

-SQA-SCOTTISH QUALIFICATIONS AUTHORITY

**Hanover House
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NATIONAL CERTIFICATE MODULE DESCRIPTOR

-Module Number- 0069142 **-Session-1986-87**
-Superclass- PF

-Title- DENTAL CASTS

-DESCRIPTION-

Type and Purpose A Specialist Module which is designed primarily for Dental Technology students but is also suitable for students interested in mould casting techniques. It introduces the processes involved in the production of dental casts.

Preferred Entry Level Standard Grade Science at 3 or 09013 Applied Science 3.

Learning Outcomes The student should:

1. know the properties and uses of gypsum products;
2. prepare and cast three types of impressions;
3. identify anatomical landmarks and diagnose faults on casts;
4. trim and prepare a variety of casts;
5. duplicate master casts;
6. apply safe practices in the working environment.

Content/Context Corresponding to Learning Outcomes 1 - 6:

1. Plaster of Paris.
 - (a) white porous crystalline material obtained from gypsum: when mixed with water converts back to gypsum and sets hard.

- (b) Setting expansion influenced by PWR. and anti-expansion agents.
- (c) Setting time influenced by PWR., spatulation, temperature, accelerators, retarders and impurities.
- (d) Strength and surface hardness influenced by PWR. and casting in air or under vacuum.

Uses: impressions, casts, articulations and flasking.

Hydrocol.

- (a) Chemically the same as plaster of paris but physically different. Consists of finer single unit, non-porous crystals which require less water. The set material is stronger.
- (b) Setting expansion influenced by PWR. and anti-expansion agents.
- (c) Setting time influenced by PWR., anti-expansion agents and retarders.
- (d) Strength and surface hardeners influenced by PWR. and casting in air or under vacuum.

Uses: casts, flasking and constituent of artificial stone and investments.

"Soluble" Impression Plaster.

Contains starch which swells in hot water and aids the removal of the impression from the cast.

2. "Box-in" where appropriate, coat with a separating medium - hydrocolloids are soaked in an alum solution. The impressions are cast under vacuum or in air. Removal of cast from the impression when set.
3. The position of anatomical landmarks and significance to base design. Causes of faults such as: blow holes, broken teeth and damage or defective quality of surface.
4. Trimming of casts according to type: edentulous/dentate or orthodontic. Outline, relieve and cut post-dam.

5. Preparation and use of reversible and irreversible hydrocolloidal duplicating materials.
6. Safe use of electrical equipment, use of protective clothing, cleanliness and tidiness.

Suggested
Learning and
Teaching
Approaches

Relating to the Learning Outcomes 1-6:

The first introduction to dental casts should be through a small group demonstration preceded by discussion on impressions and followed by practical activity.

The properties of the materials may be learned through a resource-based programme integrating lecture and practical activities.

Resources used could include casts, technical publications and audio-visual material.

Informal discussion may be useful in clarifying difficulties and there could be discussion of the time constraints imposed by industry.

Formative assessment should be carried out throughout the module on a continuous and student-paced basis, remedial action being taken as necessary.

During small group demonstrations the activities of the remainder of the class should be restricted to planned observation or other potentially non-dangerous tasks.

Assessment
Procedures

Relating to Learning Outcomes 1 - 6:

1. A short written/oral test held when appropriate during the module but allowing time for remediation and retesting if necessary.
2. Observation of practical work during the making of three different types of impressions, using checklists e.g.:
 - (a) reassembly of fractured pieces (plaster of paris);
 - (b) waxing out slight imperfections (plaster of paris);
 - (c) "boxing-in";
 - (d) use of separator (or immersion in alum solution - hydrocolloids);

- (e) final impressions are of a satisfactory standard.
3. A short written/oral and practical test held when the student feels confident to attempt it. A checklist could be ticked by the tutor to indicate satisfactory identification and diagnosis as follows:
- (a) anatomical landmarks identified, e.g.:
 - hamular notch;
 - hard/soft palate;
 - tuberosities;
 - incisal papilla;
 - fraenal attachments of tongue and lips;
 - palatina fovea pterygomandibular raphe;
 - retromolar pad and rugae.
 - (b) The student should state how the base design is influenced by at least three of the anatomical landmarks.
 - (c) He/she should indicate faults in practice casts or demonstration casts (blowholes, broken teeth, defective quality of surface) and give reasons for the occurrence of faults.
4. Examination of final primary casts (edentulous, dentate and orthodontic) and the use of a checklist to assess quality - e.g.
- (a) density of cast;
 - (b) surface hardness;
 - (c) reproduction of impression detail;
 - (d) size, shape and finish of cast.
5. Examination of two duplicated casts by comparison with master cast and observation of the student's performance in preparing and using duplicating materials and equipment. (Use checklist for 4).
6. Observation during practical activities and use of a checklist which is ticked to indicate safe procedure observed for:
- electrical equipment;
 - eye protection;
 - face protection;
 - maintenance of a tidy work bench.

Performance Criteria.

Learning Outcomes 1 and 3:

The performance required in theoretical tests will depend on the extent and difficulty of the tests applied by the tutor, and cannot be judged in advance. It is however unlikely to be less than 70% correct response.

Learning Outcome 2:

Each of the skills should be accomplished to a satisfactory standard for each of the three impressions so that the tutor is satisfied that the student has consistent competence.

Learning Outcome 4:

Each of the items on the checklist should be accomplished to a satisfactory standard on two occasions for each of the three varieties of casts so that the tutor is satisfied that the student has achieved consistent competence.

Learning Outcome 5:

Each of the items on the checklist should be accomplished to a satisfactory standard on two occasions for both types of duplicating materials so that the tutor is satisfied that the student has achieved consistent competence.

Learning Outcome 6:

The tutor must be satisfied that the student observes the safety procedures for each item on the checklist before he/she is credited with achievement of the Learning Outcome.

For Learning Outcomes 1,2,3,4,5 and 6 the standard to be achieved will be a matter for the professional judgement of the tutor aided by the Council's assessor.

Award of the module will depend on satisfactory achievement of all the Learning Outcomes.