



Core Curriculum for Orthotic/Prosthetic Technician

Appendix B of the Standards and Guidelines
for the Accreditation of Educational Programs
in Orthotic and Prosthetic Technician

2011 Edition

APPENDIX B

(If Standard III.C refers to a companion curriculum document, then it will be added by CAAHEP to this Appendix after final approval of the **Standards and Guidelines** document.)

O&P Technician Curriculum

Section A: Entry-level Competencies

The graduate entering the profession must effectively demonstrate competence in the following constructs.

- A.1.1 Understand and explain the role of the orthotic and prosthetic technician in providing ethical patient-centered care by applying the American Board for Certification in Orthotics, Prosthetics and Pedorthics Code of Professional Responsibilities in technical support of patients.
- A.1.2 Practice sound judgment in regard to safety of self and others, and adhere to safety procedures throughout the delivery of orthotic and/or prosthetic services.
- A.1.3 Demonstrate the knowledge and skills necessary to fabricate, adjust and maintain orthotic and prosthetic devices that are both appropriate (based on the prescription and/or instructions provided by practitioner or employer) and structurally sound for patient use.

Section B: General Curriculum – Basic Sciences

The following content related to orthotics and prosthetics must be included in the curriculum:

- a. Human anatomy
- b. Biomechanics/Kinesiology
- c. Material science

Section C: Professional Orthotic and Prosthetic Technical Content Areas

The program must facilitate the development of the performance criteria listed below. The student will be able to demonstrate knowledge and/or skill in the following content areas:

(Note: See end of Section C for a definition/hierarchy of modifications)

C.1.0 LOWER EXTREMITY ORTHOSES

C.1.1 Foot Orthoses

- a. Demonstrate knowledge of current materials used in the fabrication of hard and soft foot orthoses.
- b. Understand the difference between corrective and accommodative foot orthoses.
- c. Demonstrate knowledge and skill to prepare positive models for foot orthoses (category I and II modifications only*).
- d. Demonstrate skill to form materials to fabricate hard and soft orthoses.

- e. Demonstrate knowledge and skill of modifications of foot orthoses.
- f. Demonstrate knowledge and skill to correctly fit foot orthoses into shoes including corrections for heel height.
- g. Demonstrate knowledge of shoe modification.

C.1.2 UCBL Foot Orthoses

- a. Demonstrate knowledge of the bony landmarks and pressure tolerant areas of the foot.
- b. Demonstrate knowledge to locate the medial, lateral, and transverse arches of the foot.
- c. Demonstrate knowledge and skill to prepare a positive UCBL model for fabrication (category I and II modifications only*).
- d. Demonstrate knowledge of materials used to fabricate UCBL orthoses.
- e. Demonstrate knowledge and skill in the processes used to fabricate UCBL orthoses including medial posting and trim lines.

C.1.3 Ankle-Foot Orthoses

- a. Demonstrate knowledge of the following AFO designs:
 - 1. Posterior leaf spring/flexible ankle
 - 2. Plastic solid ankle
 - 3. Axial resisting
 - 4. CROW/neuropathic walker
 - 5. Metal designs
 - 6. Articulated with:
 - a. Dorsiflexion assist
 - b. Dorsiflexion stop
 - c. Plantarflexion resist
 - d. Plantarflexion stop
 - e. Limited motion
 - 7. Hybrid
 - 8. Padded anterior shell
 - 9. Molded inner boot
- b. Demonstrate the skills to fabricate:
 - 1. Plastic AFO
 - 2. Metal AFO with attached shoe
 - 3. Articulated plastic AFO with self-aligning joints (Tamarack)
 - 5. Articulated plastic AFO without self-aligning joints (Oklahoma)
 - 6. Heel posts
 - 7. Various strapping configurations
 - 8. Plastic AFO with modifications for varus and/or valgus ankle control
- c. Demonstrate knowledge of components for various AFOs.
- d. Demonstrate the knowledge and skills to correct a paper tracing to accommodate fixed or flexible deformities of the ankle.
- e. Demonstrate knowledge and skill in making angular changes to a negative model in the sagittal plane, only under a practitioner's instruction (i.e set ankle at 3 degrees of dorsiflexion).

- f. Demonstrate knowledge and skill to prepare positive models for fabrication of AFOs (category I and II modifications only*).

C.1.4 Knee-Ankle-Foot Orthoses

- a. Demonstrate knowledge of the following KAFO designs:
 - 1. Metal designs
 - 2. Plastic
 - 3. Hybrid
 - 4. Stance control
 - 5. Axial resisting
 - 6. Fracture
- b. Demonstrate skill to fabricate:
 - 1. Metal KAFO
 - 2. Plastic/metal (Hybrid) KAFO
- c. Demonstrate knowledge of components for coronal, sagittal and transverse plane control.
- d. Demonstrate the knowledge and skills to correct a lower limb tracing for a KAFO.
- e. Demonstrate knowledge and skill in making angular changes to a negative model in the sagittal plane, only under a practitioner's instruction (i.e set knee in 3 degrees of flexion).
- f. Demonstrate skill to prepare a lower limb positive model for fabrication of a KAFO (category I and II modifications only*).
- g. Demonstrate skill to incorporate tibial torsion into a metal KAFO.

C.1.5 Hip-Knee-Ankle-Foot Orthoses, Standing Frames/Parapodiums

- a. Demonstrate knowledge of the following HKAFO and standing frame designs:
 - 1. Standing frames and parapodiums
 - 2. Reciprocating gait orthoses
 - 3. Metal designs
 - 4. Plastic designs
- b. Demonstrate knowledge of components for various HKAFO designs.
- c. Demonstrate knowledge of hip joint placement.
- d. Demonstrate knowledge of tracing correction principles for fabrication of HKAFOs.
- e. Demonstrate knowledge of spinal control devices that may be incorporated in HKAFO designs.

C.1.6 Knee Orthoses

- a. Demonstrate knowledge of custom and prefabricated KO designs and principles.

C.1.7 Hip Orthoses

- a. Demonstrate knowledge of the following orthoses:
 - 1. Pediatric hip control orthoses
 - 2. Post-surgical/trauma hip control orthoses

C.2.0 UPPER EXTREMITY ORTHOSES**C.2.1 Hand Orthoses and Wrist-Hand Orthoses**

- a. Demonstrate knowledge and skill to fabricate plastic and/or metal hand orthosis and wrist-hand orthoses.
- b. Demonstrate knowledge and skill to prepare positive models (category I and II modifications only*).

C.2.2 Elbow Orthoses and Shoulder-Elbow-Wrist-Hand Orthoses

- a. Demonstrate knowledge in the following:
 1. Elbow orthoses
 2. SEWH orthoses

C.2.3 Fracture Orthoses

- a. Demonstrate knowledge of various upper extremity orthoses for fracture management.

C.3.0 SPINAL ORTHOSES**C.3.1 Lumbo-Sacral and Thoraco-Lumbo-Sacral Orthoses**

- a. Demonstrate knowledge of metal and plastic LSO and TLSO designs.
- b. Demonstrate skills to fabricate the following spinal orthoses:
 1. Metal design LSO or TLSO
 2. Plastic Bi-valve TLSO or LSO
 3. Scoliosis TLSO
- c. Demonstrate knowledge and skill to prepare positive models for spinal orthoses (category I and II modifications only*).

C.3.2 Cervico-Thoraco-Lumbo-Sacral Orthoses

- a. Demonstrate knowledge of metal and plastic CTLSO designs and principles.

C.4.0 COMPUTER AIDED DESIGN/COMPUTER AIDED MANUFACTURING

- a. Demonstrate knowledge of CAD/CAM concepts for orthotic applications.

C.5.0 LOWER EXTREMITY PROSTHETICS**C.5.1 Partial Foot Prostheses**

- a. Demonstrate knowledge of designs and principles for partial foot prostheses.
- b. Demonstrate knowledge of current materials used in the fabrication of partial foot prostheses.
- c. Demonstrate skill to form materials to fabricate partial foot prostheses.
- d. Demonstrate knowledge and skill to prepare positive models for partial foot prostheses (category I modifications only*).

C.5.2 Syme Prostheses

- a. Demonstrate knowledge of designs for Syme prostheses.
- b. Demonstrate the skills to fabricate expandable wall and/or medial opening prostheses.
- c. Demonstrate knowledge and skill to prepare positive models for Syme prostheses (category I modifications only*).
- d. Demonstrate knowledge of alignment for Syme prostheses.

C.5.3 Transtibial Prostheses

- a. Demonstrate knowledge of the following transtibial socket designs and suspensions systems:
 1. Patellar tendon-bearing with cuff suspension
 2. Total surface bearing
 3. Hydrostatic using locking mechanism
 4. Roll-on suction
 5. Waist belt
 6. Supracondylar
 7. Knee joint and thigh lacer
 8. Suspension sleeve
 9. Elevated vacuum
- b. Demonstrate the skills to fabricate:
 1. Exoskeletal transtibial prosthesis
 2. Endoskeletal transtibial prosthesis
 3. Soft interface
 4. Diagnostic sockets
- c. Demonstrate knowledge of components for various transtibial prostheses.
- d. Demonstrate knowledge and skill to prepare positive models for transtibial prostheses (category I modifications only*).
- e. Demonstrate the skills of transtibial alignment and transfer.
- f. Demonstrate techniques for cosmetic finishing of a transtibial prostheses.

C.5.4 Knee Disarticulation Prostheses

- a. Demonstrate knowledge of knee disarticulation prosthetic designs and principles.

C.5.5 Transfemoral Prostheses

- a. Demonstrate knowledge of the following transfemoral socket designs and suspensions systems:
 1. Ischial containment
 2. Quadralateral
 3. Roll-on suction with or without locking mechanism
 4. Hip joint, pelvic band and waist belt
 5. Suction socket
 6. Auxiliary suspension (TES belt, Silesian bandage)
 7. Suspension sleeve
 8. Elevated vacuum
- b. Demonstrate the skills to fabricate:
 1. Diagnostic sockets
 2. Endoskeletal transfemoral prosthesis
- c. Demonstrate knowledge of components for various transfemoral prostheses.
- d. Demonstrate knowledge and skills to prepare positive models for transfemoral prostheses (category I modifications only*).
- e. Demonstrate the skills of transfemoral alignment and transfer.

- f. Demonstrate techniques for cosmetic finishing of transfemoral prostheses.

C.5.6 Hip Disarticulation / Hemipelvectomy Prostheses

Demonstrate knowledge of hip disarticulation and hemipelvectomy prosthetic designs and principles.

C.6.0 UPPER EXTREMITY PROSTHETICS

C.6.1 Transradial Prostheses

- a. Demonstrate knowledge of the following transradial designs and principles:
 1. Partial hand
 2. Passive/cosmetic
 3. Flexible and rigid hinges
 4. Suspension techniques
 5. Body powered
 6. External powered
- b. Demonstrate the skills to fabricate:
 1. Short transradial prosthesis
 2. Long transradial prosthesis
 3. Rigid and flexible hinges
 4. Control harness and cable system
- c. Demonstrate knowledge of components for various transradial prostheses.
- d. Demonstrate knowledge and skill to prepare positive models for transradial prostheses (category I modifications only*).
- e. Demonstrate the skill of transradial alignment.
- f. Demonstrate techniques for cosmetic finishing of transradial prostheses.

C.6.2 Transhumeral Prostheses

- a. Demonstrate knowledge of the following transhumeral designs and principles:
 1. Elbow disarticulation
 2. Shoulder disarticulation
 3. Interscapular-thoracic
 4. Transhumeral
 5. Passive/cosmetic
 6. Body powered
 7. External powered
 8. Suspension techniques
- b. Demonstrate the skills to fabricate:
 1. Transhumeral prosthesis
 2. Control harness and cable system
- c. Demonstrate knowledge of components for various transhumeral prostheses.
- d. Demonstrate knowledge and skill to prepare positive models for transhumeral prostheses (category I modifications only*).
- e. Demonstrate the skill of transhumeral alignment.

- f. Demonstrate techniques for cosmetic finishing of transhumeral prostheses.

C.7.0 COMPUTER AIDED DESIGN/COMPUTER AIDED MANUFACTURING

- a. Demonstrate knowledge of CAD/CAM concepts for prosthetic applications.

*** Definition/hierarchy of modifications:**

- *Category I - Artifact modifications*
 - *Removal of surface deformations caused by poor casting technique*
 - *Filling of voids produced by air in the plaster mixture, cast sock/nylon separation*
 - *Extraneous surface irregularities resulting from cast seams, leaks, etc*
 - *Any other surface modifications and smoothing procedures that do not substantially alter the surface topography or biomechanical attributes of the model*
- *Category II - Accommodative modifications*
 - *Standardized buildups/reliefs over well-identified common areas of concern such as malleoli, bony prominences on foot, knee joint regional prominences, etc.*
- *Category III - Biomechanical modifications*
 - *Modifications to negative/positive model resulting in significant changes to the volumetric/weight-distribution characteristics of the ensuing socket*
 - *Any changes to the negative/positive model that would alter the pre-existing biomechanical properties of the model*

Section D: Practicum

D.1.0 PRACTICUM CONTENT

The student must be able to articulate how the theoretical concepts learned within didactic coursework are exemplified in laboratory settings within all of the content areas listed. The student also must have had opportunities to, under supervision, participate and demonstrate novice skills within each of the content areas.

D.1.1 - Lower Extremity Orthoses

D.1.2 - Upper Extremity Orthoses

D.1.3 - Spinal Orthoses

D.1.4 - Computer Aided Design/Computer Aided Manufacturing for Orthotic/Prosthetic Applications

D.1.5 - Lower Extremity Prostheses

D.1.6 - Upper Extremity Prostheses

D.2.1 Explain the role of the orthotic and prosthetic technician in providing ethical patient-centered care by applying the American Board for Certification in Orthotics, Prosthetics and Pedorthics Code of Professional Responsibilities in technical support of patients.

It is recommended that participating facilities comply with facility accreditation standards as outlined by a national orthotic and prosthetic accrediting body.

It is recommended that the practicum be 120 hours per discipline.