make systematic assessments of environmental, health and safety risks related to their work and their individual legal liability and inform clients whether or not professional indemnity insurance is held.
10. Report any violations of this code by another member to IHE.
11. Notify the IHE of any convictions of a criminal offence (other than minor Road Traffic Offences) and, any adjudicated bankruptcy e.g. if a Director's Disqualification Order is made against them or if they enter into an Individual Voluntary Arrangement with creditors.
12. Respond promptly to any request from the Institute for comments or information on or documents relating to any disciplinary matter being investigated by a panel appointed by IHE whether in relation to themselves or to another member.

Any member convicted by a court or other competent tribunal of a criminal offence (see 11 above) that, in the opinion of a Disciplinary Panel or Council, renders him unfit to be a member shall be guilty of improper conduct.

The Institute's remit extends to competence, conduct and professionalism, but not to contractual disputes or similar.

## 2. Exemplars

Below are some sample responses to the three assessment questions in Section 12 of the ICTTech application form. These are exemplars and are not exhaustive, but give you a guide of the response required.

### Question One

Give an example of a project or task where you solved a technical problem, explaining your role and how you selected the appropriate techniques, procedures and methods used. Tell us about any scientific, technical or ICT principles you used and how you reported or made recommendations on what you did for your employer or other people involved such as clients or suppliers. Include anything you did to prevent harm to people, equipment or data.

Your answer	Engineering Council statement of competence Ref.
<p>I am employed by ICT TECH to carry out AutoCAD works as part of the company's overall business to supply multi discipline highway projects in the north of England. My general works include the production of drawings using the AutoCAD suite and other associated software. I also conform to the Company's CAD standards set in the Drawings Manual. I also assist in site surveys and support engineers with the development of design solutions. Although I work as part of a team I am responsible for ensuring all assigned tasks are completed to time and cost estimate.</p>	A1
<p>In a recent project which involved the realignment of a local highway network I was tasked to produce drawings and layouts to allow multi vehicle movements to be achieved which included HGV deliveries to the future site which included a major supermarket development. My task was to ensure that the swept path analysis following the design allowed access by these vehicles without interference with other road users and street furniture. The designs have been undertaken following the DMRB and I have to ensure that I have appropriate knowledge of this and also that team members understand the design elements.</p>	A1, A2
<p>I used the software produced by Keysoft Solutions AutoTURN to overlay the preliminary design and to simulate a typical vehicle movement. From the initial analysis it was clear that a traffic island would be crossed. (Drawing 1.1 indicates) I discussed with the Design Engineer a number of options which could allow the design to be implemented including the use of demountable sign posts and traffic bollards. However, the ongoing requirement to always have to undertake this post completion lead to a revision of the layout by altering the radii of several sections of access road. I was able to prove that no conflicts would occur through re applying the AutoTURN software. (Drawing 1.2 indicates).</p>	A2
<p>Following agreement to the revision I proceed to apply the necessary road markings, traffic signs and signal locations to the layout using guidance notes for TSRGD 2016 and the TA 84/06. Additional design included determining the location of traffic signal detection equipment and I produced an additional drawing which indicated the position of proposed underground ducts, cables and pipes. I determined the most suitable location for the detectors.</p>	B1, B2
<p>The final task undertaken during this project was to prepare signal phasing diagrams, I calculated the intergreen timings to ensure maximum use of the signalised junction. In this situation I used the software KEYsignals and confirmed my calculations with the Senior Engineer</p>	B3, B4
<b>Description of your supporting documents</b>	
<p>EV1 AutoTURN design</p> <p>EV2 Email suggesting revision to design</p> <p>EV3 KEYsignals calculations</p>	

## Question Two

Give an example of how you have identified, planned, and organised the resources needed to effectively complete a project, explaining how you took into consideration cost, quality, safety and any environmental impact. Remember to think about what equipment was used, how data was gathered and analysed and how you initiated the project to produce the desired outcome.

Your answer	Engineering Council statement of competence Ref.
<p>As the CAD lead for the team of technicians within my section of ICTTech I am responsible for the allocation of task to other members of my team, training new members and ensuring that tasks are completed to time and cost estimate.</p>	C2, C3
<p>The Company receives many requests for submissions both as tendered works or direct commissions and I am involved in determining the appropriate element of my team's resource required to complete the project.</p>	C1, D1
<p>Recently there has been a significant surge in design workload leading to the intake of new staff members both as trainees or on agency contracts. This has increased the resources available by approximately 33%, however the management of the resource has become critical to the company fulfilling its contractual obligations.</p>	C2, C3, C4
<p>I have completed a full skills audit of my team including the new entrants to establish their strengths and weakness and to enable to most appropriate resource to be allocated to each task.</p>	D2 B2
<p>I have also developed a more detailed resource chart with key dates, milestones using a version of Microsoft Project. Each Technician has different charge out rates and I need to ensure that the allocated costs are not exceed as well as the works being completed on time.</p>	C4
<p>To develop a more streamlined approach to the tasks I work closely with each of the design teams and where possible assist with the design process. I am required to have knowledge of the construction process to ensure designs can be built safely. Knowledge of site conditions is essential and the team and myself regularly visit locations to gather additional data not always available from the design brief. This time away from the CAD monitor is often useful but requires careful managing to ensure it is not abused. However, a recent example of site works improved the communication between the office and site teams and lead to a change in the information supplied to the benefit of both parties</p>	D1
<p><b>Description of your supporting documents</b></p>	
<p></p>	

### Question Three

Give an example of how you have complied with the Institute of Highway Engineer's Code of Conduct (as found in Section C of the accompanying guidance booklet) and how you keep in touch with developments in your technical area and how you have continued to develop your knowledge and skills?

Your answer	Engineering Council statement of competence Ref.
<p>I ensure that I follow the Company's code of conduct in every aspect of my work. Confidentiality of information which can often be financial sensitive in planning application is required and I ensure that myself and my team of technicians carry out their tasks appropriately. In addition, in tendering for works it is important to ensure that confidentiality is maintained throughout the process.</p>	E1
<p>I ensure that any design produced is to the relevant code of practice or design guidance and that any design can be delivered without harm to the construction team and ongoing maintenance teams. The Company carries out Quality Audits of schemes and I represent my team in such activities.</p>	E2, E3
<p>On a personal level I have the opportunity to undertake an annual appraisal as part of the Company's commitment to staff development where I can discuss my training, workload, management of the team and future requirements, With ICT there is an ever-ongoing requirement to maintain skills and knowledge and I regularly access technical publications, web session and trade events.</p>	E4
<p>My commitment to career development will be enhanced by the award of ICTTech which is a standard I hope the industry will recognise. I have recently joined the IHE and am committed to its Code of Conduct and will apply its requirements to my work.</p>	E5
<p>Whilst my current job role gives little opportunity for contact with the general public it is important to note that many of the completed designs can affect them.</p>	E5
<p><b>Description of your supporting documents</b></p>	
<p></p>	