

**Graduate School of Health Sciences / Orthosis-Prosthesis M.S.**

**2024 - 2025 Academic Year**

**PROSTHESIS TECHNOLOGY**

**Syllabus**

Course Description					
Name	Code	Semester	T+A Hour	Credit	ECTS
PROSTHESIS TECHNOLOGY	OPZY1134650	Fall Semester	3+0	3	8
<b>Prerequisites Courses</b>					
<b>Recommended Elective Courses</b>					
<b>Language of Instruction</b>	Turkish				
<b>Course Level</b>	Second Cycle (Master's Degree)				
<b>Course Type</b>	Elective				
<b>Course Coordinator</b>	Assoc.Prof. Esra ATILGAN				
<b>Name of Lecturer(s)</b>	Assist.Prof. Gizem BOZTAŞ ELVERİŞLİ				
<b>Assistant(s)</b>					
<b>Aim</b>	The aim of this course is to evaluate the effect of prostheses manufacturing, new technological material, equipment and features in rehabilitation on functional capacity and utilities and supplies needed for gait, sport and reaction activities.				
<b>Course Content</b>	This course contains; Introduction and Terminology, History in prostheses, Amputation causes and levels, Prosthetic materials and technology of this material, Technological developments in dentures, the effect of other technological developments, Socket designs and production techniques in upper extremity prostheses, Socket designs and production techniques in lower extremity prostheses, Prosthetic foot technology, Prosthetic hand technology, Prosthesis control methods (cable, myoelectric, cognitive), Pediatric prostheses, Prosthetics technology for elite athletes, Adaptation of prosthesis to recreational activity, Best practice examples and discussion.				
<b>Course Learning Outcomes</b>			<b>Teaching Methods</b>	<b>Assessment Methods</b>	
Explains the history of prosthesis.			10, 16, 9	A	
Recognizes upper and lower extremity prosthetic materials.			14, 4, 9	A	
Explains technological developments in prosthesis.			12, 16, 9	A	
Explains technological developments in upper extremity prosthesis applications.			12, 16, 9	A	
Explains technological developments in lower extremity prosthesis applications.			12, 16, 9	A	
Uses recreational activities in prosthetics.			12, 6, 9	A	
<b>Teaching Methods</b>	10: Discussion Method, 12: Problem Solving Method, 14: Self Study Method, 16: Question - Answer Technique, 4: Inquiry-Based Learning, 6: Experiential Learning, 9: Lecture Method				
<b>Assessment Methods</b>	A: Traditional Written Exam				
<b>Lecture Schedule</b>					
<b>Sequence</b>	<b>Topics</b>	<b>Preliminary Preparation</b>			
1	Introduction and Terminology	Source 1-6th			
2	History in prostheses	Source 1-3th			
3	Amputation causes and levels	Source 1st-2nd			
4	Prosthetic materials and technology of this material	Source 4th			
5	Technological developments in dentures, the effect of other technological developments	Source 1st-4th			
6	Socket designs and production techniques in upper extremity prostheses	Source 7th-8th			
7	Socket designs and production techniques in lower extremity prostheses	Source 1st-4th-6th-7th			
8	Prosthetic foot technology	Source 1st-4th-6th-7th			
9	Prosthetic hand technology	Source 1st-7th-8th			
10	Prosthesis control methods (cable, myoelectric, cognitive)	Source 4th-7th-8th			
11	Pediatric prostheses	Source 7th-9th			
12	Prosthetics technology for elite athletes	Source 1-9			
13	Adaptation of prosthesis to recreational activity	Source 1st-9th			
14	Best practice examples and discussion	Source 7th-9th			
<b>Evaluation Methods</b>		<b>Weight(%)</b>			
Midterm Exam		50			
General Exam		50			

Resources	
Course presentations will be given.	
1) AAOS Atlas of Orthoses and Assistive Devices Frank Gottschalk, MD, MB, BCh, 2013	
2) Atlas of Amputations and Limb Deficiencies/Douglas G. Smith MD, 2013	
3) Orthotics and Prosthetics in Rehabilitation/Lusardi & Jorge & Nielsen, 2013	
4) Cassandra S. Crawford, Phantom Limb: Amputation, Embodiment, and Prosthetic Technology (Biopolitics), New York University Press, NY, 2014, (ISBN 978-0-8147-8928-5)	
5) Bella J. May; Margery A. Lockard, Prosthetics & Orthotics in Clinical Practice : A Case Study Approach F.A Davis Company, Philadelphia, 2011, (ISBN-13: 978-0-8036-2257-9)	
6) Ron Seymour Prosthetics and Orthotics: Lower Limb and Spinal, Lippincott Williams & Wilkins, 2002 (ISBN 13: 978-0781728546)	
7. Hugh Herr, Graham Paul Whiteley, Dudley Childress Cyborg Technology - Biomimetic Orthotic and Prosthetic Technology	
8) Castelli VP, Troncosi M. Grasping the Future: Advances in Powered Upper Limb Prosthetics	
9) Edelman J, Moroz A. Lower-Limb Prosthetics and Orthotics: Clinical Concepts (ISBN 13 978-1-55642-896-8)	