



How to Use the Detailed Content Outline to Prepare for the Prosthetist, BOC-Certified (BOCP) Multiple Choice Certification Examination

The ***Prosthetist, BOC-Certified Detailed Content Outline*** is a schedule of the tasks involved and the domains of the practice of a Prosthetist. The Content Outline is derived from a Job Analysis, a careful description of the tasks performed by practitioners. A randomized national survey of O&P practitioners is conducted by BOC every five years to determine what changes, if any, have occurred in the practice. From this survey the Content Outline is updated and the exam questions revised.

You will have three hours for completion of this segment, consisting of 150 multiple choice questions and 15 unscored pre-test questions. Each question on the exam is based on this outline. In fact, **none** of the BOC certification exams can contain any question, case simulation or demonstration that cannot be directly linked to a specific item in the relevant Content Outline. Therefore, to prepare to take the exam, we suggest that you study this Outline and especially consider what the underlying knowledge, skills and abilities you need to be able to serve patients.

The format of the exam is such that it does not follow this outline in order; rather, questions regarding outline sections are placed randomly throughout the exam. In order to understand how to fit a Lumbosacral Orthoses for example, one has to comprehend the relevant anatomy, the pathophysiology, the material and engineering sciences, etc.

A practitioner must be a complete instrument for patient care, providing maximum benefit, not just fabrication, adjustment or placement. This, then, is the basis for the examinations that test the knowledge, skills and abilities of a competent practitioner. It is not sufficient just to know how to fit a patient with a device – your patient has to be able to benefit from your service. This will not happen until s/he, for example, knows how to don and doff, care for, and in general utilize the orthosis provided. This is why each candidate is required to have a significant period of patient care practice experience to be eligible to take the exam. You won't get all your preparation at school --you will learn the fundamentals and then sharpen them during patient care practice. To study, review your original training materials. Bring your patient experience into play; it is indispensable.

To study a good sample of questions on-line please refer to the **Self-Assessment Examination (SAE)** or practice test, developed by experts to help you prepare for certification. All questions come from prior exams; answers are confidential, a computer grades your exam. Several reports help you understand your grade and establish your strengths and weaknesses. You may re-take the exam as often as you like, in the privacy of your home or office. For more information regarding the SAE, please go to www.bocusa.org.

Now, to the specifics of the Prosthetist Detailed Content Outline.

Performance Levels

There are three Performance Levels, or levels of difficulty, for exam questions: Recall (RE), Application (AP), and Analysis/Evaluation (AN).

RECALL (RE) questions require only the recognition of specific factual information, which generally does not vary, relative to the situation. An example is:

An amputation at the level of the styloids would be considered which of the following types of amputation?

- A. intrascapulothoracic
- B. elbow disarticulation
- C. wrist disarticulation
- D. shoulder disarticulation

APPLICATION (AP) questions require the comprehension, interpretation or manipulation of concepts or data, in which the response or outcome is situationally dependent, but not overly complex (i.e., application of knowledge which varies based on patient and environmental characteristics). An example is:

To increase knee stability in an above-knee prosthesis with a single-axis foot, the Prosthetist should

- A. flex the socket.
- B. dorsiflex the foot.
- C. plantarflex the foot.
- D. move the knee center forward

ANALYSIS/EVALUATION (AN) questions require integration or synthesis of a variety of concepts or elements to solve a specific problem situation (i.e., evaluating and rendering judgments on complex problems with many situational variables). An example is:

A person with an above-knee amputation may have an abducted gait if

- 1. there is pain or discomfort in the crotch area.
 - 2. the prosthesis is too long.
 - 3. there is insufficient knee friction.
 - 4. there is insufficient socket flexion.
- A. 1 and 2 only
 - B. 1 and 4 only
 - C. 2 and 3 only
 - D. 3 and 4 only

Now, examine the Content Outline. Note the three **bold face numbers on the top right** of the Outline: these indicate the number of questions in each section by performance level. The total number of questions, by performance level is summed at the end of the Content Outline (i.e., 34 RE, 67 AP, 49 AN, total 150 questions). Note half of the questions (67) are at the Application (AP) level, which is testing your understanding, analysis and management of concepts or data from a patient in a particular situation. Both AP and AN questions require clinical patient care experience.

To understand how to use the Content Outline to anticipate the exam questions, consider the following two examples. Compare Example 1 and 2 below with the Content Outline section 1 and 9. Notice that there is not one reference source encompassing all that is contained in the exam; it is a combination of education, training and experience.

Example 1: *Reprinted from Prosthetist Content Outline*

	<u>RE</u>	<u>AP</u>	<u>AN</u>
	2	5	1
I. Facilities Management			
Determine elements of the fitting room (e.g., adjustable stool, exam/fitting table, mirror, hard back chair, and parallel bars, or other appropriate ambulating device)			
Determine required equipment, tools, and materials			
manufacturing/alteration equipment (e.g., heat gun, oven, bending irons, sewing machine, alignment device, anvil, grinding and carving tools, vise)			
measuring devices (e.g., tape measures, goniometer, calipers, VAPC caliper, ML gauge, measuring chart, plumb bob, yard/meter stick)			
casting equipment and materials (e.g., saws, spreaders, stockinette, indelible pencil, plaster of paris, fiberglass, surgical gloves, water, bowls)			
Comply with environmental safety regulations in all practice settings (e.g., pathogens, cross-infection, work place hazards)			
Assure quality care by development and maintenance of policies and procedures regarding patients, prescribers, personnel, maintenance of records, etc.			
Comply with HIPAA regulations			

Section 1. There will be 8 questions on the exam devoted to **Facilities Management**, 2 RE, 5 AP, and 1 AN. To understand this section it may be helpful to download the BOC Facility Accreditation materials, www.bocusa.org for review of important aspects of facility management.

- You may be asked how to use equipment (1.B.), measuring devices (1.B.2.), or casting equipment (1.B.3.).
- Knowledge about the fitting room (1.A.) and tools required for proper patient care (1.B.) may be asked.
- Questions are asked regarding technical and clinical elements of the fitting room (1.A.) and safety (1.C.).
- For C, think “OSHA,” work safety, and make sure you are current on those regulations.
- There are also questions throughout the exam relevant to your office professional policies and procedures (1.D.), so review your manuals and records system.
- Questions concerning exposure to pathogens and cross-infection (1.C.) are asked.

Example 2: Reprinted from *Prosthetist Content Outline*

	<u>RE</u> 3	<u>AP</u> 3	<u>AN</u> 9
I. 10. Application and Evaluation			
Perform Static and Dynamic Alignment of Lower Extremity Prosthesis			
Ensure proper socket fit (e.g., sock ply and sock impressions)			
Determine length			
Check knee stability			
Determine proper toe out			
Evaluate gait			
Adjust alignment to develop optimal gait			
Check for adequate suspension			
Perform Static and Dynamic Alignment of Upper Extremity Prosthesis			
Ensure socket fit (e.g., sock ply and sock impressions)			
Determine prosthesis length			
Apply and adjust harness/control system to optimize prosthetic function			

Section 10. Application and Evaluation has 15 total questions, 3 RE, 3 AP, and 9 AN questions, regarding application and evaluation of the patient, which may be placed at random anywhere throughout the exam.

- Questions may be asked regarding evaluation and device applications relative to the patient and clinical situation, and may be asked in any section of the exam, relative to any professional activity, i.e., ethics, patient communication.
- You need to know the underlying pathology (3.A. 2-3), the anatomy (7.B.2), to explain the objective of each prosthesis (4.A.),
 - measuring for each device (1.B.2., 7 B.),
 - fitting and customizing these devices (8.)
- You may be asked for information (4.), on how to:
 - don and doff the device (4.B.)
 - communicate logically (4.)
 - observe patient confidentiality (2.A.).



Prosthetist Detailed Content Outline	Cognitive Level			Total
	Recall	Application	Analysis	
An "X" denotes the examination will NOT contain items for the given task at the cognitive level indicated in the respective column (recall, application, or analysis).				
*Tasks are available for assessment by the Prosthetist Clinical Simulation Examination.				
I. Facilities Management	2	5	1	8
A. Determine elements of the fitting room (e.g., adjustable stool, exam/fitting table, mirror, hard back chair, and parallel bars, or other appropriate ambulating device)		X	X	
B. Determine required equipment, tools, and materials				
1. manufacturing/alteration equipment (e.g., heat gun, oven, bending irons, sewing machine, alignment device, anvil, grinding and carving tools, vise)			X	
2. measuring devices (e.g., tape measures, goniometer, calipers, VAPC caliper, ML gauge, measuring chart, plumb bob, yard/meter stick)			X	
3. casting equipment and materials (e.g., saws, spreaders, stockinette, indelible pencil, plaster of paris, fiberglass, surgical gloves, water, bowls)			X	
C. Comply with environmental safety regulations in all practice settings (e.g., pathogens, cross-infection, work place hazards)				
D. Assure quality care by development and maintenance of policies and procedures regarding patients, prescribers, personnel, maintenance of records, etc.				
E. Comply with HIPAA regulations			X	
II. Perform Professional Practice/Ethics	2	4	1	7
A. Maintain patient confidentiality			X	
B. Provide training, lectures and information to staff or other health care professionals on current orthotic/prosthetic information			X	
C. Establish a quality assurance system that evaluates patient care				
D. Participate in orthotic/prosthetic clinics			X	
E. Fulfill necessary continuing education requirements			X	
III. Patient Assessment/Evaluation	5	5	13	23
A. Establish relationship with patient				
1. Patient intake				
a. Record all personal and insurance information about patient			X	
b. Discuss financial matters for services/devices with patient			X	
c. Determine patient's expectations				
d. Interview patient and obtain history			X	

Prosthetist Detailed Content Outline

An "X" denotes the examination will **NOT** contain items for the given task at the cognitive level indicated in the respective column (recall, application, or analysis).

*Tasks are available for assessment by the Prosthetist Clinical Simulation Examination.

Prosthetist Detailed Content Outline	Cognitive Level			Total
	Recall	Application	Analysis	
e. Collect and evaluate patient records				
f. Identify the pathology of the disease to provide the proper orthosis or prosthesis			X	
g. Discuss any related medical treatment(s)				
B. Evaluate and assess patient to determine				
1. skin condition				
2. range of motion				
3. muscle strength				
4. manual dexterity				
5. coordination				
6. posture and gait				
7. proprioception				
8. sensation				
C. Assess Prescription				
1. Determine elements of a valid prescription				
a. Verify validity of prescriber			X	
b. Verify information contained on prescription			X	
2. Determine relation of prescription to presenting problem				
3. Discuss prescription with patient (i.e., explain the patient's role/responsibilities)			X	
4. Contact prescribing doctor and discuss/revise prescription				
IV. Communication/Patient Education	3	9	3	15
A. Explain purpose/objective of orthosis/prosthesis				
1. Inform patient and/or caregiver of the various procedures to be performed			X	
2. Explain advantages and disadvantages				
3. Determine patient's expectations				
4. Explain patient's role/responsibilities			X	
B. Provide initial instructions				
1. Instruct patient and/or caregiver in donning, doffing, care of orthosis/prosthesis			X	
2. Demonstrate proper application, alignment and removal			X	
3. Instruct patient and/or caregiver in fitting adjustments such as using prosthetic socks or tightening straps, etc.			X	

Prosthetist Detailed Content Outline

An "X" denotes the examination will **NOT** contain items for the given task at the cognitive level indicated in the respective column (recall, application, or analysis).

*Tasks are available for assessment by the Prosthetist Clinical Simulation Examination.

	Cognitive Level			Total
	Recall	Application	Analysis	
4. Explain how to recognize potential problems (e.g., pressure points, skin breakdown, numbness, contractures)				
5. Explain care and cleaning procedures			X	
C. Evaluate psychological impact of devices on patient, family and others				
D. Establish procedures for patient follow-up				
1. Initiate and encourage on-going communication with patient and/or caregiver			X	
2. Develop and maintain patient's records			X	
3. Inform patient and/or caregiver of provisions for continued servicing of device (e.g., adjustments, consultation)			X	
4. Communicate with the patient and/or caregiver verbally and in writing			X	
E. Conduct inter-professional communications			X	
V. Orthosis/Prosthesis Application and Delivery	4	14	4	22
A. Finalize alignment and fit orthosis/prosthesis to patient				
1. Don orthosis/prosthesis to patient and finalize alignment, fit, and cosmetic appearance			X	
2. Demonstrate proper application, alignment and removal			X	
3. Demonstrate to patient and/or caregiver donning, doffing, fitting adjustments and care of orthosis/prosthesis			X	
4. Explain how to recognize potential problems (e.g., pressure points, skin breakdown, numbness, contractures)				
5. Have patient and/or caregiver demonstrate proper application and removal			X	
6. Have patient and/or caregiver sign receipts and acknowledgments			X	
B. Explain follow-up procedures			X	
C. Refer to physician for post-fitting follow-up			X	
VI. Patient Follow-up	3	9	3	15
A. Evaluate fit and function of orthosis/prosthesis				
B. Perform necessary adjustments			X	
C. Schedule follow-up visits			X	
VII. Patient Preparation/Evaluation	6	7	2	15
A. Evaluate condition of residual limb(s)				
1. Discuss anatomical powered systems			X	

Prosthetist Detailed Content Outline

An "X" denotes the examination will **NOT** contain items for the given task at the cognitive level indicated in the respective column (recall, application, or analysis).

*Tasks are available for assessment by the Prosthetist Clinical Simulation Examination.

	Cognitive Level			Total
	Recall	Application	Analysis	
2. Discuss battery powered systems (e.g., computerized leg, myoelectric arm)			X	
3. Evaluate function and potential functional level				
4. Examine physiology (e.g., suture line, edema, contracture)				
B. Cast and measure patient				
1. Select technique(s)			X	
2. Identify anatomical landmarks		X	X	
3. Capture shape, volume and special features of the limb				
4. Record anatomical measurements for fitting and fabrication			X	
C. Identify Amputation Levels				
1. Lower Extremity				
a. partial foot		X	X	
b. Syme's		X	X	
c. transtibial		X	X	
d. knee disarticulation		X	X	
e. transfemoral		X	X	
f. hip disarticulation		X	X	
g. hemipelvectomy		X	X	
2. Upper Extremity				
a. partial hand		X	X	
b. wrist disarticulation		X	X	
c. transradial		X	X	
d. elbow disarticulation		X	X	
e. transhumeral		X	X	
f. shoulder disarticulation		X	X	
g. interscapulo-thoracic		X	X	
VIII. Design Selection	6	7	2	15
A. Select Socket Design - Lower Extremity				
1. Partial Foot				
2. Syme's				
3. Transtibial				
4. Knee disarticulation				
5. Transfemoral				
6. Hip disarticulation			X	
7. Hemipelvectomy			X	

Prosthetist Detailed Content Outline

An "X" denotes the examination will **NOT** contain items for the given task at the cognitive level indicated in the respective column (recall, application, or analysis).

*Tasks are available for assessment by the Prosthetist Clinical Simulation Examination.

Prosthetist Detailed Content Outline	Cognitive Level			Total
	Recall	Application	Analysis	
B. Select Socket Design - Upper Extremity				
1. Partial hand			X	
2. Wrist disarticulation			X	
3. Transradial				
4. Elbow disarticulation			X	
5. Transhumeral				
6. Shoulder disarticulation			X	
C. Select Suspension Design for Lower Extremity				
1. Partial Foot				
a. AFO-style			X	
b. toe-filler in shoe			X	
2. Syme's				
a. expandable wall			X	
b. window			X	
c. wedge			X	
3. Transtibial				
a. PTB/SC			X	
b. cuff strap			X	
c. suction			X	
d. suspension sleeve			X	
e. shuttle lock (e.g., 3S)			X	
f. thigh corset and joints			X	
g. removable medial wedge			X	
h. inverted Y and waist belt			X	
4. Knee Disarticulation				
a. condylar suspension			X	
b. medial window			X	
c. suction			X	
5. Transfemoral				
a. suction			X	
b. hip joint, pelvic band, and waist belt			X	
c. TES belt			X	
d. shuttle lock			X	
e. Silesian band			X	
6. Hip disarticulation				

Prosthetist Detailed Content Outline

An "X" denotes the examination will **NOT** contain items for the given task at the cognitive level indicated in the respective column (recall, application, or analysis).

*Tasks are available for assessment by the Prosthetist Clinical Simulation Examination.

	Cognitive Level			Total
	Recall	Application	Analysis	
a. supra pelvic suspension			X	
7. Hemipelvectomy				
a. Supra pelvic suspension			X	
D. Select Suspension Design for Upper Extremity				
1. Partial hand				
a. glove			X	
2. Wrist Disarticulation				
a. figure 8			X	
b. styloid			X	
3. Transradial				
a. muenster			X	
b. figure 8			X	
c. suction			X	
d. shuttle lock			X	
4. Elbow disarticulation				
a. figure 8			X	
b. condylar			X	
5. Transhumeral				
a. figure 8			X	
b. shuttle lock			X	
c. suction			X	
d. shoulder saddle with chest strap			X	
6. Shoulder disarticulation-shoulder saddle with chest strap			X	
E. Select Design and Componentry for Lower Extremity				
1. Exoskeletal (e.g., ultra lite, standard weight)				
2. Endoskeletal (e.g., ultra lite, standard weight, high activity)				
3. Socket interfacing (e.g., silicone, multidurometer)				
4. Foot (e.g., SACH, energy storing/returning, multi axis)				
5. Knee (e.g., single axis, manual lock, polycentric/4-bar)				
F. Select Design and Componentry for Upper Extremity				
1. Terminal device (e.g., hook, hand)				
2. Wrist (e.g., quick disconnect, friction wrist)				
3. Elbow (e.g., single axis rigid, internal locking)				
4. Shoulder (e.g., flexion/abduction joint)				
5. Sock choice (e.g., wool, cotton, synthetic)				

Prosthetist Detailed Content Outline

An "X" denotes the examination will **NOT** contain items for the given task at the cognitive level indicated in the respective column (recall, application, or analysis).

*Tasks are available for assessment by the Prosthetist Clinical Simulation Examination.

	Cognitive Level			Total
	Recall	Application	Analysis	
IX. Fabrication	3	9	3	15
A. Design and Fabricate Socket				
1. Prepare cast or image for modification			X	
2. Modify model:				
a. to relieve pressure in sensitive areas and apply pressure in pressure-tolerant areas				
b. to achieve total surface bearing				
3. Fabricate insert and distal pads				
a. form cone of desired foam material			X	
b. shape distal pad			X	
c. form pad and cone to modified model			X	
4. Fabricate socket				
a. check socket - prepare mold for definitive socket			X	
b. laminated socket			X	
c. vacuum form thermo-plastic socket			X	
B. Perform Bench Alignment of Lower Extremity Prosthesis			X	
C. Perform Bench Alignment of Upper Extremity Prosthesis			X	
D. Transfer Alignment from Fitted Prosthesis to Definitive Prosthesis			X	
X. Application and Evaluation	3	3	9	15
A. Perform Static and Dynamic Alignment of Lower Extremity Prosthesis				
1. Ensure proper socket fit (e.g., sock ply and sock impressions)				
2. Determine length				
3. Check knee stability				
4. Determine proper toe out				
5. Evaluate gait				
6. Adjust alignment to develop optimal gait				
7. Check for adequate suspension				
B. Perform Static and Dynamic Alignment of Upper Extremity Prosthesis				
1. Ensure socket fit (e.g., sock ply and sock impressions)				
2. Determine prosthesis length				
3. Apply and adjust harness/control system to optimize prosthetic function				
TOTALS	37	72	41	150