



Higher National Unit specification

General information for centres

Unit title: Dental Orthodontics: Fixed Appliance Therapy

Unit code: F43R 35

Unit purpose: The Unit allows the candidate to develop the necessary knowledge and skills in the treatment of fixed appliance therapy and in the techniques of their construction.

On completion of the Unit the candidate should be able to:

- 1 Evaluate the principles used in fixed appliance therapy.
- 2 Explain the design principles of the Edgewise fixed appliance system.
- 3 Construct fixed appliances.

Credit points and level: 2 HN credits at SCQF level 8: (16 SCQF credit points at SCQF level 8*)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Recommended prior knowledge and skills: Although access to this Unit is at the discretion of the centre, it is recommended that the candidate should have completed the HNC in Dental Technology or equivalent so that dental laboratory practice, working to a prescription, treatment planning skills and preparing products to a standard suitable for presentation to a clinical dental professional are established underpinning knowledge and skills. The ability to prepare submissions to a standard format which includes Harvard referencing would also be preferable.

Core Skills: There are opportunities to develop the component 'Written Communication' of the Core Skill Communication at SCQF level 6, and the components 'Planning and Organising', 'Reviewing and Evaluating' and 'Critical Thinking' of the Core Skill Problem Solving at SCQF level 6 in this Unit. There are also opportunities to develop the Core Skill Information Technology at SCQF level 6, and the component 'Using Graphical Information' of the Core Skill Numeracy at SCQF level 6, although there is no automatic certification of Core Skills or Core Skills components.

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.

Assessment: This Unit could be assessed by candidate submissions for Outcomes 1 and 2. Outcome 3 will be assessed by practical tasks.

Higher National Unit specification: statement of standards

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The sections of the Unit stating the Outcomes, Knowledge and/or Skills, and Evidence Requirements are mandatory.

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. Candidates 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

Evaluate the principles used in fixed appliance therapy

Knowledge and/or Skills

- ◆ Tooth movement in fixed appliance therapy
- ◆ Band selection and fabrication
- ◆ Technique of attaching bands to teeth
- ◆ Positioning and attaching brackets and buccal tubes
- ◆ Theory and technique of direct bonding in fixed appliance therapy

Evidence Requirements

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

- ◆ the five potential tooth movements which could occur during fixed appliance therapy: tipping movements; rotational movements; bodily movements; torque movements; vertical movements
- ◆ band selection, fabrication and fitting techniques.
- ◆ the positioning and attaching of brackets and buccal tubes to teeth.
- ◆ the theory and techniques of direct bonding in fixed appliance therapy.
- ◆ four indicators and four contra indications to treatment.

Indications must include poorly defined atrophic ridges; improved retention; stability; efficiency and comfort. Contra-indications must include exposed inferior alveolar canal; close proximity of maxillary antrum to alveolus; infection; and load distribution.

Assessment Guidelines

The underpinning knowledge of this Outcome could be assessed in the form of a candidate submission. Whilst the format the submission takes is left to the discretion of the centre the recommended word count for the submission is 1,000 words or equivalent (excluding appendices and diagrams). The submission may be presented in any suitable way to ensure Disability Discrimination Act (DDA) compliance. Examples of suitable formats are: oral questioning; candidate presentation; candidate report - further details can be found in the Support Notes.

Higher National Unit specification: statement of standards (cont)

Unit title: Dental Orthodontics: Fixed Appliance Therapy

Outcome 2

Explain the design principles of the Edgewise fixed appliance system

Knowledge and/or Skills

- ◆ The Edgewise fixed appliance system
- ◆ The attachment of: brackets; bracket to Archwire; bracket to band; and tube to band
- ◆ Bonding brackets to teeth
- ◆ Archwire fabrication
- ◆ Fixed retainers

Evidence Requirements

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

- ◆ edgewise fixed appliance system
- ◆ process of attaching:
 - brackets
 - bracket to Archwire
 - bracket to band
 - tube to band
- ◆ technique employed in the bonding of brackets to teeth
- ◆ method of Archwire fabrication
- ◆ manufacture of an Edgewise fixed appliance system fixed retainer

Assessment Guidelines

The underpinning knowledge of this Outcome could be assessed in the form of a candidate submission. Whilst the format the submission takes is left to the discretion of the centre the recommended word count for the submission is 1,000 words or equivalent (excluding appendices and diagrams). The submission may be presented in any suitable way to ensure DDA compliance. Examples of suitable formats are: oral questioning; candidate presentation; candidate report - further details can be found in the Support Notes.

Higher National Unit specification: statement of standards (cont)

Unit title: Dental Orthodontics: Fixed Appliance Therapy

Outcome 3

Construct fixed appliances

Knowledge and/or Skills

- ◆ Construction skills for fixed appliances

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can work to a clinical prescription to:

- ◆ fabricate, position and fit the components for one Quadhelix appliance.
- ◆ trim and polish one Quadhelix appliance.
- ◆ fabricate, position and fit the components for one transpalatal arch.
- ◆ trim and polish one transpalatal arch.
- ◆ fabricate, position and fit the components for one nance appliance.
- ◆ trim and polish one nance appliance.

The appliances should be finished to an accuracy ready for delivery to the clinical dental professional. These practical tasks must be carried out within a dental laboratory setting.

Assessment Guidelines

The assessment of this Outcome will be in the form of practical tasks involving the candidate in the production of three fixed appliances, identified within the Evidence Requirements, to a prescription.

Administrative Information

Unit code: F43R 35

Unit title: Dental Orthodontics: Fixed Appliance Therapy

Superclass category: PF

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Higher National Unit specification: support notes

Unit title: Dental Orthodontics: Fixed Appliance Therapy

This part of the Unit specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 80 hours.

Guidance on the content and context for this Unit

This Unit is designed to allow candidates to develop the knowledge, understanding, and skills required in the treatment of fixed appliance therapy and in the techniques of their construction.

It is envisaged that this Unit could be delivered through lecturer-mediated discussion, practical demonstrations and the reading of recommended texts.

Outcome 1

In this Outcome candidates will become familiar with:

- ◆ types of tooth movement that take place during orthodontic treatment such as: tipping; rotation; body; torque; vertical.
- ◆ the principal components of fixed appliances: attachments; archwires; and auxiliaries.
- ◆ the procedure for band selection, fabrication and attachment techniques.
- ◆ the positioning and attachment of: brackets and tubes; buttons and cleats.
- ◆ the technique of direct bonding of fixed appliances.

Outcome 2

This Outcome looks at:

- ◆ the theory of the Edgewise fixed appliance
- ◆ how to attach: brackets; brackets to archwire; bracket to band; and tube to band
- ◆ the fabrication of the archwire and how to fix retainers

Outcome 3

In this Outcome candidates will demonstrate competence in constructing three fixed appliances. All appliances should be finished accurately for delivery. The fixed appliances are: Quadhelix; transpalatal arch; and nance appliance.

Guidance on the delivery and assessment of this Unit

This Unit is likely to form part of a Group Award designed to provide candidates with technical and professional knowledge and skills for employment within a dental technology environment. It is envisaged that this Unit could be delivered through lecturer-mediated discussion, practical demonstrations, reading of recommended texts and professional peer-review journals.

Higher National Unit specification: support notes (cont)

Unit title: Dental Orthodontics: Fixed Appliance Therapy

This Unit offers the opportunity to introduce the candidates to self and peer assessment as a formative assessment method. Such an initiative, as well as providing both the candidate and the centre with an indication of candidate progress, will also help in the development of the candidate's critical skills. A possible example would be to ask the candidates to develop quality criteria for the fixed appliances being constructed in Outcome 3 as a group work activity, evaluate their own performance and that of a peer against this agreed set of criteria.

Outcomes 1 and 2 could be assessed by candidate submissions. Whilst the format the submission takes is left to the discretion of the centre the author would recommend that such each submission be the equivalent to 1,000 words (excluding appendices and diagrams). Examples of possible submission types are:

Oral Questioning

The underpinning knowledge and skills could be assessed using the form of oral questioning. The centre would need to develop a bank of suitable questions of equal reliability and validity to ensure that each candidate is assessed appropriately ensuring coverage of all underpinning knowledge. If this format is selected careful consideration is required in relation to venue, etc. The author would suggest that such a format would require to be carried out in time-controlled conditions.

Candidate Presentation

A candidate presentation could take the form of an oral presentation by the candidate to their peers and teaching staff. Such a submission would need time to be prepared and therefore careful consideration will need to be given as to when the assessment is given to the candidate to allow time for research and preparation. The candidate may use presentation software such as PowerPoint to aid the presentation delivery but this is not essential. The candidate may opt to produce and talk to a handout supplied to the group. Using such software could give the candidate the opportunity to develop the Core Skill of Information Technology.

Candidate Report

A candidate report may be presented in a variety of suitable ways: oral, written or signed. The author would suggest that if a candidate report is selected as the chosen assessment format that this should have a conventional structure ie title page; table of contents; introduction; report body; conclusion(s); reference list. Such a submission would need time to be prepared and therefore careful consideration will need to be given as to when the assessment is given to the candidate to allow time for research and preparation.

The assessment of Outcome 3 will be in the form of practical tasks involving the candidate in the production of three fixed appliances, to a given prescription. These practical tasks should be carried out within a dental laboratory setting.

Higher National Unit specification: support notes (cont)

Unit title: Dental Orthodontics: Fixed Appliance Therapy

Opportunities for developing Core Skills

In completing the class work of Outcomes 1 and 2 candidates may have the opportunity to develop the component 'Written Communication' of the Core Skill Communication at SCQF level 6. Candidates may have the opportunity to analyse and evaluate complex information from a variety of dental literature sources. The general skill that the candidate may have to complete is 'Read and understand complex written communication'.

If the candidates produce a report for Outcomes 1 and 2, they will have the opportunity to develop the component 'Written Communication' of the Core Skill Communication at SCQF level 6. Candidates may have to structure their report, which could include complex vocabulary, accurately and using a logical structure. The general skill that candidates may have to complete is 'Produce well-structured written communication on complex topics'.

If the candidate produces a report for Outcomes 1 and 2 there is the opportunity for the candidate to develop the Core Skill Information Technology at SCQF level 6. Candidates could carry out searches of information databases while carrying out research for the report.

There is also the opportunity for the candidate to develop the components 'Planning and Organising' and 'Reviewing and Evaluating' of the Core Skill Problem Solving at SCQF level 6 while completing the class work for Outcome 3. In this Outcome the candidate will construct three complex pieces of practical work that will require the candidate to organise, plan and review the procedures involved in the task.

There is the opportunity for the candidate to develop the component 'Critical Thinking' of the Core Skill Problem Solving at SCQF level 6 while completing the Evidence Requirements for Outcomes 1 and 2. The candidate may be required to analyse and evaluate complex information, explaining the use and types of complex partial denture design. The general skill that candidates may have to complete is 'Analyse a complex situation or issue'.

There is the opportunity to develop the component 'Using Graphical Information' of the Core Skill Numeracy at SCQF level 6. When constructing the three fixed appliances required in Outcome 3, candidates will have to interpret complex data presented in graphical form from numerous dental material manufacturers. The general skill that candidates may have to complete is 'Apply a wide range of graphical skills to interpret and present complex information in generalised contexts'.

Open learning

This Unit could be delivered by distance learning, which may incorporate some degree of online support. With regard to assessment, planning would be required by the centre to ensure the sufficiency and authenticity of the candidate evidence. Outcome 3 requires to be assessed within a dental laboratory setting.

Higher National Unit specification: support notes (cont)

Unit title: Dental Orthodontics: Fixed Appliance Therapy

Candidates with disabilities and/or additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering alternative Outcomes for Units. Further advice can be found in the SQA document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs* (www.sqa.org.uk).

General information for candidates

Unit title: Dental Orthodontics: Fixed Appliance Therapy

This Unit has been designed to develop your knowledge and understanding in the design and principles of treatment of fixed appliance therapy and in the techniques of their construction.

The Unit has three main areas, each the subject of a separate Outcome. Firstly you will be looking at the principles used in fixed appliance therapy. You will then be introduced to the principles of the Edgewise fixed appliance system. You will construct three fixed appliances of this type.

The formal assessment of this Unit may consist of reports for Outcomes 1 and 2 and a practical assessment for Outcome 3. The assessment for Outcomes 1 and 2 may be carried out at the end of delivery of the Unit. The practical exercises for Outcome 3 should be carried out within a dental laboratory setting.

In completing the class work and assessments of this Unit you may have the opportunity to develop the component 'Written Communication' of the Core Skill Communication at SCQF level 6, and the components 'Planning and Organising', 'Reviewing and Evaluating' and 'Critical Thinking' of the Core Skill Problem Solving at SCQF level 6 in this Unit. There are also opportunities to develop the Core Skill Information Technology at SCQF level 6, and the component 'Using Graphical Information' of the Core Skill Numeracy at SCQF level 6, although there is no automatic certification of Core Skills or Core Skills components.