



Australian Government

Department of Education, Employment and Workplace Relations

HLTDT510C Construct crown and bridge structures

Release: 1

HLTDT510C Construct crown and bridge structures

Modification History

Not Applicable

Unit Descriptor

Descriptor

This unit of competency describes the skills and knowledge required to construct single crown and bridge structures

All procedures must be carried out in accordance with occupational health and safety policies and procedures, current infection control guidelines, Australian and New Zealand Standards, State/Territory legislative requirements and organisation policy

Application of the Unit

Application

This unit applies to work in dental technology

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Pre-requisite units

This unit must be assessed after successful achievement of pre-requisites:

- HLTDT301C Construct models
- HLTDT302C Construct custom impression trays
- HLTDT304C Articulate models and transfer records
- HLTIN301C Comply with infection control policies and procedures

Employability Skills Information

Employability Skills

This unit contains Employability Skills

Elements and Performance Criteria Pre-Content

Elements define the essential outcomes of a unit of competency.

The Performance Criteria specify the level of performance required to demonstrate achievement of the Element. Terms in italics are elaborated in the Range Statement.

Elements and Performance Criteria

ELEMENT

PERFORMANCE CRITERIA

1. Prepare removable stone die

- 1.1 Pour-up die stone horseshoe
- 1.2 Grind base of die stone to appropriate height and with level occlusal plane
- 1.3 Trim away undercuts from base of die stone model
- 1.4 Prepare die model for dowel pin and base in accordance with manufacturer's instructions

ELEMENT**PERFORMANCE CRITERIA****2. Duplicate model**

- 2.1 Prepare materials to duplicate models in accordance with manufacturer's instructions
- 2.2 Mix stones, die-stones and refractories in accordance with manufacturer instructions
- 2.3 Produce an accurate, bubble free duplicate model

3. Wax and invest fixed partial dentures and structures

- 3.1 Wax up crown and bridge restorations
- 3.2 Sprue crown and bridge wax pattern and prepare for investing
- 3.3 Select appropriate investment material according to the alloy to be used
- 3.4 Prepare investment material according to the manufacturer's instructions
- 3.5 Invest wax patterns

4. Burnout, cast and finish alloy fixed partial dentures and structures

- 4.1 Select burnout techniques appropriate to the investment material and alloy
- 4.2 Cast metal restorations in appropriate alloy
- 4.3 Devest metal restoration without damaging casting
- 4.4 Check the casting for *defects*
- 4.5 Trim and polish metal restoration while maintaining all contact areas and margins
- 4.6 Evaluate the finished restoration
- 4.7 Decontaminate the casting according to infection control guidelines
- 4.8 Dry the casting, replace on model and place in a sealed container for dispatch

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level required for this unit.

Essential knowledge:

The candidate must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the identified work role

This includes knowledge of:

- Applied oral anatomy including:
 - articulation and occlusion
 - dentition - arrangement of the teeth, naming and coding of teeth
 - structures of the oral cavity - hard and soft palate, lateral and posterior borders of the oral cavity, tongue and floor of the mouth
 - teeth - form and function
- Casting and pickling
- Factors responsible for casting defects
- Finishing and polishing
- Fundamental knowledge of model and die materials including:
 - epoxy die materials
 - gypsum materials including their chemical and physical properties, chemical reaction and the effects of excess water, accelerators and retarders, water-powder ratio, temperature and humidity, hardening solutions
 - manipulation of gypsum materials including the measurement and combination of powder and water, spatulation and pouring of the model
- Fundamental knowledge of dental casting alloys and solders
 - casting alloys including the properties of alloys, common casting alloys and the biocompatibility of alloys
 - ceramic bonding alloys
 - solders
 - wrought alloys
- Fundamental knowledge of waxes including:
 - pattern waxes including inlay wax, casting wax, baseplate wax
 - processing waxes including boxing and utility waxes, sticky wax, bite registration

REQUIRED SKILLS AND KNOWLEDGE

wax

- properties of waxes including melting range, flow, thermal expansion, residual stress
- wax and plastic pattern techniques
- Infection control guidelines for the decontamination of completed laboratory work
- Investing and burnout including:
 - fundamental knowledge of investment materials
 - investing and expansion of the investment
 - burnout
- Occupational health and safety policies and procedures
- Soldering techniques
- Waxing and spruing techniques

Essential skills:

It is critical that the candidate demonstrate the ability to

- Consistently design and manufacture a range of metallic restorations in accordance with prescription
- Consistently trim, polish, finish and evaluate metallic restorations that are suitable for insertion in the mouth
- Consistently comply with current infection control guidelines, Australian Standards and legislative requirements as they relate to the dental technician's specific job role
- Consistently comply with occupational health and safety policies and procedures as they relate to the dental technician's specific job role

In addition, the candidate must be able to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the identified work role

This includes the ability to:

- Consistently follow occupational health and safety policies and procedures
- Consistently follow sequenced written instructions and manufacturer specifications for the preparation of materials
- Critically evaluate all work produced so as to consistently meet both the technical requirements of the laboratory and client requirements
- Select materials and techniques to manufacture cast metal alloy removable partial denture framework
- Use appropriate practices to ensure efficient use of power and other resources
- Use safe work practices to minimise the risk of transmission of infection including:
 - consistently following the procedure for washing and drying hands
 - consistently putting into practice clean techniques

REQUIRED SKILLS AND KNOWLEDGE

- consistently using personal protective equipment
- consistently limiting contamination
- consistently maintaining clean receiving and work areas
- Use literacy skills to read and follow directions, policies and procedures including:
 - occupational health and safety policies and procedures
 - infection control policies and procedures
 - material safety data sheets
 - laboratory policies and procedures

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Critical aspects for assessment and evidence required to demonstrate this competency unit:

- The individual being assessed must provide evidence of specified essential knowledge as well as skills
- Consistency of performance should be demonstrated over the required range of workplace situations

Context of and specific resources for assessment:

- Assessment should replicate workplace conditions as far as possible
- Where, for reasons of safety, access to equipment and resources and space, assessment takes place away from the workplace, simulations should be used to represent workplace conditions as closely as possible

EVIDENCE GUIDE

Method of assessment

- Evidence of essential knowledge and understanding may be provided by:
 - traditional or online (computer-based) assessment
 - written assignments/projects
- Case study and scenario as a basis for discussion of issues and strategies to contribute to best practice
- Questioning
- Staff and/or client feedback
- Supporting statement of supervisor
- Authenticated evidence of relevant work experience and/or formal/informal learning
- Role play/simulation

Access and equity considerations:

- All workers in the health industry should be aware of access and equity issues in relation to their own area of work
- All workers should develop their ability to work in a culturally diverse environment
- In recognition of particular health issues facing Aboriginal and Torres Strait Islander communities, workers should be aware of cultural, historical and current issues impacting on health of Aboriginal and Torres Strait Islander people
- Assessors and trainers must take into account relevant access and equity issues, in particular relating to factors impacting on health of Aboriginal and/or Torres Strait Islander clients and communities

Range Statement

RANGE STATEMENT

The Range Statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance.

RANGE STATEMENT

Metallic restorations may include:

- Crown and bridge structures
- Crowns
- Inlays
- Onlays
- Single posts and cores

Construction of crown and bridge structures includes:

- A range of designs
- Anterior and posterior teeth
- Ceramic fused to metal sub structures
- Metal inlays, crowns and bridges

Casting defects may include but are not limited to:

- Incomplete casting
- Porosities
- Rough surfaces

Unit Sector(s)

Not Applicable