



Skills England

Standard Draft Preview

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Standard in development L3: Digital engineering technician Version 2.0

Title of occupation

Digital engineering technician

UOS reference number

ST0266

Core and options

No

Level of occupation

Level 3

Occupational maps data

Route: Construction and the built environment

Pathway: Design, Surveying & Planning

Cluster: Design and surveying technician

Typical duration of apprenticeship

36 months

Resubmission

No

Would your proposed apprenticeship standard replace and existing framework?

No

Does professional recognition exist for the occupation?

No

Regulated occupation

Is this a statutory regulated occupation?

No

Occupational summary

This occupation is typically found in construction and the built environment sector. Digital engineering technicians could be employed by construction companies, architectural firms, engineering consultants, government agencies, property developers in addition to manufacturing such as those involved in prefabricated construction or off site manufacturing.

Digital engineers can work on a variety of projects including, buildings both residential, commercial and industrial buildings. Infrastructure such as road, bridges, railways and other transportation systems. Along with areas within the utilities sector.

Any organisation involved in the design, construction, or management of physical assets can benefit from the skills of a digital engineering technician. As the adoption of digital technologies in the built environment continues to grow, the demand for these professionals is likely to increase across various sectors.

The broad purpose of a digital engineering technician is to optimise the performance of built environment projects by using digital tools and techniques. This involves creating and managing digital models, visualisations, and data throughout the entire lifecycle of a project, from design and construction to operation and maintenance.

Digital engineering technicians bridge the gap between traditional engineering practices and digital technologies, enabling more efficient, sustainable, and innovative approaches to building and managing the built environment.

The apprentices will typically support digital engineers or other functional specialists in completing complex tasks using digital engineering techniques.

Digital engineering technicians interact with a wide range of people across the lifecycle of a built environment project including internal stakeholders such as, digital engineers, BIM managers, other technicians, engineers, architects, surveyors, information managers and construction managers. They could also interact with external stakeholders such as clients, consultants, contractors, suppliers and regulatory bodies.

A digital engineering technician has a diverse set of responsibilities that contribute to the success of built environment projects. They will create and manage digital models of buildings, infrastructure, or other assets. This includes incorporating architectural, structural and MEP (mechanical, electrical, plumbing) elements. They will produce visualisations and simulations to help stakeholders understand complex engineering concepts. They will need to be aware of techniques to analyse design options for performance, energy efficiency, or constructability. They can be responsible for ensuring data accuracy, consistency, and accessibility throughout the project lifecycle. This includes organising and maintaining project data, managing revisions, and ensuring compliance with standards.

A digital engineering technician will collaborate with engineers, architects and other professionals to integrate digital tools and workflows into project delivery.

Typical job titles

Digital design technician

Digital engineering technician

Are there any statutory / regulatory or other typical entry requirements?

No

Occupation duties

DUTY	KSBS
Duty 1 Comply with health and safety legislation and obligations along with organisational requirements, to protect your and others health, safety and wellbeing.	K1 K2 K3 K33 K35 S1 S2 S23 B1 B2
Duty 2 Comply with all relevant industry standards, legislation, compliance obligations, and organisational policies, plans and processes.	K1 K4 K6 K15 K17 K33 K35 S3 S5 S10 S12 S23 B2 B3 B4 B5
Duty 3 Promote sustainable practices and minimise environmental impact in digital engineering operations.	K4 K5 K33 S3 S4 S23 B2
Duty 4 Plan, organise and manage digital engineering activities in ways which use resources in consideration of cost, quality, time, safety, security and society.	K8 K9 K10 K11 K15 K16 K17 K26 K27 K30 K31 S7 S8 S10 S11 S12 S20 B4 B5 B6
Duty 5 Use quality and information management and assurance systems and processes, for example BS EN ISO 19650, recognising the need for these and their role in continuous improvement.	K20 K21 K22 K23 K25 K26 K31 K32 S15 S16 S17 S19 S20 S21 S22
Duty 6 Develop project information models, evaluate the quality of the generated data, and report any discrepancies.	K12 K20 K21 K22 K23 K24 K26 K31 K32 S15 S16 S17 S18 S20 S21 S22
Duty 7 Collect, analyse and interpret data to produce and coordinate digital models using industry specific software and tools.	K12 K15 K20 K23 K24 K29 K31 K32 S10 S15 S17 S18 S21 S22
Duty 8 Support the implementation of model coordination and mobilisation plans.	K21 K23 K24 K26 K27 K32 S16 S17 S18 S20 S22
Duty 9 Organising, measuring and managing project data throughout the life cycle.	K9 K16 K20 K21 K27 K28 K30 K31 K32

	S11 S15 S16 S21 S22
Duty 10 Contribute to delivering activities and projects in support of the organisation's digital strategies.	K7 K9 K12 K13 K14 K15 K17 K31 K32 K34 S6 S9 S10 S12 S16 S22 S24 B7
Duty 11 Integrate technology and innovation throughout the lifecycle of the project.	K7 K9 K15 K21 K22 K25 K26 K28 K29 K30 S6 S10 S16 S19 S20
Duty 12 Maintain information records utilising the relevant standards and technology.	K11 K15 K16 K19 K22 K26 K27 K28 K29 K32 S8 S10 S11 S14 S20 S22 B6
Duty 13 Work collaboratively and support others to meet stakeholder and quality requirements.	K8 K13 K14 K17 K18 K19 K27 K31 K33 K34 K35 S7 S9 S12 S13 S14 S21 S23 S24 B2 B3 B4 B5 B6 B7

KSBs

Knowledge

K1: Health and safety regulations and procedures, relevant to the industry, occupation and responsibilities.

K2: The implications of poor health, safety and welfare performance.

K3: Principles and techniques of identifying, recording and tracking health and safety risks to safe working practices.

K4: Environmental and sustainability regulations, legislation, standards and guidance.

K5: Sustainability principles and techniques.

K6: Engineering regulations, legislation, codes, standards, policies and strategies that impact the industry and support the delivery of operational requirements.

K7: Established and emerging technology within the industry.

- K8:** Planning, prioritising, work scheduling and time management techniques.
- K9:** The life cycle of construction project and how this relates to digital engineering.
- K10:** Financial and contractual obligations in construction projects.
- K11:** Principles and techniques of quantification and costings within a digital environment.
- K12:** Design Process: Principles, practices and management.
- K13:** Roles and responsibilities within the construction industry, how they relate to one another and where your organisation sits.
- K14:** The purpose of their role within the organisation, including their level of responsibility, accountability and when to escalate tasks and issues and to whom.
- K15:** Information technology and digital systems used to support digital engineering operations. General data protection regulation (GDPR). Cyber security.
- K16:** Quality assurance procedures and monitoring processes during the life cycle of the built asset.
- K17:** Organisational and client objectives, requirements and value; Service Level Agreements (SLAs) and Key performance indicators (KPI's).
- K18:** Collaborative working techniques with internal and external stakeholders including own team members and the exchanging of information.
- K19:** Verbal and written communication techniques. Giving and receiving information. Adapting style to audience. Plain English principles. Barriers in communication and how to overcome them. Specific terminology
- K20:** Types, quality and ethical data analysis techniques.
- K21:** Principles of ISO 19650 – managing information with building information modelling (BIM) including BIM execution plans (BEP), capability and capacity assessment (CCA), master information delivery plan (MIDPs) and Task information delivery plans (TIDPs).
- K22:** Information and documentation for open-format information exchange for example Industry foundation class (IFC), construction organisation building information exchange (COBie).
- K23:** Principles of model federation and clash detection.
- K24:** Principles and practices of digital information model checks and data validation.
- K25:** Principles and practices of a common data environment (CDE).
- K26:** 3D, 4D (time) and 5D (cost) modelling: Principles, benefits, practices and techniques.
- K27:** Principles and techniques of reality capture technology and data. Photogrammetry, drones, laser scanning, GPR, LIDAR, Point cloud (data).

K28: Public source data: Ordinance Survey data, open maps. national LIDAR programme. National Underground Asset Register (NUAR).

K29: Asset legacy information: how it is obtained and managed.

K30: Principles of developing information to support management of the asset throughout the whole lifecycle.

K31: Problem solving tools and techniques.

K32: Methods of interpreting and extracting information for example health and safety information, manufacturer's instructions, drawings, plans, specifications or reports.

K33: Principles of equity, diversity, and inclusion in the workplace. Unconscious bias.

K34: Sources of continuing professional development (planned and unplanned) and recording methods.

K35: Personal wellbeing and mental health awareness.

Skills

S1: Follow health and safety regulations and procedures.

S2: Identify, health and safety risks to safe working practices.

S3: Comply with environmental and sustainability regulations, standards and guidance.

S4: Apply sustainable principles and techniques.

S5: Comply with engineering regulations, legislation, codes, policies, standards and strategies.

S6: Assist in applying engineering principles by using established and emerging technologies.

S7: Plan and prioritise own work in line with agreed time allowances.

S8: Prepare schedules and reports, for example quantity take offs.

S9: Recognise limitations of their role, seek input from others and escalate issues when required.

S10: Use information technology and digital systems. Comply with GDPR and cyber security regulations and policies.

S11: Apply quality assurance procedures and monitoring processes of your own work within the digital asset.

S12: Manage and comply with objectives, requirements and value including Service Level Agreements (SLAs) and Key performance indicators (KPI's).

S13: Work collaboratively with internal and external stakeholders and as part of a team.

S14: Communicate with internal and external stakeholders using sector specific terminology through verbal and written means.

S15: Analyse and report different types of data according to its qualities.

S16: Input to the development of a BIM execution plan (BEP) and capability and capacity assessments.

S17: Federate building information model and carry out clash detection.

S18: Apply techniques to carry out digital information model checks and data validation.

S19: Apply the principles and practices of a common data environment (CDE).

S20: Produce 3D modelling as required within an organisational project In line with BEP requirements.

S21: Apply problem solving techniques, identifying issues. Propose solutions to problems.

S22: Extract and interpret information from sources.

S23: Apply and promote policies and practices to support equity, diversity and inclusion.

S24: Plan and undertake Continued Professional Development (CPD) to meet personal and organisational development. Evaluate CPD outcomes against any plans made.

Behaviours

B1: Take responsibility for own obligations for health, safety and welfare issues.

B2: Act professionally, considers their organisation's operational, ethical, safety and sustainability priorities.

B3: Contributes to equity, diversity, and inclusivity workplace culture.

B4: Recognise limitations, seek input from others and escalate issues when required.

B5: Collaborate within teams, across disciplines and with internal and external stakeholders.

B6: Respond and adapt to work demands and situations.

B7: Committed to maintaining and enhancing competence of self through continued professional development (CPD).

Qualifications

English and maths

English and maths qualifications must be completed in line with the apprenticeship funding rules.

Does the apprenticeship need to include any mandated qualifications in addition to the above-mentioned English and maths qualifications?

No

Consultation

Consultation has taken place within the trailblazer group along with apprenticeship standard anonymised peer reviewer. Feedback from the peer review has been very positive, and highlights where sustainability, emerging technologies, the digital environment, information exchange and BIM, to name a few areas have been addressed. Comments regarding progression opportunities been highlighted within the document.

Progression routes

ST0043 Construction design and build technician - v1.1 L4

ST0762 Information manager L4

ST0044 Design and construction management (degree) L6

Supporting uploads

Mandatory qualification uploads

Mandated degree evidence uploads

Professional body confirmation uploads

Subject sector area

5.1 Architecture