



Higher National Graded Unit specification

General information for centres

This Graded Unit has been validated as part of the HNC Dental Technology. Centres are required to develop the assessment instrument in accordance with this validated specification. Centres wishing to use another type of Graded Unit or assessment instrument are required to submit proposals detailing the justification for change for validation.

Graded Unit title: Dental Technology: Graded Unit 1

Graded Unit code: F33L 34

Type of Graded Unit: Project

Assessment Instrument: Practical Assignment

Credit points and level: 1 HN credit at SCQF level 7: (8 SCQF credit points at SCQF level 7*)

**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 National 1 to Doctorates.*

Purpose: This Graded Unit is designed to provide evidence that the candidate has achieved the following principal aims of the HNC Dental Technology:

- ◆ to develop logical, analytical and problem-solving skills within the dental laboratory
- ◆ develop organisational and time-management skills
- ◆ enhance employment prospects
- ◆ understand and apply basic core procedures and practices related to the laboratory environment
- ◆ interpret and implement dental prescriptions
- ◆ use a wide range of basic dental techniques
- ◆ organise and implement laboratory procedures
- ◆ organise and utilise specialist dental laboratory equipment
- ◆ use a wide range of dental products effectively

General information for centres (cont)

Recommended prior knowledge and skills: It is recommended that the candidate should have completed or be in the process of completing the following Units relating to the above specific aims prior to undertaking this Graded Unit:

F1M5 34	<i>Dental Alloy Techniques</i>
F1MD 34	<i>Dental Removable Prosthodontics — Partial Dentures</i>
F1MC 34	<i>Dental Removable Prosthodontics Complete</i>
F1M7 34	<i>Dental Fixed Prosthodontics</i>
F1 M8 34	<i>Dental Fixed Prosthodontics - Bonded Restorations</i>
F1MB 34	<i>Dental Orthodontic Technology</i>
F1MA 34	<i>Dental Orthodontic Technology Removable Appliances</i>
F1M9 34	<i>Dental Oral and Facial Anatomy</i>
F1M6 34	<i>Dental Biomaterials</i>
F1ME 34	<i>Dental Technology: Professional Responsibilities</i>

Core Skills: There may be opportunities to develop components of the Core Skills of *Communication, Problem Solving, IT and Numeracy* all at SCQF level 6 in this Graded Unit. More details are contained in the support notes.

Assessment: This Graded Unit will be assessed by the use of Practical Assignment. The developed Practical Assignment should provide the candidate with the opportunity to produce evidence that demonstrates she/he has met the aims of the Graded Unit that it covers.

Administrative Information

Graded Unit code: F33L 34

Graded Unit title: Dental Technology: Graded Unit 1

Original date of publication: August 2008

Version: 02

History of changes:

Version	Description of change	Date
02	Update of Conditions of Assessment	Jul 2018

Source: SQA

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Higher National Graded Unit specification: instructions for designing the assessment task and assessing candidates

Graded Unit title: Dental Technology: Graded Unit 1

Conditions of assessment

The candidate should be given a date for completion of the Practical Assignment. However, the instructions for the assessment task should be distributed to allow the candidate sufficient time to assimilate the details and carry out the assessment task.

It is essential that during the time between the distribution of the assessment task instructions and the completion date, assessors may answer questions; provide clarification, guidance and reasonable assistance. Reasonable assistance is the term used by SQA to describe the difference between providing candidates with some direction to generate the required evidence for assessment and providing too much support which would compromise the integrity of the assessment. Reasonable assistance is part of all learning and teaching processes.

In relation to the assessment of Higher National Project-based Graded Units, assessors may provide advice, clarification, and guidance during the time between the distribution of the project instructions and the completion date, ie at each stage of the project.

These discussions could be formalised into a mentoring system where each meeting is recorded using a centre developed meeting pro forma.

Remediation allows an assessor to clarify candidate responses, either by requiring a written amendment or by oral questioning, where there is a minor shortfall or omission in evidence requirements. In either case, such instances must be formally noted by the assessor, either in writing or by recording, and be made available to the internal and external verifier.

In relation to Higher National Project-based Graded Units, candidates must be given the opportunity for remediation at each stage of the project.

The evidence for a Higher National Project-based Graded Unit is generated over time and involves three distinct stages, each of which has to be achieved before the next is undertaken. This means that any re-assessment of stages must be undertaken before proceeding to the next stage. The overall grade is derived from the total number of marks *across all* sections, and should reflect the ability of the candidate to work autonomously and the amount of support required. In relation to Higher National Project-based Graded Units, candidates who have failed any stage of the project and have been unable to provide the necessary evidence through remediation must be given the opportunity for re-assessment of that stage.

Any candidate who has failed their graded unit or wishes to upgrade their award must be given a re-assessment opportunity, or in exceptional circumstances, two re-assessment opportunities. In the case of project-based graded units, this must be done using a substantially different project.

The final grading given must reflect the quality of the candidate's evidence at the time of the completion of the graded unit. Candidates must be awarded the highest grade achieved — whether through first submission or through any re-assessment, remediation, and/or reasonable assistance provided

Higher National Graded Unit specification: instructions for designing the assessment task and assessing candidates (cont)

Instructions for designing the assessment task

The assessment task is a project. The project undertaken by the candidate must be a complex task that involves:

- ◆ variables which are complex or unfamiliar
- ◆ relationships which need to be clarified
- ◆ a context which may be familiar or unfamiliar to the candidate

The assessment task must require the candidate to:

- ◆ analyse the task and decide on a course of action for undertaking the project
- ◆ plan and organise work and carry it through to completion
- ◆ reflect on what has been done and draw conclusions for the future
- ◆ produce evidence of meeting the aims which this Graded Unit has been designed to cover

The project must involve a practical assignment culminating in completion of the dental prescription, and candidates must demonstrate the application of the skills and knowledge that fall within the programme delivered by the centre, under the award of HNC Dental Technology. This assessment instrument is not concerned exclusively with practical activity — candidates are provided with a dental prescription that allows them to plan, prepare, demonstrate practical skills and evaluate the Outcome.

Higher National Graded Unit specification: instructions for designing the assessment task and assessing candidates (cont)

The candidate will be asked to:

- ◆ develop a logical analytical approach in response to dental prescriptions requiring the production of three dental appliances
- ◆ plan and carry out the preparation for the three dental appliances
- ◆ manufacture the dental appliances to the given prescriptions
- ◆ record development work in a log book
- ◆ evaluate the planning and processes and resulting dental appliances

The dental prescriptions for this practical assignment must reflect the specialisms within the award of HNC Dental Technology: orthodontics, prosthodontics and removable prosthodontics.

The candidate must plan and manufacture:

- ◆ an orthodontic appliance
- ◆ a fixed prosthodontic appliance
- ◆ a removable prosthodontic appliance

The practical assignment and the way it is planned should reflect opportunities for the candidate to demonstrate an ability to work independently to plan and carry out the production of dental appliances to prescription. In the course of planning the candidate will utilise knowledge gained from other Units within the program. A mentoring system as described in the *conditions of assessment* above would help the candidate to develop the dental prescription, and ensure the candidate is carrying out appropriate preparation for the task.

In the production of the required evidence, a set of generic criteria is set out below in the Evidence Requirements.

Guidance on grading candidates

Candidates who meet the minimum Evidence Requirements will have their achievement graded as C — competent, or A — highly competent or B somewhere between A and C. The grade related criteria to be used to judge candidate performance for this Graded Unit is specified in the following table.

Higher National Graded Unit specification: instructions for designing the assessment task and assessing candidates (cont)

Grade A	Grade C
<p>Is a seamless, coherent piece of work which:</p> <ul style="list-style-type: none"> ◆ Has documented evidence for the three essential phases of the project in log book which is produced to a high standard which relates all aspects of project ◆ Demonstrates an accurate and insightful interpretation of the project's dental prescription ◆ Displays a high level of competence in hands-on execution of practical task ◆ Involves the production of three dental appliances, one from each specialism, produced to a clinical and aesthetic high standard. ◆ Effectively consolidates and integrates required knowledge, and skills ◆ Demonstrates well structured planning, control and sequencing of activities throughout the project ◆ Shows initiative in investigating potential Health and Safety issues during laboratory procedures ◆ Demonstrates logical problem solving skills of a high order in producing the practical appliances <p>The candidate manages the process independently demonstrating good time management skills.</p>	<p>Is a co-ordinated piece of work which:</p> <ul style="list-style-type: none"> ◆ Has documented evidence of the three essential phases of the project in log book. ◆ Demonstrates an interpretation of the project's dental prescription ◆ Displays a level of competence in hands-on execution of practical task ◆ Involves the production of three Dental appliances, one from each specialism, produced to a clinical standard. ◆ Consolidates and integrates knowledge and skills ◆ Demonstrates planning and sequencing of project activities ◆ Complies with Health and Safety requirements during laboratory procedures ◆ Demonstrates problem solving skills <p>The candidate seeks additional tutor support to keep project on track.</p>

The project will be marked out of 100. Assessors will mark each stage of the project, taking into account the criteria outlined. The marks will then be aggregated to arrive at an overall mark for the project. Assessors will then assign an overall grade to the candidate for this Graded Unit based on the following grade boundaries.

A = 70% — 100%
 B = 60% — 69%
 C = 50% — 59%

Note: the candidate must achieve all of the minimum evidence specified below for each stage of the project in order to achieve the Graded Unit.

Higher National Graded Unit specification: instructions for designing the assessment task and assessing candidates (cont)

Evidence Requirements

The project consists of three stages: planning; developing; and evaluating. The following table specifies the minimum evidence required to pass each stage.

Note: The candidate must achieve **all of the minimum evidence** specified below for each stage of the project in order to pass the Graded Unit.

Project stage	Minimum Evidence Requirements
Stage 1 — Planning 20%	<p>The candidate must produce a production plan that details the manufacturing stages involved in constructing the three dental appliances, one from each specialism. This plan must contain evidence of:</p> <ul style="list-style-type: none"> ◆ Analysis of the dental prescription, identifying the stages involved in the production process ◆ Identification and assessment of the materials required at each stage of production ◆ Justification for the approach taken in the plan <p><i>The candidate must achieve all of the minimum evidence specified above and record 50% of marks in order to pass the Planning stage.</i></p>
Stage 2 — Developing 60%	<p>The development stage of the practical assignment involves the candidate in the production of three dental appliances, one from each specialism for a patient to a given prescription.</p> <p>For the Product, the candidate must:</p> <ul style="list-style-type: none"> ◆ Use appropriate materials and resources to produce three dental appliances one from each specialism. ◆ Use logical, analytical skills to find solutions to the practical tasks. ◆ Carry out the production stages to produce three dental appliances to a clinically acceptable standard within standard laboratory timescales. A clinically acceptable standard means fit for use, within the timescale indicated on the dental prescription. ◆ Use safe working practice during laboratory procedures. ◆ Demonstrate organisational and time management skill. <p>A record of the process underpinning the activity, must be contained in a log book which should be made up of the following:</p> <ul style="list-style-type: none"> ◆ The production process and any amendments ◆ Documentation of the process and organisation ◆ Mentoring feedback <p><i>The candidate must achieve all of the minimum evidence specified above and record 50% of the marks in order to pass the Developing stage.</i></p>

Higher National Graded Unit specification: instructions for designing the assessment task and assessing candidates (cont)

Project stage	Minimum Evidence Requirements
Stage 3 — Evaluating 20%	<p>The evaluation stage must consist of an evaluation report.</p> <p>The Evaluation report must contain:</p> <ul style="list-style-type: none"> ◆ An outline of the assignment ◆ A review of and where appropriate an update to, the action plan in the light of experience ◆ Identification of the knowledge and skills which have been gained and/or developed during the process ◆ Assessment of the strengths and weaknesses of the output of the Practical Assignment ◆ Review of how the assignment met the original dental prescription <p><i>The candidate must achieve all of the minimum evidence specified above and record 50% of the marks in order to pass the Evaluating stage.</i></p>

Support notes

It is envisaged that this Graded Unit would be started approximately half way through the candidate's studies with an increasing amount of time being spent towards the end of the course. The Graded Unit is an integration and application of the candidates existing knowledge and it is not intended that any new knowledge or skills are taught during delivery of the Graded Unit instead the lecturer's time will be spent discussing individual candidate work.

Time management is an important aspect of planning, developing and evaluating a practical activity and in order to help candidates manage their time effectively, lecturers should consider setting up individual progress reviews with candidates at the start of the Unit delivery time. Lecturers may consider developing a centre pro forma to record their discussions with candidates. These discussions or mentoring activities are an essential part of the Graded Unit and should help ensure that candidates keep to timelines and should be included in their logbook. The Grade finally achieved by the candidate depends on the work submitted. It is therefore very important that staff do not give undue assistance to candidates. The level of assistance should be fully discussed at Course Team level and any assistance given should be logged in the candidate's mentoring records.

The amount of time spent planning the project at this stage is seen as critical to the development of skills that are genuinely transferable in the profession of dental technology. Part of the planning will require the candidates to negotiate use of laboratory equipment and facilities and co-operating with others in the class group. It is essential that all delivery takes place within the dental laboratory setting and therefore, lecturers should try to ensure that a flexible approach towards ensuring laboratory facilities are available for candidates. Access to computers is likely to be required for, word processing, working with visuals and possibly for research.

Higher National Graded Unit specification: instructions for designing the assessment task and assessing candidates (cont)

The Core Skill components 'Written (reading and writing)' of the Core Skill of *Communication* at SCQF level 6 is signposted. If candidates show written evidence of research within their logbooks, they will be able to develop their writing skills. Candidates will also be required to provide information to show evidence of meeting the candidate brief. This could include information researched on the Internet such as researching health and safety and costs. In preparing this work candidates may demonstrate evidence of using their *IT* skills at SCQF level 6, researching information using the Internet, in using word processing skills or in using presentation software. The Core Skill component Using Numbers of the Core Skill *Numeracy* at SCQF level 6 is also signposted. If candidates calculate the amount of materials required along with the cost implications, they will develop their numeracy skills.

The Core Skill of *Working with Others* and *Problem Solving* at SCQF level 6 is also signposted. If candidates work with colleagues in a laboratory environment, agreeing times and opportunities for using laboratory equipment in a co-operative manner, they will develop their skills in working with others.

Equality and inclusion

This graded unit specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. For information on these, please refer to the SQA document *Guidance on Assessment Arrangements for Equality and inclusion*, which is available on SQA's website: www.sqa.org.uk.

General information for candidates

The purpose of this Graded Unit is to bring together many of the different skills you have learnt throughout your course. You may have studied or be in the process of studying the mandatory Units in HNC Dental Technology.

This Graded Unit also reflects the main aims of the award. These are:

- ◆ to develop logical, analytical and problem-solving skills within the dental laboratory
- ◆ develop organisational and time-management skills
- ◆ enhance employment prospects
- ◆ understand and apply basic core procedures and practices related to the laboratory environment
- ◆ interpret and implement dental prescriptions
- ◆ use a wide range of basic dental techniques
- ◆ organise and implement laboratory procedures
- ◆ organise and utilise specialist dental laboratory equipment
- ◆ use a wide range of dental products effectively

You will be required to apply some of the skills and knowledge you have learned during your course to this Graded Unit practical assignment. You will be asked to demonstrate your practical skills but you will also have to show how you planned your assignment, how you developed your ideas and how you evaluated your product.

For this Graded Unit, you will be given dental prescriptions, which require you to plan, develop provide solutions and evaluate your responses — just as you would for a dentist. You will be asked to make three dental appliances as part of your project. Throughout the Graded Unit you will meet with your lecturer who will advise you and make sure you are on the right track to achieve your Graded Unit within the given timescale.

The project will be marked out of 100 and you have to pass the minimum Evidence Requirements for each part of the project, planning, development and evaluation, and achieve 50% of the mark allocation for each part of the project in order to pass the Graded Unit. The marks you get for each part of the project will be added up and you will be given a grade for the Graded Unit. The grade you receive is based on the following

A = 70% — 100%

B = 60% — 69%

C = 50% — 59%

If you pass, you will not only achieve the Graded Unit but you may also develop some components of the Core Skill *Communication* at SCQF level 6 through discussions with your lecturer and possibly the writing up of your log book. You may also further develop components of the Core Skills *IT*, *Numeracy* and *Working with Others*, all at SCQF level 6 as you research, plan, discuss and evaluate your project responses.