DIGITAL ENGINEERING TECHNICIAN
Trailblazer Apprenticeship Standard
January 2015

1. Occupation
The occupation covered by this standard is associated with the built environment where an apprentice will perform the role of **Digital Engineering Technician**.

2. Occupational profile
The role is to produce detailed solutions to achieve the optimum performance of built environment projects via digital models and presentations using software, sketches and electronic visualisations. The apprentices will typically support Digital Engineers or other functional specialists in completing complex tasks using digital engineering techniques, specifically:

- virtualisation and simulation of design, construction and management of assets.
- digital measurement of design, production and management of assets.
- communication of complex engineering principles to stakeholders digitally.
- integration of construction data and information throughout the whole lifecycle of the asset.
- adherence to the standards and regulation of digital information.

3. Duration
Typically 36 months

4. Entry requirements
The typical entry requirements for this Apprenticeship will be five GCSEs or equivalent, including Maths and English; or a Level 2 Apprenticeship. Employers have their own specific entry requirements.

5. Qualifications
The following qualifications will be gained:
- English and Maths will be required to be demonstrated at Level 2;
- BTEC Level 3 Construction and the Built Environment (to be updated);
- NVQ Level 3 Diploma in Built Environment Design (to be updated).

6. Progression and Professional Registration/Membership
Progression from the Level 3 Apprenticeship could lead to Construction Design Manager, Construction Quantity Surveyor, Construction Site Manager, and Civil Engineering Site Manager. This standard has been designed to deliver sufficient competence, underpinning knowledge and understanding in the identified job role to allow apprentices to meet the requirements of the Construction Skills Certification Scheme (CSCS) or other industry affiliated schemes.

7. Link to professional registration
This Apprenticeship will include the knowledge, skills and behaviours required to achieve Technician/Associate status through the following professional institutions. The professional review process is included in the assessment process for this Apprenticeship. The options are:

- Associate Construction Manager (ACIOB) - The Chartered Institute of Building
- Civil Engineering Technician (EngTech TMICE)- The Institution of Civil Engineers
- Technician Surveyor (AssocRICS)– The Royal Institution of Chartered Surveyors
- Building Services Engineering Technician (EngTech LCIBSE) - The Chartered Institution of Building Services Engineers
- Associate Technician (AIET) – The Institution of Engineering and Technology

8. Level & Review date
This apprenticeship standard is at Level 3 and the apprenticeship standard should be reviewed two years after approval of the standard.

9. Requirements: Knowledge, Skills, Behaviours

Knowledge	What is required
Health and Safety	Aware of Health and Safety (H&S) industry regulations and moral, legal and financial implications of poor H&S performance. Know how to identify basic H&S outputs digitally.
Sustainability	Understand the sustainability issues in projects across economic, social, legal and environmental aspects
Engineering	Know how engineering principles, codes and standards work in the built environment and the purpose of them. Understand various management principles and the project management lifecycle – specifications, methods and materials
Commercial & Financial	Aware of principles of the commercial procedures and reporting on all stages of construction project and an appreciation of commercial risk. Aware of financial and legal obligations and constraints for all stakeholders in construction projects. Understanding of quantification and costing within a digital environment.
Design	Understand how proposals for design briefs, recommendations, programmes and detailed designs are prepared. Aware of the purpose of the digital environment and its role in design management. Understanding of different disciplines and their role in coordination of design
Technology & Innovation	Aware of the appropriate application of technology and the human to technology interfaces. Understanding the impact of sensory networks and the internet of things.
Planning	Understand the importance of project planning and resourcing and be able to

	analyse different digital engineering (DE) techniques, such as simulation of construction logistics and progress.
Quality	Understand how to identify the level of quality required delivering a built asset throughout the lifecycle.
Construction Industry and Sectors	Aware of the structure of the construction industry and its respective sectors. Understanding of the institutions and how the construction industry serves the economy as a whole.
Customer Care	Awareness of DE objectives set by Clients and Employers.
Maintain and operate	Aware of the information interdependencies of delivering information throughout a product / asset lifecycle. Understanding the purpose of information standards and regulation.
Knowledge Sharing	Awareness of social networking and appropriate sources of information / knowledge sharing. Understanding basic research techniques to ensure integrity of knowledge discovery.

	disciplines.
Customer Care	Support the development of stakeholder engagement and carry out a stakeholder presentation, demonstrating the appropriate presentation skills.
Maintain and operate	Demonstrate the ability to move information from project delivery into commissioning and operation through involvement in the handover of digital assets.

Skills	What is required
Health and Safety	Able to identify risk activities and encourage all employees to demonstrate safety-conscious behaviours. Able to extract reports and images for tool-box talks and site-inductions using models and simulations.
Sustainability	Assess, identify and record the environmental impact of project. Using models to demonstrate the reduction of waste to stakeholders.
Engineering	Assist in applying engineering principles by using established and emerging engineering technologies.
Commercial & Financial	Prepare simple commercial schedules and reports demonstrating digital workflows.
Design	Prepare initial design briefs, recommendations, programmes and detailed designs via a digital workflow considering design risks and responsibilities
Technology & Innovation	Assist in the implementation of innovation, contributing to case studies that demonstrate value. Good general IT skills and their application
Planning	Create simple construction simulations and logistic planning using a digital workflow.
Quality	Assess and report on quality standards of the projects via the digital environment.
Construction Industry and Sectors	To identify where the current role ties in to the construction industry. Articulating the respective position in the construction sector and highlighting how it integrates with other sectors /

Behaviours	What is required
Professional Judgement	Be able to work within own level of competence and know when to seek advice from others and work on own initiative
Commitment to code of ethics	Work within rules and regulations of professional competence and conduct. Gain the trust of both team members and the management team.
Personal and Continuing Professional Development	Identify own development needs and acts to meet those needs. Use own knowledge and expertise to help others when requested. Understands role in the team, constantly seek opportunities to improve own work and maximize efficiency.
Commitment to Equality and Diversity	Understand the importance of equality and diversity and demonstrate these attributes so as to meet the requirements of fairness at work.
Effective Communication	Contribute to effective meetings and present information in a variety of ways including oral and written. Adaptable with the confidence to facilitate meetings with stakeholders.
Work in Teams	Work with others and demonstrating collaborative behaviours.
Innovation and commitment	Focus on areas for process improvement and learn from innovative solutions. Challenge current practice and be open minded about how to improve and implement a new way of working
Collaboration	Understand the existence of team dynamics and application of personal strengths and weaknesses in group situations. Awareness of collaborative frameworks and contract / organisational level of collaboration.
Personal Effectiveness	Understand personal strengths and weaknesses and show development of personal effectiveness.