Qualification Specification for:

OCN NI Level 5 Certificate in Digital Prototype Design and Manufacture

➢**Qualification No: 603/4200/6**

Qualification Regulation Information

Qualification Title: OCN NI Level 5 Certificate in Digital Prototype Design and Manufacture

Qualification Number: 603/4200/6

Operational start date: 01 March 2019
Operational end date: 28 February 2026
Certification end date: 28 February 2031

Qualification operational start and end dates indicate the lifecycle of a regulated qualification. The operational end date is the last date by which learners can be registered on a qualification. Learners have up to the certificate end date to complete the qualification and claim their certificate.

All OCN NI regulated qualifications are published to the Register of Regulated Qualifications (**http://register.ofqual.gov.uk/**). This site shows the qualifications and awarding organisations regulated by CCEA Regulation and Ofqual.

OCN NI Contact Details

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Foreword

This document explains OCN NI's requirements for the delivery and assessment of the following regulated qualifications:

→ **OCN NI Level 5 Certificate in Digital Prototype Design and Manufacture**

This specification sets out:

- Qualification features
- Centre requirements for delivering and assessing the qualification
- The structure and content of the qualification
- Assessment requirements for the qualification
- OCN NI's quality assurance arrangements for the qualification
- Administration

OCN NI will notify centres in writing of any major changes to this specification. We will also publish changes on our website at **www.ocnni.org.uk**

This specification is provided online, so the version available on our website is the most up to date publication. It is important to note that copies of the specification that have been downloaded and printed may be different from this authoritative online version.

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About Regulation

OCN NI

Open College Network Northern Ireland (OCN NI) is a regulated Awarding Organisation based in Northern Ireland. OCN NI is regulated by CCEA Regulation to develop and award professional and technical (vocational) qualifications from Entry Level up to and including Level 5 across all sector areas. In addition, OCN NI is regulated by Ofqual to award similar qualification types in England.

All OCN NI regulated qualifications are published to the Register of Regulated Qualifications (**http://register.ofqual.gov.uk/**). This site shows the qualifications and awarding organisations regulated by CCEA Regulation and Ofqual.

The Regulated Qualifications Framework: an overview

The Regulated Qualifications Framework (RQF) was introduced on 1st October 2015: the RQF provides a single framework for all regulated qualifications.

Qualification Level
The level indicates the difficulty and complexity of the knowledge and skills associated with any qualification. There are eight levels (Levels 1-8) supported by three 'entry' levels (Entry 1-3).

Qualification Size
Size refers to the estimated total amount of time it could typically take to study and be assessed for a qualification. Size is expressed in terms of Total Qualification Time (TQT), and the part of that time typically spent being taught or supervised, rather than studying alone, is known as Guided Learning Hours (GLH).

For further information about the RQF see:
https://www.ocnni.org.uk/blog/regulated-qualifications-framework-rqf/

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Qualification Summary

Sector Subject Area

4.2   Manufacturing technologies

This qualification relates to the following National Occupational Standards:

SEMTS207 Producing/modifying engineering CAD models (drawings) using a CAD system - National Occupational Standards (ukstandards.org.uk)

Qualification Aim

The OCN NI Level 5 Certificate in Digital Prototype Design and Manufacture qualification has been designed to enable new learners and existing engineers and technicians to build advanced skills in the development of prototypes and short run manufactures through the use of cutting-edge computer aided design software and 3D printing and/or CNC (Computer Numerical Control) manufacturing processes.

Qualification Objectives

The objectives of the qualification are to enable learners to be able to:

- use a structured process to develop an idea for a prototype design
- create a 3D design from an initial idea or solution
- evaluate and revise a 3D design
- prepare a prototype design for manufacture
- manufacture a prototype

Progression

Progression from the OCN NI Level 5 Certificate in Digital Prototype Design and Manufacture will be to other engineering and design related qualifications.

Grading

Grading for this qualification is Pass/Fail.

Qualification Target Group

The qualification is targeted at individuals who wish to gain an advanced understanding of digital prototype design and manufacture.

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Entry Requirements

There are no formal restrictions on entry. However, learners should be at least 18 years old.

Qualification Support

A Qualification Support pack is available for OCN NI centres within the login area of the OCN NI website (https://www.ocnni.org.uk/my-account/), which includes additional support for teachers, eg planning and assessment templates, guides to best practice, etc.

Delivery Languages

This qualification is available in English only at this time. If you wish to offer the qualification in Welsh or Irish (Gaeilge) then please contact OCN NI who will review demand and provide as appropriate.

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Centre Requirements for Delivering the Qualification

Centre Recognition and Qualification Approval

New and existing OCN NI recognised centres must apply for and be granted approval to deliver the qualification prior to the commencement of delivery.

Centre Staffing

Centres are required to have the following roles in place as a minimum, although a member of staff may hold more than one role*:

- Centre contact
- Programme Co-ordinator
- Tutor
- Assessor
- Internal Verifier

*Note: A person cannot be an internal verifier for their own assessments.

Tutors

Tutors delivering the qualifications should have a minimum of one year's relevant experience.

Assessors

The qualifications are assessed within the centre and are subject to OCN NI's quality assurance processes. Units are achieved through internally set, internally assessed, and internally verified evidence.

Assessors must:
- have a minimum of one year's experience in the area they are assessing
- have direct or related relevant experience in assessment
- assess all assessment tasks and activities

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Internal Verification

OCN NI qualifications must be scrutinised through the centre's internal quality assurance processes as part of the recognised centre agreement with OCN NI. The centre must appoint an experienced and trained centre internal verifier whose responsibility is to act as the internal quality monitor for the verification of the delivery and assessment of the qualifications.

The centre must agree a working model for internal verification with OCN NI prior to delivery of the qualification.

Internal Verifiers must:

- have at least one year's experience in the area they are internally verifying
- attend OCN NI's internal verifier training

Internal verifiers are required to:

- support tutors and assessors
- sample assessments according to the centre's sampling strategy
- ensure tasks are appropriate to the level being assessed
- maintain up-to-date records supporting the verification of assessment and learner achievement

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Structure and Content

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Learners must successfully complete two units for a total of 15 credits.

Total Qualification Time (TQT) for this qualification: 150 hours
Minimum Guided Learning Hours (GLH) for this qualification: 75 hours

Unit Reference Number	OCN NI Unit Code	Unit Title	TQT	Credit Value	Level
D/617/4820	CBE398	Digital Prototype Design	80	8	Five
H/617/4821	CBE399	Digital Prototype Manufacture	70	7	Five

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Unit Details

Title	Digital Prototype Design
Level	Five
Credit Value	8
Guided Learning Hours (GLH)	40
OCN NI Unit Code	CBE398
Unit Reference No	D/617/4820

Unit purpose and aim(s): This unit will enable the learner to be able to use a systematic approach to prototype design.

Learning Outcomes	Assessment Criteria
1. Be able to use a structured process to develop an idea for a prototype design.	1.1. Research appropriate methodologies to develop ideas for a prototype design. 1.2. Select and use an appropriate methodology to analyse a need and generate ideas or solutions to problems that require the production of an item. 1.3. Use an appropriate methodology to evaluate ideas or solutions to problems that require the manufacture of an item. 1.4. Develop pre-design documentation detailing the preferred solution or idea, reasons for selection and associated risks.
2. Be able to create a 3D design from an initial idea or solution.	2.1. Use appropriate software to develop an idea or solution to a problem creating a 3D design.
3. Be able to evaluate and revise a 3D design.	3.1. Use appropriate modelling software to critically evaluate a 3D design identifying possible areas for improvement. 3.2. Refine a 3D design using identified possible improvements.

Assessment Guidance

The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered.

Assessment Method	Definition	Possible Content
Portfolio of evidence	A collection of documents containing work undertaken to be assessed as evidence to meet required skills outcomes OR A collection of documents containing work that shows the learner's progression through the course	Learner notes/written work Learner log/diary Peer notes Record of observation Record of discussion
Practical demonstration/assignment	A practical demonstration of a skill/situation selected by the tutor or by learners, to enable learners to practise and apply skills and knowledge	Record of observation Learner notes/written work Learner log

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Coursework	Research or projects that count towards a learner's final outcome and demonstrate the skills and/or knowledge gained throughout the course	Record of observation Learner notes/written work Tutor notes/record Learner log/diary
E-assessment	The use of information technology to assess learners' work	Electronic portfolio E-tests

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Title	Digital Prototype Manufacture
Level	Five
Credit Value	7
Guided Learning Hours (GLH)	35
OCN NI Unit Code	CBE399
Unit Reference No	H/617/4821

Unit purpose and aim(s): This unit will enable the learner to be able to use appropriate software and equipment to manufacture a prototype.

Learning Outcomes	Assessment Criteria
1. Be able to prepare a prototype design for manufacture.	1.1. Use appropriate software to facilitate the conversion process to transform a 3D design into a format that can be outputted to a Prototype machine. 1.2. Evaluate the transformation process with regard to wastage and cost minimisation.
2. Be able to manufacture a prototype.	2.1. Evaluate potential health and safety issues associated with operating a Prototype machine. 2.2. Develop a set of criteria with which to evaluate a prototype. 2.3. Create a prototype using an appropriate Prototype machine. 2.4. Use criteria developed to evaluate the prototype identifying possible areas for improvement.

Assessment Guidance

The following assessment method/s may be used to ensure all learning outcomes and assessment criteria are fully covered.

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Quality Assurance of Centre Performance

External Verification

All OCN NI recognised centres are subject to External Verification. External verification visits and monitoring activities will be conducted annually to confirm continued compliance with the conditions of recognition, review the centre's risk rating for the qualification and to assure OCN NI of the maintenance of the integrity of the qualification.

The External Verifier will review the delivery and assessment of this qualification. This will include the review of a sample of assessment evidence and evidence of the internal verification of assessment and assessment decisions. This will form the basis of the EV report and will inform OCN NI's annual assessment of centre compliance and risk. The External Verifier is appointed by OCN NI.

Standardisation

As a process, standardisation is designed to ensure consistency and promote good practice in understanding and application of standards. Standardisation events:

- make qualified statements about the level of consistency in assessment across centres delivering a qualification
- make statements on the standard of evidence that is required to meet the assessment criteria for units in a qualification
- make recommendations on assessment practice
- produce advice and guidance for the assessment of units
- identify good practice in assessment and internal verification

Centres offering units of an OCN NI qualification must attend and contribute assessment materials and learner evidence for standardisation events if requested.

OCN NI will notify centres of the nature of sample evidence required for standardisation events (this will include assessment materials, learner evidence and relevant assessor and internal verifier documentation). OCN NI will make standardisation summary reports available and correspond directly with centres regarding event outcomes.

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Administration

Registration

A centre must register learners within 20 working days of commencement of this qualification.

Certification

Certificates will be issued to centres within 20 working days of receipt of correctly completed results marksheets. It is the responsibility of the centre to ensure that certificates received from OCN NI are held securely and distributed to learners promptly and securely.

Charges

OCN NI publishes all up to date qualification fees in its Fees and Invoicing Policy document. Further information can be found on the centre login area of the OCN NI website.

Equality, Fairness and Inclusion

OCN NI has considered the requirements of equalities legislation in developing the specification for this qualification.

For further information and guidance relating to access to fair assessment and the OCN NI Reasonable Adjustments and Special Considerations policies, centres should refer to the OCN NI website.

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