



Higher National Unit specification

General information

Unit title: Orthotics: Ankle Foot Orthotics (SCQF level 7)

Unit code: HE2M 34

Superclass: PE

Publication date: May 2016

Source: Scottish Qualifications Authority

Version: 02

Unit purpose

This Unit is designed to equip Learners with practical skills and knowledge to enable them to understand the manufacture of Ankle Foot Orthoses (AFO).

Learners will gain an understanding of the considerations needed by clinicians to prescribe AFOs. They will develop a rationale to understand the importance of appropriate manufacturing within elements of clinical practice in the area of AFOs in line with COSHH, MHRA regulations, risk assessment, appropriate use of Personal Protective Equipment (PPE) and all necessary health and safety management issues. Throughout this Unit learners must follow appropriate quality assurance procedures.

Outcomes

On successful completion of the Unit the learner will be able to:

- 1 Preparation for manufacture of Ankle Foot Orthotics.
- 2 Identify and understand material properties for Ankle Foot Orthotics.
- 3 Manufacture Ankle Foot Orthotics.

Credit points and level

1 Higher National Unit credit at SCQF level 7: (8 SCQF credit points at SCQF level 7)

Higher National Unit Specification: General information (cont)

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Recommended entry to the Unit

Access to this Unit is at the discretion of the centre.

Core Skills

Achievement of this Unit gives automatic certification of the following Core Skills component:

Complete Core Skill	None
Core Skill component	Critical Thinking at SCQF level 6 Planning and Organising at SCQF level 6

There are also opportunities to develop aspects of Core Skills which are highlighted in the Support Notes of this Unit specification.

Context for delivery

If this Unit is delivered as part of a Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes.

Equality and inclusion

This Unit specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence.

Further advice can be found on our website www.sqa.org.uk/assessmentarrangements.

Higher National Unit specification: Statement of standards

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Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

Where evidence for Outcomes is assessed on a sample basis, the whole of the content listed in the Knowledge and/or Skills section must be taught and available for assessment. Learners should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

Outcome 1

Preparation for manufacture of Ankle Foot Orthotics.

Knowledge and/or Skills

- ◆ Prescription identification
- ◆ Prescription interpretation
- ◆ Materials and tools
- ◆ Orthotic terminology
- ◆ Model preparation
- ◆ Medicine and Healthcare Regulatory Authority (MHRA) regulations
- ◆ Health and safety legislation
- ◆ Quality assurance

Outcome 2

Identify and understand material properties for Ankle Foot Orthotics.

Knowledge and/or Skills

- ◆ Material types — thermoplastics (polypropylene and polyethylene), foams, padding and strap systems
- ◆ Material properties

Outcome 3

Manufacture Ankle Foot Orthotics.

Knowledge and/or Skills

- ◆ Manufacture techniques (including draping and finishing)
- ◆ Machine and hand tool use
- ◆ Material types and properties
- ◆ Quality assurance
- ◆ Medical and Healthcare Regulatory Authority (MHRA)
- ◆ Health and safety legislation

Higher National Unit specification: Statement of standards

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Evidence Requirements

Learners will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

Outcome 1

- ◆ explain the information contained within a prescription for an AFO using appropriate terminology and explain what should be done if the prescription or the model is not fit for the manufacturing process.
- ◆ prepare Model as specified in the prescription.
- ◆ adhere to relevant health and safety procedures, MHRA regulations, quality assurance and line management processes.
- ◆ complete documentation to comply with quality assurance procedures.

Outcome 2

- ◆ identify material types appropriate to prescription.
- ◆ explain the properties of materials key to manufacture, including the advantages and disadvantages of using each type.

Outcome 3

- ◆ demonstrate knowledge of the manufacturing techniques applicable to the manufacturing process required.
- ◆ demonstrate appropriate use of hand tools and machinery need to be used during the manufacturing process.
- ◆ adhere to relevant health and safety procedures, MHRA regulations, quality assurance and line management processes.
- ◆ complete documentation to comply with quality assurance procedures.

Minimum mandatory requirement of four completed AFOs including one incorporating a joint system to different prescriptions.



Higher National Unit Support Notes

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Unit Support Notes are offered as guidance and are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

Guidance on the content and context for this Unit

This Unit is suitable for either trainee technicians studying AFO manufacture or technicians working in an orthotic technical environment within the public or private sectors.

This Unit is designed to enable the learner to produce a body of work that will demonstrate their ability to examine different techniques in the production of AFOs, their construction methods, components and materials. Using them to influence the design and production of both fitting and delivery samples.

This Unit will enable learners to produce finished fit for purpose device/s, which clearly show the production process and development of the device/s.

Learners will investigate various process and production techniques to produce a minimum of four finished devices of which one should incorporate joint system.

Outcome 1 — Preparation for manufacture of Ankle Foot Orthotics

The learner could be given a brief which requires them to produce a thorough investigation on the preparation of various prescriptions for manufacture.

These could include model selection and production, identification and preparation, component selection and identification, materials and tooling required in production processes.

A minimum of six different prescriptions should be prepared by the learner as part of their evaluation.

Notes, sketches, photographs and prescription printouts could be presented in a log/work book for assessment at the end of the Unit.

Higher National Unit Support Notes (cont)

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Outcome 2 — Identify and understand material properties for Ankle Foot Orthotics

The learners are required to research the different types of materials used in the manufacture of AFOs. They may not use all of the materials at their place of work but they should understand these materials properties and explain their method of manufacture. This will allow learners to demonstrate greater flexibility when developing their own skills.

A minimum of three materials should be researched during this Outcome.

Outcome 3 — Manufacture Ankle Foot Orthotics

Learners are required to manufacture a minimum of four completed devices. One of these should incorporate a joint system. These devices should be selected from the devices prepared in Outcome 1. They should incorporate at least two of the materials explored in Outcome 2.

Devices produced could be model/demonstration pieces or prescribed devices finished to a good industry standard, cosmetically pleasing with no obvious flaws. The finished device/s should use appropriate construction methods and materials and be produced to a fit for purpose standard of finish with no obvious faults or flaws.

Learners should show a clear understanding of the chosen materials and techniques and use these appropriately within their finished device/s. Technical notes, prescriptions, profiles and sketches to accompany the final device/s could be presented in a log book.

The log book could be in the form of text and photographs, prescriptions and/or worksheets. The module shall be delivered through a mix of work based placement, classroom learning, practical demonstration and self-study.

The structured delivery shall be over 40 hours supplemented by 40 hours of self-directed study.

It is expected that a reflective log book will be maintained throughout this Unit. (The skill of cast rectification is out with the remit of this Unit)

In Outcome 2, the use of materials may include oven temperature and timings appropriate to material properties.

Learners should have awareness of possible variances in AFO design, outside of the initial AFOs techniques developed so far. These may include reinforcements, use of transfers, different padding styles, ankle joint components.

Higher National Unit Support Notes (cont)

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Guidance on approaches to delivery of this Unit

Whilst this Unit may be taken as a standalone Unit it has been developed as part of the Rehabilitation Technologies HNC and it is recommended that it should be taught and assessed as one of the first Units undertaken by the learner within the orthotics section.

If this Unit is taught as part of the Rehabilitation Technologies HNC opportunities may be taken to link or integrate with other aspects of the Group Award and a thematic approach adopted for both delivery and assessment.

Evaluation could be carried out by learners following either set prescription/s or investigating and researching different materials, processes and production techniques to design and produce a device that is fit for purpose.

Guidance on approaches to assessment of this Unit

Evidence can be generated using different types of assessment. The following are suggestions only. There may be other methods that would be more suitable to learners.

Centres are reminded that prior verification of centre-devised assessments would help to ensure that the national standard is being met. Where learners experience a range of assessment methods, this helps them to develop different skills that should be transferable to work or further and higher education.

Assessment Guidelines

Outcome 1

Evidence of practical performance could be used to verify the learners' capabilities. A log book and check list for the Outcomes could be used to verify learners' Knowledge and/or Skills items in these Outcomes. The assessor could then sign-off the completed assessment check list. The learner should have an awareness of the line management system within their department to be able to raise any design issues with the relevant person.

Outcome 2

Assessment of this Outcome can be carried out by short question and answer questions and also the learner producing materials that can be used in manufacture.

Outcome 3

Evidence of practical performance could be used to verify the learners' abilities. A log book and check list for the Outcomes could be used to verify learners' Knowledge and/or Skills items in these Outcomes. The assessor could then sign-off the completed check list. The learner should have a basic awareness of the line management system within their department to be able to raise any design issues with the relevant person

Higher National Unit Support Notes (cont)

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Opportunities for e-assessment

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by Information and Communication Technology (ICT), such as e-testing or the use of e-portfolios or social software. Centres which wish to use e-assessment must ensure that the national standard is applied to all learner evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. The most up-to-date guidance on the use of e-assessment to support SQA's qualifications is available at www.sqa.org.uk/e-assessment.

Opportunities for developing Core and other essential skills

There are opportunities to develop the core skills of *Communication*, *Problem Solving* and *Working with Others* at SCQF level 5 in this Unit, although no automatic certificate of core skills or core skills components.

This Unit has the Critical Thinking and Planning and Organising components of Problem Solving embedded in it. This means that when learners achieve the Unit, their Core Skills profile will also be updated to show they have achieved Critical Thinking at SCQF level 6 and Planning and Organising at SCQF level 6.

History of changes to Unit

Version	Description of change	Date
02	Core Skills Components Critical Thinking and Planning and Organising at SCQF level 6 embedded.	19/08/16

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General information for learners

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This Unit has been designed as part of the Rehabilitation Technologies HNC but may also be undertaken as a stand-alone Unit for those interested in developing their skills in lower limb orthotics. This Unit will allow you to evaluate and explore a variety of manufacturing techniques, production processes, produce sample devices to fitting using various techniques and complete sample devices to final delivery.

Techniques explored could include forming, draping, component use, tooling and machining.

The assessment for this Unit could be presented in the form of a brief or set prescription from which you will be expected to:

- ◆ evaluate various preparation routes enabling you to produce a thorough investigation on the preparation of various prescriptions for manufacture.
 - These could include model selection and production, identification and preparation, component selection and identification, materials and tooling required in production processes.
- ◆ manufacture a minimum of four samples of prescribed device/s to finished stage from those selected in the preparation process above one of which should incorporate a joint system.
- ◆ device/s produced could be model/demonstration pieces or prescribed devices produced to a good industry standard, cosmetically pleasing and with no obvious flaws. The produced device/s should use appropriate construction methods and materials and be produced to a fit for purpose standard of finish and with no obvious faults or flaws.
- ◆ manufacture of final device/s, which will incorporate at least two of the materials explored and for which samples have been produced to finished stage/s above.
- ◆ device/s produced could be model/demonstration pieces or prescribed devices finished to a good industry standard, cosmetically pleasing and with no obvious flaws. The finished device/s should use appropriate construction methods and materials and be produced to a fit for purpose standard of finish and delivery and with no obvious faults or flaws.

You will be required to follow appropriate quality assurance procedures, safe and considerate working practices in line with COSHH, MHRA regulations, risk assessment, appropriate use of Personal Protective Equipment (PPE) and all necessary health and safety management issues.

This Unit has the Critical Thinking and Planning and Organising components of Problem Solving embedded in it. This means that when you achieve the Unit, your Core Skills profile will also be updated to show you have achieved Critical Thinking at SCQF level 6 and Planning and Organising at SCQF level 6.