



**QQI**

Quality and Qualifications Ireland  
Dearbhú Cáilíochta agus Cáilíochtaí Éireann

## Component Specification NFQ Level 4

### Precision Measurement 4N2885

#### 1. Component Details

<b>Title</b>	Precision Measurement
<b>Teideal as Gaeilge</b>	Beacht Tomhas
<b>Award Type</b>	Minor
<b>Code</b>	4N2885
<b>Level</b>	4
<b>Credit Value</b>	5
<b>Purpose</b>	The purpose of this award is to equip the learner with the knowledge, skill and competence to carry out a range of precision measurement functions incorporating metric and imperial standards in a machine tool environment whilst working under supervision.
<b>Learning Outcomes</b>	Learners will be able to:  <ol style="list-style-type: none"><li>1 Explain drawing abbreviations, terminologies, conventional representation and the principles of orthographic projection to include the differentiation between first and third angle projection</li><li>2 Outline the purpose of geometric tolerancing to include its role in manufacturing</li><li>3 Explain the importance of correct dimensioning for a range of engineering components measured against a reference datum or feature</li><li>4 Identify the British Standard (BS) and International Organisation for Standardisation (ISO) symbols for geometric tolerancing</li></ol>

- 5 Differentiate between interference and transition fits
- 6 Produce records of a given set of test pieces, using micrometer and digital gauge vernier calipers to within a tolerance of +/-0.05 metric or +/- 0.02 vernier and +/- 0.025 metric or +/- 0.001ins micrometer
- 7 Produce a plan, elevation and end view from an isometric drawing freehand in accordance with BS and ISO drawing standards
- 8 Record a range of drawing interpretations from a range of engineering drawings and self assessment sheets
- 9 Measure a series of components conforming to clearance, interference and transition fits and in accordance with BS/ISO geometric tolerancing standards
- 10 Carry out a range of precision measurements in both imperial and metric dimensions
- 11 Use symbols and charts with BS and ISO standards for tolerancing
- 12 Produce drawings and dimensions in accordance with BS and ISO drawing and dimensioning standards
- 13 Comply with BS and ISO standards for tolerancing when reading and recording symbols.

## Assessment

### General Information

All assessment should be planned in accordance with the programme assessment strategy developed as part of the programme submission for validation. See **Policies and Criteria for Validation of Programmes**. Assessment should be undertaken consistently and reflect current assessment guidelines. See [www.qqi.ie](http://www.qqi.ie).

All FET assessment is criterion referenced. Successful achievement of the award is based on learners attaining the required standards of knowledge, skill or competence consistent with the **minimum intended programme learning outcomes**.

The techniques set out below are considered the optimum approach to assessment for this component. In exceptional circumstances providers may identify alternative assessment techniques through the provider's application for programme

validation which are reliable and valid but which are more appropriate to their context.

Assessment of a number of components may be integrated across programmes for delivery, provided that the learning outcomes of each minor award are assessed.

Group or team work may form part of the assessment, provided each learner's achievement is separately assessed.

All providers are required to submit an assessment plan as part of their application for programme validation. Assessment Plans will include information relating to scheduling and integration of assessment. See current FET validation guidelines at [www.qqi.ie](http://www.qqi.ie).

## Assessment Techniques

In order to demonstrate that they have reached the standards of knowledge, skill and competence identified in all the learning outcomes, learners are required to complete the assessment(s) below.

The assessor is responsible for devising assessment instruments (e.g. project and assignment briefs, examination papers), assessment criteria and mark sheets, consistent with the techniques identified below and QQI's assessment requirements.

Programme validation will require providers to map each learning outcome to its associated assessment technique. All learning outcomes **must** be assessed and achieved in accordance with the **minimum intended module learning outcomes** set out in the validated programme.

Skills Demonstration	50%
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Examination - Theory	50%
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## Description

### Skills Demonstration

*A skills demonstration is used to assess a wide range of practical based learning outcomes including practical skills and knowledge. A skills demonstration will require the learner to complete a task or series of tasks that demonstrate a range of skills.*

### Examination - Theory

*An examination provides a means of assessing a learner's ability to recall and apply knowledge, skills and understanding within a set period of time and under clearly specified conditions.*

*A theory-based examination assesses the ability to recall, apply and understand specific theory and knowledge.*

**Recognition of Prior Learning (RPL)**

To support the development and implementation of RPL with regard to access, granting credit/exemptions and achievement of awards/parts of awards, providers should refer to **QQI's Statutory Guidelines for Quality Assurance**, the **Policies and Criteria for Validation of Programmes** and the **Principles and Operational Guidelines for the Recognition of Prior Learning in Further and Higher Education and Training** available at [www.qqi.ie](http://www.qqi.ie)

**Grading**

Pass	50% - 64%
Merit	65% - 79%
Distinction	80% - 100%

**Specific Validation Requirements**

The provider must have all of the following in place to offer this award:

An appropriate range of analog and digital measuring measurement instruments, micrometers and verniers

1. Access to machine tool equipment
- 2.

**Supporting Documentation**

None

**Access**

To access programmes leading to this award the learner should have reached the standards of knowledge, skill and competence associated with the preceding level of the National Framework of Qualifications. This may have been achieved through a formal qualification or through relevant life and work experience.

**Transfer**

Successful completion of this component award enables the learner to transfer to programmes leading to other certificates where this component is a mandatory or an elective requirement.

**2. FET Award Standards**

QQI award standards are determined within the National Framework of Qualifications (NFQ), <http://www.nfq-qqi.com>. QQI determines standards for the education and training awards that it makes itself and that are made by providers to whom it has delegated authority to make an award. Providers offering programmes leading to QQI awards **must** have their programme(s) validated in accordance with current validation policy (see [www.qqi.ie](http://www.qqi.ie)).

Award standards are designed to be consistent with the NFQ's award classes i.e. major, special purpose, supplemental and minor awards. They are expressed in terms of **learning outcomes** i.e. concise statements of what the learner is expected to know or be able to do in order to achieve a particular award. Learning outcomes for FET awards are contained within the associated specifications:

AWARD CLASS	STANDARDS	AWARDS
Major Award	Certificate Specification	Certificate (Levels 1 to 5) Advanced Certificate (Level 6)
Supplemental Award	Supplemental Specification	Supplemental Certificate (Level 3 to 6)
Special Purpose	Specific Purpose Specification	Specific Purpose Certificate (Levels 3 to 6)
Minor Award	Component Specification	Component Certificate (Levels 1 to 6)

Award standards are thresholds, they describe standards of knowledge, skill or competence to be acquired, and where appropriate, demonstrated, by a learner before an award may be made.

Award standards will be reviewed from time to time as necessary. Minor changes may be made by the QQI executive outside the review cycle where necessary. Changes to standards are published on QQI's website. Providers with validated programmes and providers with delegated authority to make awards are responsible for monitoring relevant standards and making necessary responses to changes.

### 3. FET Credit

Every FET certificate and component specification includes an FET credit value (Table 1). FET credit is quantified in multiples of 5 FET credits (up to 50 hours of learner effort). Learner effort is based on the time taken by typical learners at the level of the award to achieve the learning outcomes for the award. It includes all learning time involved including: guided learning hours, self-directed learning and assessment.

**Table 1: FET Credit Values**

NFQ Level	Major Awards Credit Values	Default Credit Values Minor Awards	Other Permitted Minor Award Credit Values	Special Purpose and Supplemental Award Credit Value Ranges
1	20	5	10	
2	30	5	10	
3	60	10	5,20	>5 and <60
4	90	10	5,15,20	>5 and <90
5	120	15	5,10,30	>5 and <120
6	120	15	5,10,30	>5 and <120

### Guide to Level

Independence is the hallmark of this level. Learning outcomes at this level correspond to a growing sense of responsibility for participating in public life and shaping one's own life. The outcomes at this level would be associated with first-time entry to many occupational sectors.

<b>Strand</b>	<b>Sub-strand</b>	<b>Nature of learning</b>
Knowledge	Breadth	Broad range of knowledge
	Kind	Some theoretical concepts and abstract thinking, with significant depth in some areas
Know How & Skill	Range	Demonstrate a moderate range of practical and cognitive skills and tools
	Selectivity	Select from a range of procedures and apply known solutions to a variety of predictable problems
Competence	Context	Act in familiar and unfamiliar contexts
	Role	Act with considerable amount of responsibility and autonomy
	Learning to Learn	Learn to take responsibility for own learning within a supervised environment
	Insight	Assume partial responsibility for consistency of self-understanding and behaviour

*Extract from 'Determinations for the Outline National Framework of Qualifications': NQAI*