End Point Assessment Civil Engineering Technician Apprenticeship Level 3 Mapping document

In line with the recent changes to the assessment plan for the Civil Engineering Technician Apprenticeship L3, please ensure that you complete the correct application for the version on the standard you have completed.

For those who started their Civil Engineering Technician Apprenticeship prior to July 2021 (Civil Engineering Technician Apprenticeship Version 1.0: earliest start date: 14/07/2017, latest start date 13/07/21); please refer to pages 2-7 for the relevant guidance and application form.

For those who started their Civil Engineering Technician Apprenticeship after July 2021 (Civil Engineering Technician Apprenticeship Version 1.1: earliest start date: 14/07/21) or have transferred to the new version of the standard please refer to pages 8-15 for the relevant guidance and application form.

If you are making an application to sit your End-Point Assessment for Civil Engineering Technician Apprenticeship Version 1.0, please see section 1, pages 2-7

If you are making an application to sit your End-Point Assessment for Civil Engineering Technician Apprenticeship Version 1.1, please see section 1, pages 8-15

Membership

Civil Engineering Technician Apprenticeship Level 3 (Version 1)

Mapping of Knowledge, Skills & Behaviours against EngTech MICE Attributes

Civil Engineering Technician Apprenticeship EPA Mapping Document
Version 2 Revision 0 – 01 November 2021

Contents

Note: This section is only for candidates on CET version 1.0: Earliest start date: 14/07/2017, Latest start date: 13/07/21

Introduction

As a Civil Engineering Technician Apprentice, you will need to demonstrate throughout your apprenticeship programme how your practical experience is providing you with evidence to show that you have gained the appropriate Knowledge, Skills and Behaviours (KSB) outlined in the Apprenticeship Standard and the associated assessment criteria. Each apprenticeship standard has a unique set of KSB that must be achieved.

This guide outlines the mapping of the relationships between the KSB outlined in the Apprenticeship Standard for the Civil Engineering Technician apprenticeship (Version 1) and the EngTech MICE attributes.

Each apprenticeship standard and assessment plan is unique and can be found on the Institute for Apprenticeships and Technical Education's website.

Full details of the End Point Assessment (EPA) can be found in the Civil Engineering Technician EPA guidance (Version 1) which also includes the application form.

Our Membership Support Team (MST) can give you advice and guidance on all aspects of the End Point Assessment, please email membershipsupport@ice.org.uk or call +44 (0)121 227 5948 for help.

Level 3 Civil Engineering Technician Apprenticeship

Knowledge

Civil Engineering Technician Apprenticeship		EngTech MICE Attributes
K1	**The different techniques and methods used to design, build and maintain civil engineering projects.** This includes understanding how ideas and requirements are converted into engineering designs, knowing the standards, contracts and specifications and their impact on the design and construction process.	**1b**
K2	**The appropriate scientific, technical and engineering principles relating to the design of infrastructure and buildings.** This includes an understanding of the mathematical, scientific and engineering techniques required to support the design and construction processes, including building information management and modeling aspects of civil engineering disciplines with a demonstrable knowledge of sustainability.	**1a**
K3	**How to work effectively and contribute to engineering solutions by the correct use of resources and time.** This includes an understanding of project management systems, tools and techniques as they are applied to the design and construction process.	**2a**
K4	**How to communicate effectively using a range of techniques**. This includes an understanding of different communication methods and when to use them; how to write technical reports, drawing and modelling conventions and engineering terminology; collaboration and effective team working.	**6a**
K5	**The code of conduct of relevant professional bodies and institutions including ethics and their application in design and delivery of projects.** Understanding the protection of client confidentiality, the need to adhere to corporate policies on ethics and diversity and the professional obligation to make a contribution to society.	**7a, 7b, 6d**
K6	**Safe working practices and how to comply with them.** Understanding of regulations such as Construction, Design and Management (CDM), Common Safety Method (CSM), hazard identification, and risk mitigation in relation to project delivery.	**4a, 4c**
K7	**Sustainable development and their own contribution to economic, environmental and social wellbeing.** Understanding of company and client sustainability and environmental policies and their effect on design and delivery; and an awareness of the environmental impact of projects and mitigating actions.	**5a, 5b**
K8	**Sources of and approaches to Continuing Professional Development (CPD).** Understanding of appraisal schemes including training and development plans, CPD obligations and competency requirements relating to self and others.	**7c**

Skills

Civil Engineering Technician Apprenticeship		EngTech MICE Attributes
S 1	**Select and use appropriate scientific, technical and engineering principles, techniques and methods to contribute to the design and delivery of infrastructure and building projects.** This includes the ability to produce and self-check; calculations, models and drawings; use appropriate systems for data gathering, Computer Aided Drawing, Building Information Management and project management; and assist with site surveys and inspections.	**1a. 1b**
S 2	**Work with others to contribute to produce integrated engineering solutions by the correct use of resources and time.** This includes the ability to contribute to developing, evolving and monitoring solutions to engineering problems whilst working to programme and within budget.	**1c. 3a**
S 3	**Manage and maintain the quality of their work and that of others.** Assess the task to be done, plan/schedule work and manage time; decide when to allocate work to other people; maintain the flow of information; check work at an appropriate level and against appropriate standards and specifications. Keep well organised personal records of work undertaken	**2a. 2b. 2c**
S 4	**Communicate effectively and appropriately with others using a range of techniques** including verbal communication, written reports, models and drawings using correct terms, standards and formats.	**6a**
S 5	**Keep themselves and others safe by adhering to safe working practices.** This includes the ability to identify hazards and assess risks, follow safe systems of work and adhere to all company safety policies.	**4a, 4b, 4c**
S 6	**Maintain their skills base and learning.** This includes the ability to assess their own competence against training objectives and identify development needs and training action plans	**7c**

Behaviours

Civil Engineering Technician Apprenticeship		EngTech MICE Attributes
B1	Take a responsible approach to health and safety	**4a, 4b, 4c**
B2	Be professional, proactive and receptive to constructive advice and guidance	**6b, 6c**
B3	Be willing to learn new skills and to adapt in the light of experience	**6c**
B4	Know one's limitations and when to ask for help or escalate	**2b**
B5	Work independently when appropriate and take responsibility for and pride in their work	**2b**
B6	Demonstrate a positive approach to problem solving	**1c**
B7	Show an ability to contribute to discussions as part of a team	**6b**

Note: This section is only for candidates on CET version 1.0: Earliest start date: 14/07/2017, Latest start date: 13/07/21

Engineering Technician Attributes

Attribute	Sub Attributes	K	S	B
Understanding and Practical Application of Engineering	a) Use appropriate scientific, technical, or engineering principles b) Review and select appropriate techniques, procedures, and methods to undertake tasks c) Identify problems and apply appropriate methods to identify causes and achieve satisfactory solutions	**1, 2**	**1, 2**	**6**
Management and Leadership	a) Identify tasks and organise resources to complete them effectively b) Work reliably and accept responsibility for their work or the work of others c) Complete tasks with due consideration for quality	**3**	**3**	**4, 5**
Commercial Ability	a) Identify, organise, and use resources with consideration of cost		**2**	
Health, Safety and Welfare	a) Understand the safety implications of the role b) Complete tasks with due consideration for safety c) Comply with safe systems of work	**6**	**5**	**1**
Sustainable Development	a) Understand the principles of sustainable development and apply them in work b) Complete tasks with consideration for their environmental impact	**7**		
Interpersonal Skills and Communications	a) Communicate effectively with others, at all levels, in English[2] b) Work effectively with colleagues, clients, suppliers, or the public c) Demonstrate personal and social skills d) Demonstrate awareness of diversity and inclusion e)	**4, 8**	**4**	**2, 3, 7**
Professional Commitment	a) Understand and comply with the ICE Code of Conduct b) Understand the ethical issues that may arise in their role and carry out their responsibilities in an ethical manner c) Carry out and record the Continuing Professional Development (CPD) necessary to maintain and enhance competence in their own area of practice	**5**	**6**	

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Institution of Civil Engineers

Membership

Civil Engineering Technician Apprenticeship Level 3 (Version 1.1)

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Level 3 Civil Engineering Technician Apprenticeship

Knowledge

Civil Engineering Technician Apprenticeship		EngTech MICE Attributes
K1	Appropriate engineering principles, underpinned by appropriate mathematical, scientific and technical knowledge and understanding, relating to civil engineeringand the construction process	**1a**
K2	Appropriate civil engineering techniques and methods used to design, build and maintain infrastructure and buildings, the standards, contracts and specifications used, and their impact on the construction process	**1b**
K3	Key principles, techniques and methods of data and technical information collection, analysis and evaluation used in delivering civil engineering models, designs, and technical solution	**1a, 1b**
K4	Technical drawings, modelling and designs, using computer-based software packages, such as Computer Aided Design (CAD) or Building Information Modelling (BIM), and their use in the sector	**1b**
K5	Statutory health, safety and welfare policies, procedures, and regulations, including risk management, in relation to civil engineering project delivery	**4a**
K6	Industry policies, standards, regulations and codes of practice, such as Common Safety Method (CSM), Construction Design and Management (CDM) or Design Manual for Roads and Bridges (DMRB), that must be adhered to in the civil engineering environment	**1b**
K7	Environmental policies and the principles of sustainable development, including those relating to the United Nations Sustainable Development Goals (SDG) and net-zero carbon emissions, and their impact on the civil engineering projects	**5a**
K8	Understanding of equality, diversity and inclusion, and its impact on civil engineering solutions	**6d**
K9	Project management, quality management and assurance systems and continuous improvement as applied to civil engineering	**2c**
K10	Methods of communication and when to use them, including how to write technical reports and using appropriate engineering terminology and conventions	**6a**
K11	Ethical principles as applied to civil engineering and the security of data and information	**7b**
K12	The values and standards by which they maintain their personal, professional and technical knowledge and skills through initial professional development (IPD) and continuing professional development (CPD)	**7c**

Skills

Civil Engineering Technician Apprenticeship		EngTech MICE Attributes
S1	Apply appropriate civil engineering principles, techniques, and methods, including mathematical, scientific, and technical know-how, to civil engineering and the construction process	**1a, 1b**
S2	Apply key principles, techniques and methods of data and technical information collection, analysis, and evaluation to support the delivery of civil engineering models, designs, and technical solutions	**1a, 1b**
S3	Operate appropriate software packages for data gathering and analysis, such as Computer Aided Design (CAD) or Building Information Modelling (BIM), to create technical drawings, models and designs using relevant conventions and engineering terminology	**1a**
S4	Apply statutory health, safety and welfare policies, procedures, and regulations in the civil engineering environment, using risk management processes, procedures, and documentation	**4a, 4b, 4c**
S5	Support and contribute to the production or modification of civil engineering technical solutions in accordance with relevant industry standards, regulations, and procedures and codes of practice	**1c**
S6	Apply environmental policies and sustainable principles in civil engineering projects, recognising the need to reduce carbon use, lower emissions and plan for wider sustainability	**5b**
S7	Plan, carry out and manage own work in line with quality assurance, recognising the wider implications to customer needs, and within cost and resource limitations	**2a (part), 3a**
S8	Consider equality, diversity and inclusion in the delivery of civil engineering projects	**6d**
S9	Apply document control processes and procedures using the approved processes, maintaining quality compliance when creating or amending engineering documentation	**2c**
S10	Communicate using appropriate methods for the audience, and incorporate relevant and appropriate terms, standards, and data	**6a**
S11	Apply ethical principles to civil engineering projects, including the secure use of data and information	**7b**
S12	Plan, undertake and review their own professional competence, regularly updating and reviewing their CPD to improve performance	**7c**

Behaviours

Civil Engineering Technician Apprenticeship		EngTech MICE Attributes
B1	Comply with health, safety and welfare requirements, industry standards, statutory regulations, policies and codes of practice	**4a, 4b, 4c**
B2	Work independently, operating in a systematic, proactive, and transparent way, using resources effectively to complete tasks, knowing their limitations and when to ask for support or escalate	**2b**
B3	Applies a structured approach to problem solving with attention to detail, accuracy, and diligence	**1c**
B4	Is motivated when collaborating in teams, offering sensible challenge, reflects on and provides constructive feedback and contributes to discussions	**6b, 6c**
B5	Maintains professional and ethical working relationships with internal, external, and connected stakeholders	**7a(part), 7b**
B6	Takes responsibility for their own professional development, seeking opportunities to enhance their knowledge, skills, and experience	**7c**

Engineering Technician Attributes

Attribute	Sub Attributes	K	S	B
Understanding and Practical Application of Engineering	d) Use appropriate scientific, technical, or engineering principles e) Review and select appropriate techniques, procedures, and methods to undertake tasks f) Identify problems and apply appropriate methods to identify causes and achieve satisfactory solutions	**1, 2, 3, 4**	**1, 2, 3, 5**	**3**
Management and Leadership	d) Identify tasks and organise resources to complete them effectively e) Work reliably and accept responsibility for their work or the work of others f) Complete tasks with due consideration for quality	**9**	**7, 9**	**2**
Commercial Ability	b) Identify, organise, and use resources with consideration of cost		**7**	
Health, Safety and Welfare	d) Understand the safety implications of the role e) Complete tasks with due consideration for safety f) Comply with safe systems of work	**5,**	**4**	**1**
Sustainable Development	c) Understand the principles of sustainable development and apply them in work d) Complete tasks with consideration for their environmental impact	**7**	**6**	
Interpersonal Skills and Communications	f) Communicate effectively with others, at all levels, in English[2] g) Work effectively with colleagues, clients, suppliers, or the public h) Demonstrate personal and social skills i) Demonstrate awareness of diversity and inclusion	**8**	**6, 10**	**4**
Professional Commitment	d) Understand and comply with the ICE Code of Conduct e) Understand the ethical issues that may arise in their role and carry out their responsibilities in an ethical manner f) Carry out and record the Continuing Professional Development (CPD) necessary to maintain and enhance competence in their own area of practice	**11, 12**	**11, 12**	**5, 6**

Our vision

Civil engineers at the heart of society, delivering sustainable development through knowledge, skills and professional expertise.

Core purpose

- **To develop and qualify professionals engaged in civil engineering**
- **To exchange knowledge and best practice for the creation of a sustainable and built environment**
- **To promote our contribution to society worldwide**

Diversity statement

As a membership organisation and an employer, we value diversity and inclusion - a foundation for great engineering achievement

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