



Higher National Unit specification

General information for centres

Unit title: Dental Removable Prosthodontics: Implants

Unit code: F3G9 35

Unit purpose: This Unit is designed to cover the principles and construction of dentures incorporating implants. It allows candidates to develop the necessary knowledge and skills to enable them to construct implant dentures to specific prescriptions.

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

- 1 Evaluate the principles of dental implants.
- 2 Construct an over-denture using Ball Screw implant inserts.
- 3 Construct superstructure bar and denture with clip attachments.

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 candidates 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: Outcome 1 could be assessed using a candidate submission covering all Evidence Requirements. Outcomes 2 and 3 will be assessed by practical assignments with candidates displaying competent technical performance in the construction of implants to given prescriptions. These practical assessments should be carried out within 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 principles of dental implants

Knowledge and/or Skills

- ◆ Bone grafts
- ◆ Osseointegration
- ◆ History of dental implantology
- ◆ Implant systems
- ◆ Implant loading

Evidence Requirements

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

- ◆ explain the process of bone grafts and why this may be necessary when inserting dental implants. Candidates must evaluate the four different categories of bone graft materials: xenograft or xenogenic; autograft or autogenous; allograft or allogenic; alloplast or alloplastic
- ◆ explain the purpose of bone grafting with reference to ridge preservation; sinus augmentation; onlay graft; ridge expansion and nerve repositioning
- ◆ detail how the osseous tissue interfaces to an inert alloplastic material without intervening connective tissue
- ◆ explain how implant disturbance during healing; smoking; overheating of bone during placement; and osseo disintegration may cause osseointegration to fail
- ◆ evaluate the history of dental implantology, highlighting successes and failures
- ◆ evaluate four implant systems in common use in relation to cost, success rate and quality
- ◆ evaluate the success of time-delayed loading in comparison to instant loading

Assessment Guidelines

This Outcome could be assessed by a candidate submission. Whilst the format of the submission is at the discretion of the centre, it is recommended that the submission be equivalent to 1,500 words (excluding appendices and diagrams). Examples of suitable formats for the submission could be: oral questioning; candidate presentation; candidate report. Further details are contained in the Support Notes.

Higher National Unit specification: statement of standards (cont)

Unit title: Dental Removable Prosthodontics: Implants

Outcome 2

Construct an over-denture using Ball Screw implant inserts

Knowledge and/or Skills

- ◆ Over-dentures.
- ◆ Ball Screw implant inserts.

Evidence Requirements

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

- ◆ produce one set of complete dentures incorporating retentive elements that retain on Ball Screw implant inserts. The dentures should be finished to an accuracy and polished ready for delivery to the patient/clinical dental profession.

This practical assessment task must be carried out within a dental laboratory setting.

Assessment Guidelines

The assessment of this Outcome could be by practical demonstration, on the part of the candidate, of the production of a denture over a Ball Screw implant system.

Outcome 3

Construct superstructure bar and denture with clip attachments

Knowledge and/or Skills

- ◆ Superstructure design
- ◆ Relief of bar
- ◆ Position of clips

Evidence Requirements

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

- ◆ construct a superstructure from gold bar or suitable alternative alloy, soldered to design
- ◆ on this superstructure, produce one complete denture incorporating two clips that retain on a gold bar or suitable alternative alloy superstructure

Working to a prescription, candidates must fabricate the dentures 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.

Higher National Unit specification: statement of standards (cont)

Unit title: Dental Removable Prosthodontics: Implants

Assessment Guidelines

The candidate could produce a denture that contains two clips that fit over a gold or suitable alternative alloy bar superstructure.

Administrative Information

Unit code: F3G9 35

Unit title: Dental Removable Prosthodontics: Implants

Superclass category: PF

Original date of publication: August 2007

Version: 01

History of changes:

| Version | Description of change | Date |
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Source: SQA

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Higher National Unit specification: support notes

Unit title: Dental Removable 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 80 hours.

Guidance on the content and context for this Unit

The purpose of this Unit is to allow candidates to develop the necessary knowledge and understanding to be competent in evaluating the principles of dental implants. In addition, candidates will develop skills in the construction of dentures secured by Ball Screw implant inserts and implant superstructures.

Outcome 1

In this Outcome candidates will become familiar with the process of bone grafting and why it may be required in the placement of dental implants. The candidate should be able to identify the four different categories of bone graft materials: xenograft or xenogenic; autograft or autogenous; allograft or allogenic; alloplast or alloplastic. Candidates should also be able to identify the purpose of bone grafting: ridge preservation; sinus augmentation; onlay graft; ridge expansion, nerve repositioning.

Candidates will look at the process of osseointegration. The reasons for osseointegration failure: implant disturbance during healing; smoking; overheating of bone during placement; osseo disintegration

The candidate will be able to define the term dental implant 'a medical device made from one or more bio-materials that is intentionally placed within the body, either totally or partially buried beneath an epithelial surface'. Candidates should be able to categorise implants as to how they are attached to the jaws: endosseous or endosteal; sub-periosteal; transosseous or transosteal.

Candidates will also identify types of implant systems available (Endosseous Root Form Implants, Endosseous Blade Implants, Sub-Periosteal Implants, Trans-Osseous Implants, Mini (Transitional) Implants and any other current systems) comparing cost, success rates, and quality systems.

Finally, candidates should be able to identify the indications and contra indication of all three dental implant categories.

Outcome 2

In this Outcome candidates will become familiar with the processes involved in the construction of an over-denture using Ball Screw implant inserts.

Outcome 3

In this Outcome candidates look at the processes involved in the construction of an implant superstructure in gold or an alloy such as student alloy or fake gold alloy and construct a complete denture that fits over the superstructure and is retained by means of clips that fit over the superstructure.

Higher National Unit specification: support notes (cont)

Unit title: Dental Removable 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 the candidates to develop quality criteria for the practical exercises in Outcomes 2 and 3 as a group work activity, evaluate their own performance and that of a peer against this agreed set of criteria.

Outcome 1 could be assessed by a candidate submission. Whilst the format the submission takes is left to the discretion of the centre the author would recommend that such a submission be the equivalent to 1,500 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 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 Removable Prosthodontics: Implants

The assessment of Outcomes 2 and 3 will be by practical demonstration on the part of the candidate. In Outcome 2 the candidate will produce one set of complete dentures finished in acrylic resin that are retained on Ball Screw implant inserts. In Outcome 3 the candidate could produce a dental implant superstructure, constructed in gold alloy and on this produce a complete denture that is retained on the superstructure by means of gold clips.

Opportunities for developing Core Skills

In completing the class work of Outcome 1 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 Outcome 1, 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 Outcome 1 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 of Outcomes 2 and 3. In these Outcomes the candidate will produce two pieces of practical work and carry out clinical prescriptive additions, this 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 Outcome 1. The candidate may be required to evaluate complex information covering the principles of dental implants. 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. While completing the practical tasks in Outcomes 2 and 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)

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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. Outcomes 2 and 3 require 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 Removable Prosthodontics: Implants

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

The Unit has three main areas, each the subject of a separate Outcome. Firstly you will be evaluating the uses and types of dental implants. You will then construct a superstructure and denture using Ball Screw inserts to a given clinical prescription. Finally you will construct a superstructure and denture using bar and clip attachment.

The formal assessment of this Unit may consist of a report for Outcome 1 and practical assessments for Outcomes 2 and 3. The assessment for Outcome 1 may be carried out at the end of delivery of the Unit. The practical assessments 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.