

Title:	Modern Technologies in the Construction Industry
Level:	2
Credit Value:	4
GLH	32
Unique Reference Number:	A/618/0799
Aim:	The aim of this unit is to provide the learner with an understanding of the new technologies that are entering the industry and how they will support future delivery.
Assessment	This unit is internally assessed through the completion of the NOCN assignment and internally and externally quality assured. The NOCN assignment guidance has been produced and should be used to evidence all learning outcomes.
Learning outcomes <i>The learner will:</i>	
1. Understand what Building Information Modelling is and how it supports the construction industry.	
Delivery Content: The aim of this learning outcome is to provide the learner with knowledge of Building Information Modelling (BIM), how it underpins other emerging technologies, and supports delivery of construction projects. The learner must know: <ul style="list-style-type: none"> • about the elements that make up building information modelling. • how BIM supports collaborative working through the design and construction stages of a project. • about BIM levels and dimensions. • how the BIM model is developed and used. • how BIM can underpin other new technologies. • the benefits offered by BIM. • how BIM can support sustainability. • how BIM can support the end user. 	
2. Know about the use of unmanned aerial vehicles in construction.	
Delivery Content: The aim of this learning outcome is to provide the learner with the knowledge of the use of unmanned aerial vehicles (UAV). The learner must: <ul style="list-style-type: none"> • be able to identify the types of unmanned aerial vehicles. • know the types of work that can be carried out by a UAV. • know about LIDAR and Point Cloud Imaging. • know how UAVs support surveying and project progression. 	
3. Know about the use of robotics in construction.	
Delivery Content: The aim of this learning outcome is to provide the learner with an understanding of the use of robotics in construction.	

<p>The learner must know the:</p> <ul style="list-style-type: none"> • benefits offered by robotics to the construction industry. • types of tasks that can be undertaken by robots. • types of roles that can support the delivery of robotic work.
<p>4. Know about the use of virtual and augmented reality in the construction.</p>
<p>Delivery Content:</p> <p>The aim of this learning outcome is to provide the learner with an understanding of the use of Augmented and Virtual Reality (AR/VR) in construction.</p> <p>The learner must:</p> <ul style="list-style-type: none"> • know the way the construction industry can use AR/VR. • be able to differentiate between AR and VR. • identify appropriate uses for AR and VR. • know the benefits AR and VR can offer a construction project.
<p>5. Know about the benefits offered by exoskeletons in construction.</p>
<p>Delivery Content:</p> <p>The aim of this learning outcome is to provide the learners with knowledge of exoskeletons.</p> <p>The learner must know the:</p> <ul style="list-style-type: none"> • types of work that can be undertaken with exoskeletons. • benefits that can be offered to the employer and employee through the use of exoskeletons.
<p>6. Know about the use of offsite manufacturing to the construction industry.</p>
<p>Delivery Content:</p> <p>The aim of this learning outcome is to provide the learner with an understanding of offsite manufacturing.</p> <p>The learner must:</p> <ul style="list-style-type: none"> • understand what is meant by the term offsite manufacturing. • identify the benefits that offsite manufacturing offers. • identify limitations with offsite manufacturing. • identify the work that takes place offsite and onsite.

Scope of Training

The Scope of Training identifies areas that must be covered during the delivery of this unit. This is the minimum that is expected but tutors are expected to include other areas, knowledge of which will benefit their learners, based on location, types of work available and from the tutors own professional experience. This is a knowledge unit and the expectation are that learners gain an understanding of the areas but not the practical skills required to operate or implement.

The following details the requirements that must be met in order to achieve the learning outcome.

Assessment:			
The Assignment is available from NOCN.			
	Requirements		
Elements	Employer Information Requirements 3D model	BIM Execution Plan Common Data Environment	Product information (COBie etc.)
Types of UAV	Multi-Rotor Drones Fixed-Wing Hybrid VTOL	Fixed-wing Drones	Single Rotor Helicopter
UAV work	Photography Point Cloud Imaging	Surveying Inspection	LIDAR
Robotic tasks	Off-site manufacturing Site inspection	Bricklaying Steel tying	Surfacing
Exoskeleton Work	Lifting	Transporting	Tool-holding