



Higher National Unit specification

General information for centres

Unit title: Dental Fixed Prosthodontics: Implants

Unit code: F43L 35

Unit purpose: This Unit is designed to enable candidates to develop their knowledge and skills in the use of implants in fixed prosthodontics. It prepares them for this by giving them the underpinning knowledge and skills required to construct fixed restorations over implants to specific prescriptions.

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

- 1 Evaluate the types of implants used in fixed prosthodontic technology.
- 2 Explain the biological compatibility requirements of fixed prosthodontic implants.
- 3 Construct fixed porcelain restorations over dental implants.

Credit points and level: 3 HN credits at SCQF level 8: (24 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. 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 using candidate submissions for Outcome 1 and 2. Outcome 3 is assessed by a practical task carried out in a dental laboratory setting.

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 types of implants used in fixed prosthodontic technology

Knowledge and/or Skills

- ◆ Implant types
- ◆ Implant uses
- ◆ Implant classification
- ◆ Implant fixation and retention
- ◆ Implant indications and contra-indications

Evidence Requirements

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

- ◆ evaluate the effectiveness of implants in providing abutments used to support fixed prosthodontic appliances
- ◆ explain the classification of implants used in fixed prosthodontic technology including: endosseous, subperiosteal, submucous, endodontic, augmentation, osseointegrated
- ◆ evaluate two currently available implant fixation or retention systems
- ◆ explain indications and the contra-indications of the use of implants to provide dental abutments

Indications must include an explanation of: poorly defined atrophic ridges; improved retention; stability; efficiency; and comfort.

Contra-indications must include an explanation of: exposed inferior alveolar canal; close proximity of maxillary antrum to alveolus; infection; load distribution.

Assessment Guidelines

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 it is recommended that such a submission be the equivalent to 1,500 words (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; and candidate report. Further details are given in the Support Notes.

Higher National Unit specification: statement of standards (cont)

Unit title: Dental Fixed Prosthodontics: Implants

Outcome 2

Explain the biological compatibility requirements of fixed prosthodontic implants

Knowledge and/or Skills

- ◆ Acute systematic toxicity
- ◆ Skin irritation
- ◆ Skin sensitization
- ◆ Oral mucosal irritation
- ◆ Mutagenicity and carcinogenicity

Evidence Requirements

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

- ◆ the five biocompatibility considerations for the patient of fixed prosthodontic implants as detailed in the knowledge and/or skills items above

Assessment Guidelines

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 it is recommended that such a submission be the equivalent to 1,500 words (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; and candidate report. Further details are given in the Support Notes.

Outcome 3

Construct fixed porcelain restorations over dental implants

Knowledge and/or Skills

- ◆ Casting impressions
- ◆ Model preparation
- ◆ Implant substructure preparation
- ◆ Porcelain bonded crown and bridge components
- ◆ Aesthetic considerations

Higher National Unit specification: statement of standards (cont)

Unit title: Dental Fixed Prosthodontics: Implants

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that, for a single-unit porcelain bonded to metal crown on an implant substructure and a three-unit porcelain bonded to metal bridge on an implant substructure, they can accurately:

- ◆ cast the impression
- ◆ prepare the model
- ◆ prepare the substructure on the implant
- ◆ produce one single-unit porcelain bonded to metal crown or bridge restoration on the implant's abutment, in line with the dental arch and in occlusion
- ◆ produce a three-unit porcelain bonded to metal crown or bridge restoration on the implant's abutment, in line with the dental arch and in occlusion

Working to a prescription, candidates must fabricate the implants to a finish and accuracy ready for delivery to the clinical dental professional. These practical assessment tasks must be carried out within a dental laboratory setting and be completed within a timeframe which reflects commercial practice and is agreed with the tutor.

Assessment Guidelines

The assessment of this Outcome will be by practical demonstration on the part of the candidate. The candidate is expected to construct a single-unit porcelain bonded crown or bridge restoration on an implant substructure and a three-unit porcelain bonded bridge on an implant substructure. The candidate will be expected to produce these implants within the timescale given by the lecturer.

Administrative Information

Unit code: F43L 35

Unit title: Dental Fixed Prosthodontics: Implants

Superclass category: PF

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Higher National Unit specification: support notes

Unit title: Dental Fixed Prosthodontics: Implants

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 120 hours.

Guidance on the content and context for this Unit

The purpose of this Unit is to allow candidates to develop the knowledge and understanding required to become competent in the use of implants in fixed prosthodontics. The Unit will also develop the candidate's skills in the construction of fixed restorations over implants to specific prescriptions.

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

Outcome 1

In this Outcome candidates are introduced to the types of dental implant used in fixed prosthodontics. When evaluating the types of implant candidates could become familiar with the following classifications of implants: Endosseous; Subperiosteal; Submucous; Endodontic; Augmentation; Osseointegrated and be able to evaluate the method of fixation to bone or mucosa and retention systems.

The indications and contra-indications of the use of dental implants should also be covered.

When looking at fixed implant and retention systems, the market leading systems of Straumann or Branemark, would normally be covered. Centres should keep abreast of developments within this area and introduce candidates to new systems once there is sufficient evidence base to warrant their inclusion.

Outcome 2

In this Outcome candidates look at the biological compatibility requirements of dental implants: acute systematic toxicity; skin irritation; skin sensitization; oral mucosal irritation; mutagenicity and carcinogenicity.

Outcome 3

In this Outcome candidates will demonstrate competence in the construction of two fixed porcelain restorations over dental implants. Centres have the flexibility to select any two restorations as long as one is a single-unit porcelain bonded to metal restoration and one is a three-unit porcelain bonded to metal dental bridge, or where possible could let the candidate select which denture designs to construct. This will depend on resources available.

Higher National Unit specification: support notes (cont)

Unit title: Dental Fixed Prosthodontics: Implants

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 the teaching of this Unit could be delivered through lecturer-mediated discussion, practical demonstrations, reading of recommended texts and professional peer-review journals.

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 candidates to develop quality criteria for the fixed restorations being constructed in Outcome 3 as a group work activity, and 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 each submission be the equivalent to 1,500 words (excluding appendices and diagrams) for each Outcome. Examples of possible submissions 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.

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 candidates 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 their Core Skills in 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 candidates to allow time for research and preparation.

Higher National Unit specification: support notes (cont)

Unit title: Dental Fixed Prosthodontics: Implants

The assessment of Outcome 3 will be in the form of practical tasks involving the candidate in producing a single-unit porcelain bonded to metal crown or bridge restoration on an implant substructure and a three-unit porcelain bonded to metal bridge on an implant substructure to a given prescription. All restorations should be finished accurately for delivery. The practical assessments should be carried out in a dental laboratory setting.

Opportunities for developing Core Skills

In completing the evidence tasks for 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 written 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 may be 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 of Outcome 3. In this Outcome the candidate will construct two 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 implants used in fixed prosthodontics. 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 single-unit porcelain bonded to metal crown on an implant substructure and the three-unit porcelain bonded to metal bridge on an implant substructure, 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'.

Higher National Unit specification: support notes (cont)

Unit title: Dental Fixed Prosthodontics: Implants

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.

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 Fixed Prosthodontics: Implants

This Unit is designed to develop your knowledge in the principles, application and construction of bridgework incorporating implants.

The Unit has three main areas, each the subject of a separate Outcome. Firstly, you will evaluate the uses and types of dental implants. In Outcome 2 you will look at the biocompatibility issues/requirements of implants. In Outcome 3 you will construct fixed porcelain restorations over implants.

The formal assessment of this Unit may consist of candidate submissions 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 assessment exercises 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.