



Australian Government

Department of Education, Employment and Workplace Relations

HLTPO303C Fabricate upper and lower extremity prostheses

Release: 1

HLTPO303C Fabricate upper and lower extremity prostheses

Modification History

Not Applicable

Unit Descriptor

Descriptor

This unit describes the knowledge and skills required to fabricate and finish upper and lower extremity prostheses

Application of the Unit

Application

Work performed requires a broad knowledge base with substantial depth in some areas and the ability to analyse and plan approaches to technical problems

It is expected that an orthotist or prosthetist/orthotist oversees client evaluation, cast measurement and fittings, wherever possible

It requires the transference and application of theoretical concepts and/or technical or creative skills to a range of situations

Individuals will take responsibility for own outputs and limited responsibility for the achievement of group outcomes

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Not Applicable

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. Ascertain requirements for lower and upper extremity prostheses

- 1.1 Review *prescriptions or instructions* from *appropriate health professionals* to confirm all required information has been provided
- 1.2 Participate in taking client measurements and *design* of prostheses as directed, and in accordance with *organisation policy and procedure*
- 1.3 Use *effective communication* skills to ensure information collected is accurate

2. Fabricate and trial fit lower and upper extremity prostheses

- 2.1 Assemble materials and *equipment*
- 2.2 Fill and modify cast as required in accordance with client's requirements
- 2.3 Make and fit diagnostic socket if required
- 2.4 Fabricate lower and upper prostheses using appropriate *techniques*, materials and equipment
- 2.5 Clean and store equipment in accordance with manufacturer's specifications and organisation policy and procedures
- 2.6 Trial fit lower and upper prostheses in accordance with organisation policy and modify as required

ELEMENT**PERFORMANCE CRITERIA****3. Finish lower and upper extremity prostheses**

3.1 Finish prosthesis using appropriate materials and techniques

3.2 Align and assemble components correctly

3.3 Fit lower and upper prostheses to client in accordance with organisation policy, and modify as required to ensure client satisfaction with product

3.4 Establish, complete and store job records in accordance with organisation policy and procedures

3.5 Repair and modify lower and upper extremity prostheses as required

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:

- Application of body and externally powered control systems
- Basic applied anthropometrics, anatomy and physiology relevant to the fabrication of spinal, upper and lower extremity prosthetics
- Biomechanical requirements for prostheses design, fabrication and client use
- Impact of prostheses on skin
- Organisation policy and procedure concerning the scope of the role of the prosthetic orthotic technician
- Prostheses construction standards and terminology
- Prosthetic components, materials and fabrication techniques
- Recreational or sports prostheses
- Relevant occupational health and safety standards/legislation, regulatory requirements, health fund reimbursement policies and industry codes of practice
- Role and function of other practitioners in the field, and in major related fields
- Safety and environmental aspects of relevant organisation activities
- Variations in amputation levels and styles and their relative advantages, disadvantages and common pathologies
- Workplace procedures; recording/documentation processes/techniques

Essential skills:

It is critical that the candidate demonstrate the ability 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:

- Apply literacy in English or a community language depending on the language used in

REQUIRED SKILLS AND KNOWLEDGE

pamphlets or workplace manuals

- Apply procedures and processes including reporting requirements
- Assemble and align modular components for prostheses
- Collect and analyse instructions and client information correctly
- Communicate and work effectively with work colleagues, associates and clients encompassing teamwork, client confidentiality, and appropriate communication and interpersonal skills.
- Communicate effectively:
 - with clients and health professionals
 - to obtain clear and precise information
- Communicate with people from diverse cultural and linguistic backgrounds
- Conduct fittings in accordance with organisation policy
- Correctly and safely use hand tools and machinery to fabricate prosthesis
- Fabricate at least a foot, ankle, below knee prostheses, above knee prostheses and a shoulder, arm, partial hand and wrist prostheses to meet clients' requirements
- Fabricate liners and sockets
- Fill a negative plaster cast
- Interpret anatomical measurements and general prosthetic technical information from information sheets and technical drawings to determine clinician and client requirements
- Maintain accurate job records
- Operate hand tools and machinery safely
- Perform limb tracings for cosmetic finishing
- Read and interpret technical drawings, anatomical measurements, limb tracings and specifications
- Recognise, report and manage errors and risk within work role
- Select appropriate materials and techniques for the fabrication of an upper and lower extremity prosthesis
- Take into account opportunities to address waste minimisation, environmental responsibility and sustainable practice issues, including appropriate practices to ensure efficient use of resources
- Undertake prosthetic modifications and repairs
- Use numeracy skills ranging from the ability to complete arithmetic calculations, to measuring and fabricating prosthesis

continued ...

Essential skills (contd):

- Use problem solving skills in the development of prostheses to meet a range of client needs
- Use oral communication skills as required to fulfil job roles in a safe manner and as specified by the organisation, including skills in:
 - asking questions

REQUIRED SKILLS AND KNOWLEDGE

- providing clear information
- listening to and understanding workplace instructions
- clarifying workplace instructions when necessary
- effective verbal and non-verbal communication with a range of internal and external persons
- literacy in English or a community language, depending on client group and organisation requirements
- Use reading and writing skills as required to fulfil job roles in a safe manner and as specified by the organisation at a level of skill that includes reading and interpreting technical specifications, OH&S and organisation policy and procedure manuals, and documenting client information

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
- Observation of workplace performance is essential for assessment of this unit
- Consistency of performance should be demonstrated over the required range of situations relevant to the workplace
- Where, for reasons of safety, space, or access to equipment and resources, assessment takes place away from the workplace, the assessment environment should represent workplace conditions as closely as possible

EVIDENCE GUIDE

Context of and specific resources for assessment:

- Access to an appropriate workplace or simulated work environment where assessment can take place
- Relevant organisation policy, guidelines, procedures and protocols
- Materials and equipment normally found in the workplace to enable the design and fabrication of a prosthesis

Method of assessment may include:

- Observation of work activities
- Observation of simulation
- Written tasks
- Relevant formal and informal education/training courses
- Case studies and scenarios
- Interviews/questioning
- Role plays

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

Related units:

- This unit can be assessed independently
- However holistic assessment practice with other health technician units of competency is encouraged

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.

Upper and lower extremity prostheses may include:

- Upper extremity prostheses (hand, wrist, elbow, shoulder)
- Lower extremity (foot, ankle, knee, hip joints, pelvic band)
- Harness systems: one that unlocks the elbow unit as well as operates the hand unit, one that is used for suspension, joints laminated into sockets
- Body powered and externally powered control systems
- Suspension systems
- Modular systems
- Occupational and recreational prostheses
- Non-standard components
- Shoe/toe filler
- "Shoe horn" prosthesis
- Part inner sole
- Toe break
- Custom partial hand
- Functional attachments
- Socket types
- Wrist disarticulation

RANGE STATEMENT

- Prescriptions or instructions may include:*
- Referral from clinician i.e. type of prosthesis required
 - Client clinical history
 - Client specifications and assessments
 - Work specifications and patterns
 - Design/construction drawings/sketches

- Appropriate health professionals may include:*
- Prosthetist Orthotist
 - Specialist or General Medical Practitioner
 - Physiotherapist
 - Other Allied Health Professionals

- Design may include:*
- Types of material: plastic, resin, silicon liner, pelite liner, thermoplastic foam, high temperature thermoplastic, cork, metal, soft collars, textiles(leather, cotton, synthetic), copper, steels, titanium, aluminium, graphite, polypropylene, plastics, polymeric materials, composites, etc.
 - Component selection i.e.: knee, foot, ankle, pylon, hip joints, pelvic band, hand, wrist, elbow, shoulder, partial feet, cosmetic covers, valves, modular systems, fabrication hardware, straps, control systems, external and body powered units, sockets, socket attachments, etc.
 - Type of Suspension: silicon liner, straps, PTB cuff, PTS, suction, hip joint (mechanical), shoulder belt
 - Selection of appropriate materials: Polymers, leather, appropriate textiles, plastic sheeting, appropriate padding, cosmetic stocking, fastening or closing devices, thermoplastic, thermo set, silicon, modified acrylic resin
 - Assessment of materials for proposed use, durability, function, manufacturing processes, adjustability, maintenance, safe handling procedures
 - Indications for use of specific materials

RANGE STATEMENT

Organisation policy and procedures may relate to:

- Role and supervision of the Prosthetic Orthotic Technician in relation to client contact, design and fitting of prostheses
- Safe use of equipment
- Client records
- Job records
- Occupational health and safety
- Client confidentiality and privacy
- Quality assurance

Effective communication may include:

- Language may be English, sign language or community language depending on client group
- Listening, asking open questions, providing encouragement, displaying empathy

Equipment may include:

- General hand and portable power tools
- Machinery - router, flat bed sewing machine, patcher, infra red heat lamps, pneumatic tools, vacuum pump, oven, lathe, drilling machine, milling machine, cut-off machines, grinders, etc
- Vacuum formers
- Pressure formers
- Welding equipment
- Soldering equipment
- Marking out tools
- Measuring tools and equipment

Techniques may include:

- Incorporating sock adaptors
- Different lay ups of fibreglass
- Using correct resin
- Manufacturing liners

Unit Sector(s)

Not Applicable