

# Course Catalog

## Physiotherapy Study 2024-25

### **1. Anatomy with Histology** **Year 1** **7 ECTS**

This course provides in-depth knowledge of human anatomy and histology, especially concerning the musculoskeletal system. Students learn to identify anatomical structures and understand their functions. The goal is to develop a comprehensive understanding of human anatomy for advanced clinical studies.

### **2. Physics** **Year 1** **5 ECTS**

The course covers fundamental physical concepts essential for understanding human physiology and their application in physiotherapy. Topics such as biomechanics, acoustics, ultrasound, and electromagnetism are explored. The goal is to apply physical principles to the human body and therapeutic procedures.

### **3. Biochemistry and Microbiology** **Year 1** **5 ECTS**

This course provides the basics of microbiology and biochemistry, focusing on microbiological samples, infectious agents, and biochemical processes in the human body. Students learn to handle microbiological samples correctly and understand the biochemical mechanisms affecting life.

### **4. Psychology** **Year 1** **5 ECTS**

This course provides a deep understanding of psychosocial factors influencing physical pain and offers a comprehensive overview of health psychology, stress management, and psychosomatic disorders. Students learn how to provide psychosocial support to patients and positively influence their habits. The aim is to identify and critically analyze psychological theories and concepts, enabling high-quality care and support for patients and their families.

### **5. Physiotherapy Skills I** **Year 1** **6 ECTS**

The course teaches the basic skills of physiotherapy, including therapeutic exercises and manual techniques. Students learn techniques for pain relief, improving mobility, and reducing swelling. The goal is to plan physiotherapy processes based on patients' individual needs.

### **6. Physiotherapy Assessment** **Year 1** **5 ECTS**

The course focuses on the evaluation techniques used in physiotherapy, including patient assessment through observation, palpation, and various physical tests. Students will learn how to measure joint mobility, muscle strength, and endurance using tools like dynamometry. They will also be trained in assessing posture, pain, daily activities, and overall physical condition. The aim is to equip students with the skills necessary to perform comprehensive patient assessments, interpret the results, and create appropriate treatment plans to address individual needs.

## **7. Research Methodology in Physiotherapy Year 1 5 ECTS**

In this course, students acquire the basics of scientific research, including data collection methods, statistical techniques, and the application of qualitative and quantitative methods. The goal is to translate research findings into physiotherapy practice and write scientific texts.

## **8. Physical Factors in Therapy Year 1 5 ECTS**

The course covers the application of physical therapies, including kinesiotherapy, thermotherapy, electrotherapy, and magnetotherapy. Students learn to plan and apply physical factors in therapy to relieve symptoms and support healing. The goal is to apply various physical therapy methods in practice.

## **9. Functional Anatomy Year 1 6 ECTS**

This course focuses on understanding the human body's structure and function, with special emphasis on the locomotor system. Students will study the anatomy of cells, tissues, and organ systems, including the skeletal, muscular, respiratory, and nervous systems. The course emphasizes functional anatomy, helping students to grasp the interactions between different systems and their influence on movement. Students will apply their knowledge of anatomy in physiotherapeutic contexts and learn how these systems work together to facilitate human motor skills and physical functionality.

## **10. Professional Ethics Year 1 4 ECTS**

In this course, students learn the ethical foundations of healthcare professions and the ethical challenges in physiotherapy. They develop the ability to analyze ethical dilemmas and act according to professional ethics. The course promotes responsibility and ethical communication within the team.

## **11. Nursing Year 1 4 ECTS**

This course introduces the fundamental principles of nursing science, including the development of nursing philosophy and modern practice. Students learn nursing theories and interdisciplinary collaboration. The goal is to document nursing interventions and critically analyze nursing processes.

## **12. Communication Skills Year 1 3 ECTS**

This course focuses on developing effective communication skills for healthcare professionals. It covers verbal and non-verbal communication, empathy, and how to communicate with patients, families, and healthcare teams. Students will explore how communication impacts patient outcomes, how to deliver difficult news, and how to handle challenging situations with patients in various emotional states. The course also covers medical terminology and communication strategies for both individual and group settings. By the end, students will be able to communicate effectively in healthcare environments.

### **13. Physiology with Pathophysiology** **Year 2** **5 ECTS**

This course introduces the physiological processes of the body and their disturbances in illness. Topics such as cell and muscle physiology, the cardiovascular system, respiration, digestion, and hormonal functions are covered. Students learn how to recognize and analyze pathological changes and apply them in specific disease contexts.

### **14. Manual Physiotherapy** **Year 2** **5 ECTS**

In this course, students learn the biomechanical foundations and various techniques of manual therapy to treat musculoskeletal disorders. Anatomical knowledge and the practical application of manual techniques, such as soft tissue mobilization and post-isometric relaxation, are emphasized. The goal is to confidently apply manual therapy in clinical practice.

### **15. Biomechanics** **Year 2** **5 ECTS**

The course provides foundational knowledge in biomechanics and mechanics, including motion analysis and the measurement of kinetic parameters. Students learn to diagnose biomechanical issues and capture EMG signals for kinesiological electromyography. Practical applications are reinforced through lab exercises.

### **16. Physiotherapy I** **Year 2** **6 ECTS**

This course introduces physiotherapy in various medical fields, including orthopedics, traumatology, and sports medicine. Students learn to apply orthoses and prostheses and conduct physiotherapy screenings for systemic diseases. An introduction to joint mobilization completes the course content.

### **17. Physiotherapy II** **Year 2** **5 ECTS**

This course covers physiotherapy in cardiology, pulmonology, oncology, and traumatology. Students learn to apply physiotherapeutic interventions for cardiovascular diseases, post-heart surgeries, and cancer patients. The course also includes physiotherapy on intensive care units.

### **18. Clinical Kinesiology** **Year 2** **5 ECTS**

Students learn to analyze body movements and apply this knowledge in rehabilitation. The course focuses on neurophysiology, posture development, and segmental analysis of specific body parts. The goal is to apply the acquired knowledge in clinical practice, especially for postural pathologies.

### **19. Clinical Medicine I** **Year 2** **5 ECTS**

This course provides practical skills for orthopedic examination and treatment. Topics such as surgery, traumatology, sports medicine, and the basics of prosthetics are covered. The goal is to equip students with comprehensive knowledge for treating musculoskeletal injuries.

### **20. Clinical Medicine II** **Year 2** **4 ECTS**

In this module, students gain knowledge of treating cardiovascular, respiratory, and musculoskeletal disorders, as well as gynecological and pediatric physiotherapy. The focus is on managing acute and chronic conditions.

### **21. Rehabilitation Medicine** **Year 2** **6 ECTS**

This course teaches the principles and methods of rehabilitating patients with various injuries and disabilities. Students learn to develop individual rehabilitation plans and apply appropriate aids. Various pathologies and treatment approaches are also covered.

## **22. Special Topics in Physiotherapy I** **Year 2** **5 ECTS**

The course focuses on physiotherapeutic approaches in gynecology, obstetrics, and pediatrics. Students learn to develop and implement physiotherapy treatment plans for women and children. The goal is to acquire a deep understanding of specialized physiotherapy concepts and apply them in practice.

## **23. Manual Therapy II** **Year 3** **5 ECTS**

This course focuses on spine treatment using the Levit method. Students learn manual diagnostic and treatment techniques and develop analytical thinking to improve their manual therapy skills. The goal is to successfully apply and evaluate spinal treatments in clinical practice.

## **24. Clinical Medicine III** **Year 3** **5 ECTS**

This course covers the basics of neurology, psychiatry, and neurosurgery. Students learn about key neurological and neurosurgical emergencies and develop an understanding of neurological and psychiatric disorders and their treatments. The course prepares students for interdisciplinary collaboration in rehabilitation.

## **25. Physiotherapy Skills II** **Year 3** **5 ECTS**

This course covers neurophysiotherapeutic concepts such as the Bobath method, the Vojta concept, and PNF (Proprioceptive Neuromuscular Facilitation). Students learn to apply these methods in practice and explore motor learning and neural plasticity. The goal is to enhance neurophysiotherapeutic treatment skills.

## **26. Hygiene and Social Medicine** **Year 3** **5 ECTS**

Students learn the basics of health prevention, environmental factors affecting health, and the organization and rights within healthcare. They also explore health promotion and demographic indicators that help assess the population's health status.

## **27. Legal Issues in Healthcare** **Year 3** **4 ECTS**

The course covers the EU and Austrian legal framework of healthcare, including patient rights and healthcare personnel responsibilities. Students learn about the healthcare system's organization and the legal foundations of social security and analyze legal cases from practice. Students prepare for the legal part of the professional qualification exam.

## **28. Physiotherapy III** **Year 3** **5 ECTS**

This course focuses on advanced physiotherapy techniques in neurology, psychiatry, and geriatrics. Students will study the neurophysiological basis of movement, the role of the central nervous system, and postural control. Emphasis is placed on the assessment and treatment of neurological patients, including analyzing motor functions like balance and voluntary movements. The course also covers physiotherapy interventions in mental health and elderly care, aiming to improve quality of life through individualized treatments. Practical and theoretical knowledge is integrated to develop critical evaluation skills in neurophysiotherapy.

## **29. Practicum**

**Year 3 5 ECTS**

Students participate in hands-on training in various physiotherapy techniques. Students will engage in practical work assessing muscle tone, mobility, balance, and coordination, as well as conducting respiratory and functional tests. They will practice techniques like passive and active stretching, corrective gymnastics, massage, and electrotherapy. The practicum is aimed at transferring theoretical knowledge into practical skills, enabling students to work in specialized fields such as orthopedics, neurology, and trauma rehabilitation. By the end of the Practicum, students will be proficient in physiotherapy interventions.

## **30. Final Thesis**

**Year 3 15 ECTS**

The final thesis is an independent research project completed by students at the end of their studies. It serves as a demonstration of their ability to conduct research and apply knowledge in their field. Students choose a mentor, discuss the topic, and collaborate throughout the process. The thesis must follow scientific guidelines, including proper citations and referencing. It is expected to be between 35 and 50 pages. Through this project, students develop autonomy in their research skills, preparing them for further academic work or professional practice.

## **31. Sports Physiotherapy**

**Ele Year 2-3 5 ECTS**

This course introduces students to the principles of physiotherapy in sports, focusing on injury prevention and rehabilitation for athletes. Students will learn about the most common sports-related injuries and how to apply different physiotherapeutic techniques for rehabilitation. They will develop skills to work with athletes across various sports, including team sports, endurance sports, and contact sports. The course combines theoretical knowledge with practical applications, preparing students to design and implement effective rehabilitation programs tailored to individual athletes' needs.

## **32. Rehabilitation for Sports Injuries Ele Year 2-3 5 ECTS**

This course introduces the rehabilitation of sports injuries. Students learn about the epidemiology, biomechanics, and prevention of sports injuries and acquire practical skills in diagnosis and treatment. The goal is to provide holistic care to injured athletes and develop rehabilitation strategies.

## **33. First Aid**

**Ele Year 2-3 5 ECTS**

This course teaches students the essential skills and knowledge required to provide first aid in emergency situations. Topics include resuscitation techniques, first aid for suffocation, drowning, bleeding, shock, and various injuries. Students will learn how to handle burns, fractures, poisonings, and insect bites, as well as how to manage mass casualty situations through triage. The course aims to equip students with the ability to assess emergencies, prioritize care, and provide timely assistance, preparing them for real-world medical emergencies.

## **34. Foundations of Radiology**

**Ele Year 2-3 5 ECTS**

The course provides a comprehensive understanding of radiology and its application in healthcare. Students learn the main radiological diagnostic methods and the handling and protection from X-rays. A particular focus is on interpreting X-ray images and communicating with patients.

### **35. Occupational Therapy Basics** **Ele Year 2-3 5 ECTS**

This course introduces occupational therapy and its application in the physiotherapy process. Students learn about the history and development of occupational therapy and engage with key models and approaches. The goal is to apply occupational therapy techniques in interdisciplinary collaboration.

### **36. Palliative Care** **Ele Year 2-3 5 ECTS**

This course focuses on the holistic care of patients in the terminal stages of life. Students learn the basics of palliative care, including the social, psychological, physical, and spiritual aspects. The goal is to understand the challenges of palliative care and support patients and their families during this difficult phase.

### **37. The Classical Massage Basics** **Ele Year 2-3 5 ECTS**

This course provides an introduction to classical massage techniques. Students will learn the history of massage, the various types, and the effects of classical massage on the body. The course covers basic massage movements such as stroking, kneading, and tapping, as well as the use of oils and proper hygiene. Students will also learn about the indications and contraindications of massage, along with practical applications for different body parts. By the end, students will have the necessary skills to perform a full-body classical massage.

### **38. Physio Terminology in English** **Ele Year 2-3 5 ECTS**

This course teaches the English terminology necessary for physiotherapists in daily practice. Students learn how to communicate in professional settings, with patients, and within healthcare in English. The course also provides insights into physiotherapy and healthcare systems in English-speaking countries.

### **39. Humans and Sports** **Ele Year 2-3 5 ECTS**

This course analyzes the relationship between humans and sports from historical, cultural, and anthropological perspectives. Students examine the athletic body as a symbol of power and learn how sports relate to societal values and institutions. The goal is to deepen the understanding of the cultural and social aspects of sports.

### **40. Informatics** **Ele Year 2-3 5 ECTS**

In this course, students learn the basics of information and communication technology, particularly its application in healthcare. Topics include virtual reality, exoskeletons, and the use of database systems in physiotherapy. The goal is to prepare students for the use of IT systems in clinical practice.

### **41. Motor Transformations** **Ele Year 2-3 5 ECTS**

In this course, students learn to analyze motor movement patterns and plan transformation processes. The focus is on creating motor patterns, training methodology, and monitoring transformation processes. The goal is to develop and adapt motor skills based on individual assessments.

#### **42. Entrepreneurship in Healthcare    Ele    Year 2-3    5 ECTS**

The course teaches the fundamentals of entrepreneurship in healthcare. Students learn to develop business models, evaluate financing options, and understand the legal framework of private healthcare. The goal is to develop entrepreneurial skills for starting or expanding a healthcare business.

#### **43. Physiotherapy in Gerontology    Ele    Year 2-3    5 ECTS**

This course covers the physiological changes and common health issues associated with aging, including falls, fractures, and neurological disorders. Students will learn about physiotherapy interventions for older adults, focusing on improving mobility, mental health, and cardiovascular health. The curriculum emphasizes individualized treatment plans, rehabilitation after surgeries, and care for conditions like arthritis, osteoporosis, and respiratory disorders. Students will also study how to promote physical activity in elderly populations and understand how physiotherapy can significantly enhance the quality of life for older individuals.

#### **44. Team Approach in Gerontology    Ele    Year 2-3    5 ECTS**

This course explores the team-based approach to gerontology, focusing on the holistic care of older adults. Students will learn about the interdisciplinary collaboration needed to provide physical, psychological, and social care to the elderly. The course covers demographic trends, theories of aging, and how teams of healthcare professionals work together to improve the quality of life for older adults. Emphasis is placed on communication skills, care models, and integrating formal and informal care systems to support the aging population effectively.

#### **45. Sports of Persons w Disabilities    Ele    Year 2-3    5 ECTS**

This course focuses on the role of physiotherapy in adaptive sports for individuals with disabilities. Students will learn about the classification systems for athletes with disabilities and the importance of adapting sports activities to individual needs. The course covers the history of the Paralympic movement and Special Olympics, along with the role of physiotherapists in helping disabled athletes prevent injuries and enhance performance. Students will engage in planning and implementing sports activities, learning how to promote inclusion and improve the quality of life for people with disabilities through sports.

#### **46. Digital Health and Tele-Physiotherapy    Ele    Year 2-3    5 ECTS**

This course explores the integration of digital tools and telemedicine into modern physiotherapy practice. Students will learn about tele-consultations, remote patient monitoring, and the use of digital health platforms for treatment. The course covers legal and ethical considerations for telehealth, as well as how to manage patient data securely. Emphasizing the future of remote care, students will gain the skills necessary to provide effective treatment from a distance, expanding access to care and improving outcomes for patients in diverse settings.

#### **47. Robotics in Rehabilitation    Ele    Year 2-3    5 ECTS**

This course introduces students to the use of robotics and assistive technologies in physiotherapy. It covers robotic devices such as exoskeletons, gait trainers, and virtual reality systems that support rehabilitation. Students will explore how these technologies enhance traditional rehabilitation techniques by improving patient outcomes, increasing mobility, and supporting functional recovery. The course also discusses the potential limitations and challenges, including cost, accessibility, and ethical concerns, as well as the future developments in robotic-assisted therapy for both clinical and home settings.

## **48. AI in Physiotherapy**

**Ele Year 2-3 5 ECTS**

This course examines the applications of artificial intelligence (AI) in physiotherapy practice. Students will learn about AI-driven tools for diagnosing conditions, monitoring progress, and personalizing rehabilitation plans. The course emphasizes how machine learning algorithms can analyze patient data to predict outcomes and optimize treatment strategies. It also explores the ethical implications and limitations of AI in healthcare, including data privacy and the role of physiotherapists in a technology-driven future. By the end, students will be equipped to utilize AI-enhanced tools to improve patient care and streamline clinical workflows.

***Ele: Elective course. Students choose two elective courses in Year 2 and two in Year 3, four in total.***