

Islamic Republic of Iran
Ministry of Health and Medical Education
High Council for Medical Sciences Planning

CURRICULUM FOR THE PROFESSIONAL DOCTORATE IN PHYSIOTHERAPY

Doctor of Physical Therapy (DPT)

Admission of Graduates Holding a Bachelor's or Master's Degree in Physiotherapy

General Specifications, Program Structure, Course Syllabi, Standards, and Program Evaluation

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Chapter One: General Specifications

Introduction

From antiquity, human beings have used the properties of natural and physical phenomena to treat diseases and their consequences. Some communities, for example, used mineral waters to treat certain illnesses; traditional Iranian medicine also contains numerous accounts of physical agents being used in patient care. Following the First World War, the extensive use of destructive weapons caused large numbers of injuries and disabilities, drawing greater attention to rehabilitation and particularly to physiotherapy. Today, alongside scientific and technical advances across medicine, physiotherapy is taught and studied as a branch of rehabilitation sciences within the health sciences at leading universities worldwide.

Population growth, industrialization, and increasingly mechanized lifestyles have increased accidents, injuries, and diverse physical and movement-related impairments. Disabilities arising from accidents and disease further increase the need for physiotherapy services. Physiotherapy can treat or compensate for many consequences of these conditions and help individuals attain functional independence. By providing appropriate education and information, physiotherapists can also prevent many physical and movement-related injuries or slow their progression.

Definition of the Discipline

The professional doctorate in physiotherapy prepares graduates to assess, identify, prevent, and provide evidence-based physiotherapy management for functional limitations of the movement system and disabilities associated with movement and neuromusculoskeletal function. Graduates practice as members of the health-care team and manage referred patients within the professional scope of physiotherapy.

Admission Requirements

- A bachelor's or master's degree in physiotherapy from an institution inside or outside Iran that is recognized by the Ministry of Health and Medical Education.

Historical Development in Iran and Worldwide

The therapeutic use of natural and physical agents has a long history. Mineral waters were reportedly used in Japan as early as 3000 BCE, while Avicenna's writings include the use of physical agents and therapeutic exercise. Rehabilitation and physiotherapy received particular attention after the First World War because of the high number of injuries and disabilities. Physiotherapy subsequently developed as an academic discipline within the health sciences.

Iran's first university-level physiotherapy training center, the Higher Institute of Physiotherapy, was established in Tehran with the support of the World Health Organization in the early 1960s. Beginning in 1999, leading universities internationally developed professional doctoral education in physiotherapy. The American Physical Therapy Association, in alignment with the global development of the profession, promoted transition toward DPT-level preparation by 2020. Similar programs have also been introduced in countries including Australia, Canada, India, and Pakistan. In Iran, the degree had not previously existed as a regular program and had been implemented only once on a pilot basis.



Philosophy: Values and Beliefs

- Adherence to social and professional ethics
- Respect for human rights and dignity in service delivery
- Respect for the scientific and professional scope of other disciplines and strict avoidance of unrelated diagnostic or therapeutic interventions
- Commitment to equity in health and strict avoidance of discrimination based on culture, ethnicity, age, sex, economic status, or social status

Vision

The DPT program is expected to facilitate attainment of the highest standards and a leading professional position in the Middle East. Graduates should contribute to the international production of applied physiotherapy knowledge and assume an active role in advancing the profession and improving population health.

Mission

The mission of the DPT program is to educate competent physiotherapists whose scientific and clinical knowledge enables them to examine, assess, and manage functional disorders of the neuromusculoskeletal, cardiovascular, and respiratory systems while practicing with professional, religious, and humanistic ethics and a strong sense of responsibility.

- Strengthen multidisciplinary and interprofessional teamwork.
- Increase public awareness, prevent functional disorders and disability, and conduct appropriate screening.
- Provide physiotherapy services in accordance with international standards at preventive, therapeutic, and consultative levels for individuals, communities, and relevant health organizations.
- Strengthen the relationship between applied research and clinical physiotherapy practice.

Expected Graduate Outcomes

- Establish effective professional communication with patients, families and caregivers, professionals from other disciplines, managers, and other stakeholders.
- Apply advanced knowledge of anatomy, physiology, kinesiology, and pathology to diseases and functional disorders of the neuromusculoskeletal, cardiovascular, and respiratory systems; improve function, control pain, and support tissue healing.
- Use appropriate screening tests to identify physical disorders and disabilities promptly and collaborate with the treatment team in planning corrective measures.
- Contribute to the management of rehabilitation and physiotherapy centers.

Graduate Roles and Professional Responsibilities

Graduates perform assessment and treatment, preventive, educational, and research roles.

Assessment and Treatment Role

- Communicate appropriately and compassionately with patients and caregivers.
- Examine the neuromusculoskeletal system and identify functional disorders.
- Determine the type and severity of functional impairment and the level of disability.
- Design and implement physiotherapy programs according to the patient's referred condition.



- Monitor patients during and after physiotherapy interventions.
- Collaborate with treating physicians and periodically evaluate outcomes, modifying physiotherapy when needed.
- Provide physiotherapy services to patients referred by physicians and clinical specialists.

Preventive Role

- Screen groups at risk of physical injury and identify community-level risk factors within prevention programs.
- Collaborate in the design, implementation, and evaluation of national programs for preventing neuromuscular and musculoskeletal injury.

Educational and Research Roles

- Explain the nature of the disorder, current condition, assessment findings, physiotherapy plan, and expected outcomes to patients and caregivers.
- Teach patients, families, and caregivers about safe functional limits and home exercises and verify correct performance.
- Seek current evidence and continually update professional practice.
- Teach prevention of neuromusculoskeletal and cardiopulmonary functional disorders to target groups such as students, older adults, athletes, women, and workers.
- Participate and collaborate in physiotherapy research projects.

Expected Competencies

General Competencies

- Communication skills
- Interdisciplinary and interprofessional interaction
- Education
- Research
- Critical thinking and problem-solving
- Preparation and presentation of scientific and professional reports
- Work in professional environments such as clinics and related hospital departments
- Quality control of physiotherapy services
- Promotion of physical and psychological health in the workplace
- Performance of requested physiotherapy services
- Contribution to scientific writing
- Safe use and calibration of professional equipment, including electrical stimulation devices, electromagnetic-wave devices, laser, shock-wave, ultrasound, and ultraviolet equipment
- Lifelong professional development

Specific Competencies

- Obtain a comprehensive history and maintain complete, accurate clinical records.
- Perform and document musculoskeletal examinations in the patient's physiotherapy record.
- Assess the type, extent, and severity of functional disorders using recognized classifications such as the ICF and ICD.



- Develop a differential diagnosis within the scope of functional disorders, integrate medical diagnoses and screening findings, and make sound clinical decisions regarding the most appropriate physiotherapy intervention for referred patients.
- Assess and manage postural disorders, functional balance, and posturographic findings.
- Assess and manage disorders of muscle length, tone, strength, endurance, and power.
- Assess gait disorders clinically and provide appropriate physiotherapy management.
- Assess peripheral and spinal arthrokinematics, joint range of motion, tissue resistance to motion, and muscle length and extensibility.
- Assess and manage superficial sensation, proprioception, movement sense, and deep tendon reflexes.
- Assess and manage pain, balance disorders, and muscle-function disorders, including appropriate use of biofeedback.
- Relate laboratory and paraclinical findings to functional diagnosis.
- Select cost-effective, evidence-based physiotherapy interventions for patients and the health and insurance systems, consistent with the referring physician's request.
- Reassess outcomes against treatment goals, modify the plan when necessary, and refer the patient back to the physician when indicated.
- Interpret kinesiological electromyography and nerve-conduction study findings.

Educational Strategies

- Task-based and competency-based learning
- Problem-based learning
- Community-oriented education
- Evidence-based learning
- Education in rehabilitation settings
- Mastery learning

Teaching Methods and Techniques

- Intradepartmental, interdepartmental, hospital, interdisciplinary, interuniversity, and international conferences
- Small-group teaching, workshops, journal clubs, book reviews, and case presentations
- Supervised clinical education
- Distance-learning methods for theoretical courses when feasible
- Simulation
- Self-directed learning and independent study
- Other methods selected according to learning needs and objectives

Expectations of Learners

- Strictly comply with the Patients' Rights Charter.
- Observe regulations protecting the health and safety of patients, staff, and the working environment.
- Comply with the dress code and, when animals are used, with all relevant ethical regulations.
- Protect institutional resources and equipment.
- Respect faculty, staff, peers, and other learners and contribute to a collegial, cooperative environment.



- Observe social and professional ethics when critiquing programs and research ethics when conducting research.

Student Assessment

- Written, oral, and computer-based interactive examinations
- Portfolio assessment, including the logbook, notices, certificates of completed work, and related documentation
- Continuous assessment scheduled by the curriculum committee and the faculty/department examination committee
- A comprehensive clinical competency examination in an OSCE format at the end of internship; passing this examination is mandatory for graduation



Chapter Two: Program and Course Specifications

Program Specifications

Program title: Professional Doctorate in Physiotherapy (Doctor of Physical Therapy), for graduates holding bachelor's or master's degrees in physiotherapy.

The duration, structure, and educational regulations of the program are governed by the approved DPT curriculum and the regulations of the High Council for Medical Sciences Planning.

Credit Requirements

Entry qualification	Core specialized	Elective specialized	Clerkship	Internship	Thesis	Total
Bachelor's degree in Physiotherapy	42	4	8	12	4	70
Master's degree in Physiotherapy	29	5	4	8	-	46

Deficiency/compensatory courses are completed in addition to the program credits shown above.



Table A. Deficiency/Compensatory Courses

Code	Course title	Credits	Theory	Practical	Theory hours	Practical hours	Total hours	Prerequisite/corequisite
01	Medical Information Systems	1	0.5	0.5	9	17	26	None
02	Management and Administration of Physiotherapy Centers	1	1	-	17	-	17	None
03	Public Health	2	2	-	34	-	34	None
04	Biochemistry	2	2	-	34	-	34	None

All students must complete the compensatory courses in Table A in addition to the required DPT credits.

Table B. Core Specialized Courses (Mandatory)

Professional Doctorate in Physiotherapy curriculum for students admitted with a bachelor's or master's degree in physiotherapy

Code	Course title	Total credits	Theory credits	Practical credits	Total hours	Theory hours	Practical hours	Prerequisite/corequisite
05**	Pharmacology in Rehabilitation	2	2	-	34	34	-	None
06**	Laboratory Methods for Medical Diagnosis	1	1	-	17	17	-	None
07*	Biostatistics	2	2	-	34	34	-	None
08*	Research Methods	2	2	-	34	34	-	07
09**	Diagnostic Imaging	2	2	-	34	34	-	None
10**	Diseases of the Gastrointestinal and Endocrine Systems	2	2	-	34	34	-	None
11*	Electrophysiological Tests	2	1	1	51	17	34	None
12**	Psychosomatic Disorders	2	2	-	34	34	-	None



Code	Course title	Total credits	Theory credits	Practical credits	Total hours	Theory hours	Practical hours	Prerequisite/ corequisite
13*	Evidence-Based Practice (EBP)	1	1	-	17	17	-	None
14**	Manual Therapy for Joint Dysfunction	3	1	2	85	17	68	None
15**	Manual Therapy for Soft-Tissue Dysfunction	3	1	2	85	17	68	None
16**	Massage and Lymphatic Drainage Techniques	2	1	1	51	17	34	None
17**	Dry Needling and Taping	2	-	2	68	-	68	None
18**	Differential Diagnosis and Clinical Reasoning in Physiotherapy	2	2	-	34	34	-	None
19**	Physiotherapy in Primary Health Care	1	1	-	17	17	-	None
20*	Exercise Physiology	2	2	-	34	34	-	None
21**	Advanced Electrotherapy	2	1	1	51	17	34	None
22**	Physiotherapy in Pelvic Floor Disorders	2	2	-	34	34	-	None
23**	Physiotherapy in Specific and Emerging Diseases	2	2	-	34	34	-	None
24***	Geriatrics Physiotherapy	2	2	-	34	34	-	None
25*	Physiotherapy in Advanced Sports Injuries	2	2	-	34	34	-	None
26*	Seminar	1	1	-	17	17	-	None
27*	Thesis	4	-	4	-	-	-	None

* Courses offered exclusively to students admitted with a bachelor's degree in physiotherapy.

** Courses common to both bachelor's-entry and master's-entry students in physiotherapy.

*** Course 24 is offered as a 2-credit course to bachelor's-entry students and as a 1-credit course to master's-entry students.



Table C. Specialized Elective (Non-Core) Courses

Professional Doctorate in Physiotherapy curriculum for students admitted with a bachelor's or master's degree in physiotherapy

Code	Course title	Total credits	Theory credits	Practical credits	Total hours	Theory hours	Practical hours	Notes
28	Physics	2	2	-	34	34	-	-
29	Principles of Nutrition	2	2	-	34	34	-	-
30	Introduction to Traditional Iranian Medicine and Complementary Medicine	2	2	-	34	34	-	-
31	First Aid and Cardiopulmonary Resuscitation	1	-	1	34	-	34	-
32	Professional Ethics and Legal Considerations in Physiotherapy	1	1	-	17	17	-	-

- Bachelor's-entry students must complete 4 credits from the courses listed above, selected in accordance with the thesis topic and approved by the thesis supervisor and the University's Graduate Studies Council.
- Master's-entry students must complete 5 credits from the courses listed above, subject to approval by the University's Graduate Studies Council.

Table D. Clerkships and Internships

Code	Course title	Credits	Hours	Eligibility / notes
33	Clerkship in Physiotherapy for Pelvic Floor Disorders	2	102	Bachelor's and master's entry
34	Clerkship in Physiotherapy for Specific and Emerging Diseases	1	51	Bachelor's entry
35	Clerkship in Geriatrics in Physiotherapy	2	102	Bachelor's and master's entry
36	Clerkship in Physiotherapy for Advanced Sports Injuries	2	102	Bachelor's entry
37	Clerkship in Physiotherapy in ICU and CCU	1	51	Bachelor's entry



Code	Course title	Credits	Hours	Eligibility / notes
38	Independent Internship I	6	408	Bachelor's entry
39	Independent Internship II	6	408	Bachelor's entry
40	Independent Internship	8	544	Master's entry



Detailed Course Syllabi

Course 01. Medical Information Systems

1 credit (0.5 theory, 0.5 practical); 9 theory and 17 practical hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

By the end of the course, students should be able to identify the principal components of a personal computer and explain their functions; install and configure the Windows operating system; use key application software; search major discipline-specific databases; use university library services; work with common web browsers and search engines; identify reliable physiotherapy information websites; and use email to send and receive messages and files.

Course description

Students receive practical instruction in computer hardware, Windows, internet services, email, bibliographic databases, and information resources required for study and research.

Course content

- Personal-computer hardware, accessories, and the function and importance of each component.
- History and features of operating systems, with emphasis on Windows; use of Windows Help and key Windows applications.
- Information-science concepts and terminology and use of discipline-specific reference software.
- Searching databases such as MEDLINE, Embase, and Biological Abstracts.
- Use of full-text electronic journals and electronic media and the principal methods for searching them.
- Information networks, common web browsers, configuring internet access, search engines, and major physiotherapy websites.

Primary references

- Lambert J. Finding Information in Science, Technology and Medicine. Taylor & Francis. Latest edition.
- Zielinski K. Information Technology Solutions for Healthcare. Latest edition.

Overall assessment method

Cognitive learning is assessed descriptively at mid-course and at the end of the course. Psychomotor performance is assessed through a checklist-based practical examination of computer, Windows, and internet skills.



Course 02. Management and Administration of Physiotherapy Centers

1 theory credit; 17 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To provide a comprehensive introduction to supervision, leadership, and management in physiotherapy and rehabilitation centers.

Course description

Students become familiar with the principles of managing and supervising health-care systems, with particular emphasis on physiotherapy centers and the physiotherapist's role within the treatment team.

Course content

- Fundamental management principles and specialized management concepts relevant to physiotherapy.
- Differences between management and leadership.
- Clinical supervision and the physiotherapist's supervisory responsibilities as a member of the treatment team.

The course may be delivered as a 17-hour, two-day workshop, subject to arrangements between the instructor and students.

Primary references

- Van Ooijen E. Clinical Supervision Made Easy. Churchill Livingstone. Latest edition.

Overall assessment method

Assessment is conducted in accordance with the approved course plan.



Course 03. Public Health

2 theory credits; 34 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To become familiar with health-promotion institutions and the organization and operation of the health-care system.

Course description

The course provides essential knowledge of health-service delivery systems, family health, health-education methods, and the physiotherapist's role in health and social programs.

Course content

- History, mission, goals, and functions of health systems.
- Health-service delivery models in Iran and other countries.
- Objectives and responsibilities of health-sector organizations and the health-network system in Iran.
- Principles, core strategies, and components of health promotion.
- Principles of family health and the physiotherapist's role as a family and community educator.

Primary references

- Riegelman R. Public Health: Healthy People—Healthy Populations. Latest edition.

Overall assessment method

Multiple-choice, descriptive, true/false, or fill-in-the-blank examinations.



Course 04. Biochemistry

2 theory credits; 34 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To understand the molecular structure of major chemical constituents of the human body and their roles in digestion, absorption, and metabolism.

Course description

This course reviews biochemical principles relevant to normal human function and physiotherapy, from the cellular to the systemic level.

Course content

- Chemical structure and metabolism of carbohydrates, lipids, amino acids, and proteins.
- Digestion and absorption of major nutrients.
- Properties of water, acid–base balance, pH, and buffer systems.
- Biochemical regulation of neurotransmitters at cellular, tissue, and systemic levels.
- Hormones, mechanisms of hormonal action, and major classes of enzymes.

Primary references

- Colby DS. Biochemistry: A Synopsis. Latest edition.
- Baynes JW, Dominiczak MH. Medical Biochemistry. Latest edition.

Overall assessment method

Multiple-choice, descriptive, true/false, fill-in-the-blank, or matching examinations.



Course 05. Pharmacology in Rehabilitation

2 theory credits; 34 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To understand the fundamental pharmacology and clinical effects of medications relevant to rehabilitation practice, including pharmacodynamics, pharmacokinetics, indications, precautions, and interactions with exercise.

Course description

The course examines major medication classes encountered in rehabilitation and the implications of drug therapy for physiotherapy assessment, exercise prescription, and treatment safety.

Course content

- Pharmaceutical dosage forms, basic toxicology, dose–response concepts, pharmacodynamics, and pharmacokinetics.
- Medications used for inflammation, pain, muscle spasm, and spasticity, including NSAIDs and corticosteroids.
- Drugs used in Parkinson disease, multiple sclerosis, rheumatoid arthritis, osteoarthritis, and myasthenia gravis.
- Selected skeletal-muscle, cardiovascular, diuretic, autonomic, and central nervous system medications.
- Chemotherapeutic agents, psychotropic medications, and clinically important interactions between medication and exercise.

Primary references

- Ciccone CD. Pharmacology in Rehabilitation. F. A. Davis. Latest edition.

Overall assessment method

Multiple-choice, descriptive, true/false, fill-in-the-blank, or matching examinations.



Course 06. Laboratory Methods for Medical Diagnosis

1 theory credit; 17 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To become familiar with commonly requested laboratory tests and understand the clinical significance of their findings.

Course description

Students learn the principal screening and diagnostic laboratory tests relevant to physiotherapy practice, the clinical meaning of abnormal findings, precautions that may be required during treatment, and indications for consultation or referral to the appropriate specialist.

Course content

- Screening blood chemistry, including serum calcium, phosphorus, uric acid, cholesterol, albumin, and other commonly used biochemical measures.
- Hematology, including white- and red-blood-cell counts, differential count, hematocrit, hemoglobin, and erythrocyte sedimentation rate.
- Urinalysis, including specific gravity, glucose, blood, protein, and microscopic examination.
- Diagnostic testing for infectious diseases, including staining methods, culture techniques, and immunologic and serologic tests.
- Interpretation of selected hormonal assays in relation to clinical findings and physiotherapy precautions.

Primary references

- McPherson RA, Pincus MR. Henry's Clinical Diagnosis and Management by Laboratory Methods. Latest edition.

Overall assessment method

Multiple-choice, true/false, fill-in-the-blank, or matching examinations.



Course 07. Biostatistics

2 theory credits; 34 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To develop sufficient command of statistical concepts and methods to select and apply analyses appropriate to a research objective and to implement them correctly in a research project.

Course description

Following a review of fundamental biostatistics, students learn systematic methods for describing data, testing hypotheses, examining associations, and managing research data.

Course content

- Descriptive statistics and methods for analyzing group differences and relationships between variables.
- Principles of statistical inference: probability, sampling error, confidence intervals, hypothesis testing, P values, and type I and type II errors.
- Methods for determining sample size and evaluating statistical validity.
- Data management: data-collection forms, coding, data entry, data cleaning, error correction, and use of statistical software.

Primary references

- Oliveira AG. Biostatistics Decoded. 2nd ed. Wiley.
- Field A. Discovering Statistics Using IBM SPSS Statistics. 5th ed. SAGE; 2017.

Overall assessment method

Multiple-choice and descriptive examinations.



Course 08. Research Methods

2 theory credits; 34 hours; prerequisite: Biostatistics

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To acquire competence in research methods used in medical and rehabilitation sciences and in the design, conduct, and implementation of research projects.

Course description

Students learn to formulate a research question, select an appropriate design and variables, implement the study, collect accurate data, and prepare a research proposal.

Course content

- Basic and clinical research, sources of knowledge, scientific reasoning, research paradigms, and the research process.
- Scientific theories: definitions, aims, components, models, and their place in research.
- Research ethics, scientific integrity, informed consent, and ethics in animal research.
- Problem analysis; development of appropriate titles, objectives, hypotheses, research questions, concepts, and variables.
- Study populations, sampling methods, allocation procedures, experimental studies, and single- and multiple-group designs.
- Observational, retrospective, prospective, cross-sectional, longitudinal, correlational, predictive, cohort, and methodological studies.
- Research implementation: proposal development, funding, participant information, and data collection.

Primary references

- Carter RE, Lubinsky J, Domholdt E. Rehabilitation Research: Principles and Applications. 5th ed. Elsevier Saunders; 2016.
- Portney LG, Watkins MP. Foundations of Clinical Research: Applications to Practice. 4th ed. Pearson; 2015.

Overall assessment method

Multiple-choice examination.



Course 09. Diagnostic Imaging

2 theory credits; 34 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To become familiar with diagnostic imaging modalities, including radiography, CT, MRI, and ultrasonography, and to develop skill in interpreting imaging findings relevant to musculoskeletal disorders.

Course description

The course introduces the principles of diagnostic imaging and systematic examination of normal and abnormal musculoskeletal images.

Course content

- Principles of plain radiography and recognition of normal skeletal radiographs of the spine, upper and lower limbs, chest, and lungs.
- Radiographic features of disorders affecting the spine, limbs, pelvis, thorax, and related regions, with relevant technical considerations.
- Principles, types, and clinical applications of CT and MRI.
- Recognition of normal CT and MRI appearances of the head, spine, chest, upper limbs, and lower limbs and identification of common abnormalities.
- Principles and selected applications of diagnostic ultrasonography in musculoskeletal assessment.

Primary references

- Westbrook C, Talbot J. MRI in Practice. Latest edition.
- Webb WR, Brant WE, Major NM. Fundamentals of Body CT. 5th ed. Elsevier; 2019.
- Technical Fundamentals of Radiology and CT. IOP Publishing; 2016.

Overall assessment method

Multiple-choice, descriptive, and OSCE examinations.



Course 10. Diseases of the Gastrointestinal and Endocrine Systems

2 theory credits; 34 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To recognize the signs and symptoms of gastrointestinal and endocrine diseases, understand their clinical implications, and select appropriate physiotherapy precautions and management strategies.

Course description

Students study common gastrointestinal, hepatobiliary, pancreatic, endocrine, breast, and gonadal disorders and their implications for patient assessment and physiotherapy.

Course content

- Esophageal disorders: congenital conditions, bleeding, varices, reflux and inflammatory disease, and malignancy.
- Gastric disorders: pyloric stenosis and other congenital conditions, acute and stress ulcers, acute and chronic gastritis, and malignancy.
- Intestinal disorders: mechanical obstruction, intussusception, malabsorption syndromes, inflammatory bowel disease, diverticulitis, appendicitis, and malignancy.
- Pancreatic, hepatobiliary, and metabolic disorders, including pancreatitis, cholecystitis, hepatitis, Wilson disease, and hemochromatosis.
- Endocrine disorders, including thyroid and parathyroid disease, Cushing syndrome, Addison disease, pituitary adenoma, and disorders of the breast and gonads.

Primary references

- Jameson JL, Fauci AS, Kasper DL, et al. Harrison's Principles of Internal Medicine. Latest edition.
- Heick J, Lazaro RT. Goodman and Snyder's Differential Diagnosis for Physical Therapists. 7th ed.; 2022.

Overall assessment method

Multiple-choice and descriptive examinations.



Course 11. Electrophysiological Tests

2 credits (1 theory, 1 practical); 17 theory and 34 practical hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

Students become familiar with electrophysiological tests, including ECG, EEG, sensory evoked potentials, and motor evoked potentials, and their use in identifying abnormalities of the brain, neuromusculoskeletal system, and cardiovascular system.

Course description

The course combines theoretical instruction with supervised observation in relevant clinical centers. Students learn how electrophysiological tests are performed and interpreted in relation to brain, neuromusculoskeletal, and cardiovascular disorders.

Course content

- ECG: morphology and electrical activity of the heart; signal-recording procedures; normal resting and exercise ECG; normal variants; pathological changes in cardiac disease with emphasis on cardiac rehabilitation; and electrocardiography during exercise and exercise testing.
- EEG: morphology and electrical activity of neurons; signal origin and recording; normal EEG; adult wakefulness; normal variants; eye movements, sleep, and related phenomena; developmental changes during childhood; origins and changes of background rhythms; abnormal EEG findings; and pathological changes in selected diseases.
- Sensory evoked potentials: stimulation and recording techniques; normal responses; neural generators of peaks, including upper- and lower-limb peripheral nerves; brainstem auditory evoked potentials; and clinical applications.
- Motor evoked potentials: electrical stimulation of the brain and spinal cord; normal responses; magnetic stimulation of the brain and spinal cord (TMS and rTMS); peripheral-nerve studies; central conduction time; and clinical applications.

Primary references

- Aminoff MJ. *Electrodiagnosis in Clinical Neurology*. Elsevier Saunders. Latest edition.
- Kimura J. *Electrodiagnosis in Diseases of Nerve and Muscle: Principles and Practice*. Latest edition.
- Marcuse L, Fields M, Yoo JY. *Rowan's Primer of EEG*. Latest edition.

Overall assessment method

Multiple-choice, descriptive, and OSCE examinations.



Course 12. Psychosomatic Disorders

2 theory credits; 34 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

Students learn how psychological factors influence body-system and organ function and contribute to the development of disorders.

Course description

The course introduces psychosocial factors and models affecting the function of body systems and organs and reviews possible mechanisms through which psychological factors may produce dysfunction.

Course content

- Neuropsychological and psychological assessment.
- Depression and anxiety.
- Psychological disorders in relation to sleep disorders, sexual disorders, cardiac disorders, gastrointestinal disorders, renal disorders, metabolic and endocrine disorders, chronic fatigue, fibromyalgia, rheumatic disorders, neurological disorders, and rehabilitation.

Primary references

- O'Sullivan S. Psychosomatic Disorders. Random House Publishing; 2015.
- Wolman BB. Psychosomatic Disorders. Springer Science & Business Media. Latest edition.

Overall assessment method

Multiple-choice and descriptive examinations.



Course 13. Evidence-Based Practice (EBP)

1 theory credit; 17 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To develop the ability to collect clinical evidence, appraise it critically, and select the most defensible evidence relevant to the clinical problem.

Course description

Because the volume of health information is rapidly increasing, students learn to organize and appraise available evidence and use it to support optimal assessment and treatment decisions.

Course content

- Definitions and foundations of evidence-based practice; types of evidence; methods of evidence retrieval; and classification of information sources according to validity and credibility.
- Critical appraisal of evidence and comparison of study designs, systematic reviews, and meta-analyses.
- Introduction to clinical practice guidelines in physiotherapy and their use in decision-making.

Primary references

- Dawes M, Davies P, Gray A, et al. Evidence-Based Practice: A Primer for Health Care Professionals. Churchill Livingstone. Latest edition.

Overall assessment method

Descriptive, true/false, matching, and multiple-choice examinations.



Course 14. Manual Therapy for Joint Dysfunction

3 credits (1 theory, 2 practical); 17 theory and 68 practical hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

Students learn to examine and assess functional disorders of peripheral joints, the spine, and the cranium and to manage these disorders using thrust manipulation, non-thrust mobilization/manipulation, and craniosacral approaches.

Course description

The course develops assessment, treatment, and clinical decision-making skills for joint and spinal dysfunction, with appropriate prioritization of treatment regions, selection of techniques, and observance of precautions and contraindications.

Course content

- Role of thrust and non-thrust techniques in functional and somatic dysfunction; diagnostic triads in functional disorders; and normal and abnormal biomechanics of vertebral segments.
- Physiological effects and effectiveness of joint techniques; somatovisceral and viscerosomatic symptom patterns.
- Biomechanical principles, patient positioning, therapist hand contact, and pre-manipulation screening.
- Clinical decision-making, indications, contraindications, precautions, and risks.
- Craniosacral therapy: cranial-joint biomechanics, physiological effects, indications, contraindications, and precautions.
- Practical application of thrust and non-thrust techniques and craniosacral therapy, emphasizing biomechanics, patient positioning, palpation, diagnosis, and corrective techniques.

The course may be delivered in workshop format, depending on departmental and faculty resources.

Primary references

- Hengeveld E, Banks K, English K. Maitland's Vertebral Manipulation. Elsevier Butterworth-Heinemann. Latest edition.
- Olson KA. Manual Physical Therapy of the Spine. Saunders. Latest edition.
- DeStefano LA. Greenman's Principles of Manual Medicine. Lippincott Williams & Wilkins. Latest edition.
- Nicholas AS, Nicholas EA. Atlas of Osteopathic Techniques. Lippincott Williams & Wilkins. Latest edition.
- Ward RC. Foundations for Osteopathic Medicine. Williams & Wilkins. Latest edition.

Overall assessment method

Multiple-choice, descriptive, true/false, matching, and practical examinations.



Course 15. Manual Therapy for Soft-Tissue Dysfunction

3 credits (1 theory, 2 practical); 17 theory and 68 practical hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To understand the structure and function of fascia, peripheral nerves, and spinal neural tissues; identify their functional disorders; and apply appropriate myofascial-release and neurodynamic techniques in acute, subacute, and chronic conditions.

Course description

Using history taking and clinical examination, students learn to identify functional disorders involving fascia, soft tissue, peripheral nerves, and spinal neural tissues and to apply myofascial-release and neural-mobilization interventions based on biomechanical and neurodynamic principles.

Course content

- Types of fascial involvement, altered mechanical behavior of soft tissue, and mechanical and neural mechanisms of soft-tissue dysfunction.
- Major approaches to the correction of soft-tissue dysfunction; theoretical and practical instruction in myofascial release and strain–counterstrain techniques.
- History taking and subjective and objective examination in peripheral-nerve and spinal-neural-tissue disorders.
- Anatomy, physiology, nutrition, metabolism, normal biomechanics, and pathomechanics of peripheral nerves and spinal neural tissues.
- Classification of peripheral-nerve injury, entrapment neuropathies, neurodynamic testing, and neural-tension tests for the upper limb, lower limb, and spinal canal.
- Selection and application of neural-mobilization parameters in acute and chronic conditions, including indications, contraindications, and precautions.
- Practical implementation of myofascial-release and strain–counterstrain techniques with emphasis on biomechanics, positioning, palpation, and corrective procedures.

The course may be delivered in workshop format, depending on departmental and faculty resources.

Primary references

- Chaitow L. Muscle Energy Techniques. Elsevier. Latest edition.
- Butler DS. The Sensitive Nervous System. Noigroup Publications. Latest edition.
- Shacklock M. Clinical Neurodynamics. Elsevier. Latest edition.

Overall assessment method

Multiple-choice, true/false, fill-in-the-blank, matching, and practical examinations.



Course 16. Massage and Lymphatic Drainage Techniques

2 credits (1 theory, 1 practical); 17 theory and 34 practical hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To learn major massage techniques and their practical application and to understand the lymphatic system, causes of lymphatic congestion, and effective manual and device-assisted drainage methods for the trunk and limbs.

Course description

Students learn massage and lymphatic-drainage techniques for selected disorders, based on biomechanical and neurophysiological principles.

Course content

- Physiological and biomechanical principles of massage, major massage techniques, therapist handling, and pressure application.
- Biology of the lymphatic system and causes of impaired lymphatic drainage.
- Manual lymphatic drainage, device-assisted drainage, vasopneumatic compression, and compression bandaging for lymphatic disorders.
- Practical performance of massage techniques and manual and device-assisted lymphatic-drainage methods.

The course may be delivered in workshop format, depending on departmental and faculty resources.

Primary references

- Strößenreuther RHK. Basic Principles of Manual Lymph Drainage. Latest edition.
- Földi M, Földi E. Foundations of Manual Lymph Drainage. Elsevier Mosby. Latest edition.

Overall assessment method

Multiple-choice, true/false, fill-in-the-blank, matching, and practical examinations.



Course 17. Dry Needling and Taping

2 practical credits; 68 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To learn dry-needling and therapeutic-taping methods, their mechanisms of action, indications, precautions, and clinical applications.

Course description

The course introduces the fundamental concepts and practical use of dry needling and taping in neuromusculoskeletal disorders.

Course content

- Mechanisms of action of dry needling; types of needles and dry-needling techniques.
- Indications, adverse effects, contraindications, and precautions for dry needling.
- Practical dry needling of selected trunk, neck, upper-limb, and lower-limb muscles.
- Fundamental concepts, mechanisms of action, and muscle-facilitation or inhibition applications of therapeutic taping.
- Corrective taping for functional, fascial, tendon, ligament, and lymphatic conditions, including application principles and precautions.
- Evidence-based taping for pain reduction and common acute and chronic musculoskeletal and sports conditions.

The course may be delivered in workshop format, depending on departmental and faculty resources.

Primary references

- Dommerholt J, Fernández-de-las-Peñas C. Trigger Point Dry Needling: An Evidence and Clinical-Based Approach. Latest edition.
- Kase K. Clinical Therapeutic Applications of the Kinesio Taping Method. Latest edition.
- Gibbons J. A Practical Guide to Kinesiology Taping. Latest edition.

Overall assessment method

Practical examination or OSCE.



Course 18. Differential Diagnosis and Clinical Reasoning in Physiotherapy

2 theory credits; 34 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To recognize signs and symptoms of disease in major body systems, apply clinical-reasoning and decision-making processes, and distinguish systemic disease from musculoskeletal functional disorders.

Course description

Students learn a systematic differential-screening process and use clinical reasoning to identify findings that require modification of physiotherapy, medical consultation, or referral.

Course content

- Differential-screening principles and structured patient interview.
- Signs and symptoms of cardiovascular, pulmonary, hematologic, gastrointestinal, renal and urinary, hepatobiliary, endocrine, metabolic, oncologic, and immunologic disease.
- Recognition of systemic causes of musculoskeletal pain and differentiation from mechanical and functional disorders.
- Clinical-reasoning, hypothesis generation, decision-making, and referral processes.

Primary references

- Goodman CC, Snyder TEK. Differential Diagnosis for Physical Therapists. Saunders. Latest edition.
- Refshauge K. Musculoskeletal Physiotherapy: Clinical Science and Practice. Latest edition.

Overall assessment method

Multiple-choice, true/false, fill-in-the-blank, or matching examinations.



Course 19. Physiotherapy in Primary Health Care

1 theory credit; 17 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To understand primary screening for musculoskeletal and postural disorders and the physiotherapist's responsibilities when patients enter the health-care system.

Course description

The course addresses screening, consultation, referral, health education, and the physiotherapist's role in primary health care.

Course content

- Historical, legal, and ethical dimensions of physiotherapy and professional responsibility.
- Primary screening methods and clinical decisions concerning referral to medical specialties.
- Assessment of musculoskeletal, postural, balance, and functional disorders for prevention, treatment, or referral.
- Fall-risk identification and prevention.
- Education and counseling for families, health professionals, occupational groups, and other community target groups to improve quality of life.

Primary references

- Goodman CC, Snyder TEK. Differential Diagnosis for Physical Therapists. Saunders. Latest edition.
- Higgs J, Jones MA. Clinical Reasoning in the Health Professions. Butterworth-Heinemann. Latest edition.

Overall assessment method

Multiple-choice, fill-in-the-blank, or matching examinations.



Course 20. Exercise Physiology

2 theory credits; 34 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To understand energy systems during exercise and the acute and chronic effects of exercise on cardiovascular, respiratory, neuromuscular, and musculoskeletal function.

Course description

Students examine physiological responses and adaptations to aerobic, anaerobic, resistance, flexibility, and endurance exercise and apply these principles across health conditions and age groups.

Course content

- Aerobic and anaerobic energy systems and their contributions to physical activity.
- Oxygen consumption during aerobic exercise, maximal oxygen uptake, and clinical application.
- Cardiovascular and muscular responses and adaptations to static, dynamic, endurance, and resistance exercise.
- Environmental influences on acute and long-term physiological responses to exercise.
- Hormonal responses, energy expenditure, warm-up, recovery, resistance exercise, and stretching.
- Exercise for weight control, physical performance, selected diseases, and different age groups.

Primary references

- LeMura LM. Clinical Exercise Physiology: Application and Physiological Principles. Latest edition.
- McArdle WD, Katch FI, Katch VL. Exercise Physiology: Nutrition, Energy, and Human Performance. Latest edition.
- American College of Sports Medicine. ACSM's Guidelines for Exercise Testing and Prescription. Latest edition.

Student assessment method

Written examination using approved question formats.



Course 21. Advanced Electrotherapy

2 credits (1 theory, 1 practical); 17 theory and 34 practical hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To understand the physical and therapeutic principles of current electrotherapy equipment and apply modern modalities safely in physiotherapy practice.

Course description

Students study and practice evidence-based use of shock-wave therapy, pulsed electromagnetic field therapy, TECAR therapy, and other contemporary electrotherapy modalities.

Course content

- Applied physics of sound, ultrasound, pressure waves, and shock-wave devices and their principal types.
- Applied physics of radiofrequency energy and operation of TECAR devices.
- Applied physics of magnetic fields and pulsed electromagnetic field therapy.
- Physiological and therapeutic effects, indications, contraindications, and precautions for each modality.
- Patient positioning, applicator or electrode placement, dosage, and output-intensity adjustment for different body regions.
- Evidence-based appraisal and safe clinical application of other emerging electrotherapy modalities.

Primary references

- Bellew JW, Nolan TP. Michlovitz's Modalities for Therapeutic Intervention. 2022.
- Hobrough P. Understanding MSK Shockwave Therapy: The Radial Pressure Wave. 2021.

Overall assessment method

Practical examination.



Course 22. Physiotherapy in Pelvic Floor Disorders

2 theory credits; 34 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

Students become familiar with dysfunction of the pelvic-floor muscles, pelvic-organ prolapse, and evidence-based physiotherapy assessment and management.

Course description

The course addresses functional disorders of the pelvic-floor muscles and pelvic organs, contributing biomechanical factors, relevant assessment procedures, and evidence-based physiotherapy interventions.

Course content

- Urinary and fecal incontinence, overactive bladder, pelvic pain, constipation, sexual dysfunction in women and men, pelvic-organ prolapse, and other pelvic-floor disorders.
- Assessment of pelvic-floor muscle dysfunction and pelvic-organ prolapse and biomechanical factors affecting pelvic-floor function.
- Vaginal and rectal pressure measurement.
- Evidence-based therapeutic exercise and electrical stimulation for stress and urge urinary incontinence, overactive bladder, pelvic pain, constipation, sexual dysfunction, pelvic-organ prolapse, and related disorders.
- Pelvic-floor muscle biofeedback for assessment and treatment.
- Assessment and training of breathing patterns in patients with pelvic-floor dysfunction.
- Physiotherapy during pregnancy and after childbirth; preventive and therapeutic care to improve women's quality of life across settings.

Primary references

- Lee D. The Pelvic Girdle: An Integration of Clinical Expertise and Research. Churchill Livingstone. Latest edition.
- Bo K, Berghmans B, Morkved S, Van Kampen M. Evidence-Based Physical Therapy for the Pelvic Floor: Bridging Science and Clinical Practice. Churchill Livingstone. Latest edition.
- Kisner C, Colby LA. Therapeutic Exercise. Latest edition.
- Mantle J, Haslam J, Barton S. Physiotherapy in Obstetrics and Gynecology. Latest edition.
- Porter S. Tidy's Physiotherapy. Latest edition.

Overall assessment method

Multiple-choice, descriptive, true/false, and matching examinations.



Course 23. Physiotherapy in Specific and Emerging Diseases

2 theory credits; 34 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To understand physiotherapy assessment, prevention, treatment, and self-management education in selected specific and emerging diseases, including hemophilia, renal disease and dialysis, cancer, skin disorders, burns, and emerging infectious diseases.

Course description

The course emphasizes clinical examination and evidence-based prevention and treatment methods tailored to the distinctive characteristics and functional disorders of each patient group.

Course content

- Physiotherapy in hemophilia.
- Physiotherapy in chronic kidney disease and for patients receiving dialysis.
- Cancer rehabilitation.
- Physiotherapy in skin disease, burns, and wound care.
- Physiotherapy in emerging diseases, including COVID-19.

Primary references

- Physiotherapy Advances and Approaches Toward Dialysis Patients. 2020.
- Stubblefield MD. Cancer Rehabilitation: Principles and Practice. 2nd ed. Springer; 2018.
- Buzzard B, Beeton K. Physiotherapy Management of Haemophilia. Wiley. Latest edition.
- Physiotherapy in Burn and Wound Care: A Clinical Approach. Latest edition.

Overall assessment method

Multiple-choice, fill-in-the-blank, or matching examinations.



Course 24. Geriatrics Physiotherapy

2 theory credits for bachelor's entry; 1 theory credit for master's entry

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To acquire clinical knowledge for assessment, prevention, and physiotherapy management of conditions affecting older adults and to promote activity, quality of life, and functional independence.

Course description

Students study age-related changes and disorders, with emphasis on cognition, balance, mobility, functional activity, prevention, and interventions that maintain independence and quality of life.

Course content

- Aging and age-related musculoskeletal, neurologic, cardiovascular, and respiratory disorders.
- Physiotherapy prevention and management in chronic disease, stroke, cardiopulmonary disease, and osteoporosis.
- Assessment of gait, transfers, balance, and activities of daily living.
- Fall prevention and management of functional-balance disorders.
- Interventions to maintain functional activity, independence, quality of life, and prevent or correct age-related deformity.
- Physiotherapy for older adults with cognitive disorders, including dementia and Alzheimer disease.
- Patient and caregiver education and contemporary approaches in geriatric physiotherapy.

Primary references

- Masiero S, Carraro U. Rehabilitation Medicine for Elderly Patients. 2018.
- Avers D, Wong R. Guccione's Geriatric Physical Therapy. 4th ed.; 2019.

Overall assessment method

Multiple-choice, true/false, fill-in-the-blank, or matching examinations.



Course 25. Physiotherapy in Advanced Sports Injuries

2 theory credits; 34 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To understand mechanisms of neuromusculoskeletal injury, recognize common injuries across sports, and apply evidence-based principles of assessment, prevention, and physiotherapy management.

Course description

The course examines common sports-injury mechanisms and evidence-based physiotherapy assessment and treatment.

Course content

- Principles of physiotherapy assessment, prevention, and management of sports injuries and immediate care of on-field emergencies.
- Common injuries of the upper limb, lower limb, and cervical, thoracic, and lumbar spine.
- Exercise prescription for injury prevention and rehabilitation.
- Return-to-sport criteria, functional testing, and sport-specific decision-making.
- Therapeutic taping, manual therapy, myofascial techniques, dry needling, high-power laser, shock-wave therapy, and other relevant modalities in sports rehabilitation.

Primary references

- Brukner P, Clarsen B, Cook J, et al. Brukner & Khan's Clinical Sports Medicine. Latest edition.
- Prentice WE. Rehabilitation Techniques for Sports Medicine and Athletic Training. Latest edition.

Overall assessment method

Written examination using approved question formats.



Course 26. Seminar

1 theory credit; 17 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To develop scientific inquiry, literature-searching, critical appraisal, synthesis, and presentation skills in a topic related to the thesis or another current and challenging area of physiotherapy.

Course description

Students identify and retrieve scientific articles, critically review and synthesize the literature, and present their findings as a written report and oral presentation.

Course content

- Scientific searching and retrieval of peer-reviewed literature.
- Critical reading, analysis, comparison, and synthesis of research articles.
- Development of a focused scientific topic and preparation of written and oral reports.

Primary references

Current peer-reviewed scientific articles and other authoritative sources relevant to the selected topic.

Overall assessment method

Evaluation of the written report and oral presentation.



Course 27. Thesis

4 practical credits

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

Under the supervision of the thesis supervisor and advisers, the student designs and conducts a problem-oriented research project in physiotherapy assessment, prevention, or treatment.

Course description

The thesis may address orthopedic, neurologic, cardiopulmonary, sports, geriatric, pelvic-floor, or other approved areas of physiotherapy.

Overall assessment method

Assessment and defense are conducted in accordance with university regulations for the professional doctorate thesis.



Course 28. Physics

2 theory credits; 34 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To understand concepts of applied physics and mechanics relevant to physiotherapy equipment, biomechanics, and kinesiology.

Course description

The course explains physical and mechanical principles underlying electrical, electromagnetic, thermal, and mechanical modalities used in physiotherapy.

Course content

- Electromagnetic spectrum; direct and alternating currents; continuous and pulsed currents; electrical stimulation of tissues; and interferential currents.
- Generation and clinical use of radiofrequency, microwave, infrared, visible, and ultraviolet energy.
- Thermal physics and mechanisms of heat transfer.
- Force vectors, torque, equilibrium, levers, pulleys, and tensile forces.
- Speed, acceleration, stress, strain, and their applications in biomechanics and physiotherapy.

Primary references

Current authoritative texts in applied physics, biomechanics, and physical agents used in rehabilitation.

Overall assessment method

Multiple-choice examination.



Course 29. Principles of Nutrition

2 theory credits; 34 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To understand human nutritional requirements in health and disease and the relationship between nutrition, metabolism, physical activity, prevention, and rehabilitation.

Course description

Students learn principles for assessing nutritional needs and consider diet, supplementation, medication, and pre-exercise nutrition in normal and clinical populations.

Course content

- Role of nutrition in human performance and use of diet in disease prevention and treatment.
- Assessment of nutritional requirements in health and disease.
- Therapeutic diets, nutritional supplements, related medications, and nutritional considerations before exercise.

Primary references

- Whyte G, Harries M, Williams C. ABC of Sports and Exercise Medicine. BMJ Books. Latest edition.
- McArdle WD, Katch FI, Katch VL. Sports and Exercise Nutrition. 3rd ed. Lippincott Williams & Wilkins.

Overall assessment method

Multiple-choice, descriptive, true/false, fill-in-the-blank, or matching examinations.



Course 30. Traditional Iranian Medicine and Complementary Medicine

2 theory credits; 34 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To understand the foundations of traditional Iranian medicine and selected complementary approaches and their potential applications, benefits, limitations, and risks in physiotherapy.

Course description

Students review traditional and complementary approaches commonly encountered by physiotherapy patients and learn to discuss them responsibly within evidence-based practice.

Course content

- Acupuncture and electroacupuncture.
- Naturopathy, homeopathy, and dietary supplements.
- Yoga, mental imagery, biofeedback, and meditation.
- Pilates and its application as therapeutic exercise in musculoskeletal conditions.
- Reflexology and evidence concerning complementary approaches in rehabilitation.

Primary references

- Davis CM. Complementary Therapies in Rehabilitation: Evidence for Efficacy in Therapy, Prevention, and Wellness. SLACK. Latest edition.

Overall assessment method

Multiple-choice, descriptive, true/false, fill-in-the-blank, or matching examinations.



Course 31. First Aid and Cardiopulmonary Resuscitation

Course code: 31

Credits: 1 practical credit; 34 practical hours

Prerequisite/corequisite: None

General course objective

To familiarize students with medical emergencies and immediate priorities when responding to accidents, injuries, and special circumstances during epidemics and pandemics.

Course description

Students learn the principles of first aid and the initial management of injured or acutely ill persons so that, when necessary, they can provide essential life-saving interventions and assist affected individuals.

Course content

- First aid in accidents and crises, facilitation of the initial care process, and safe transfer to an appropriate treatment center.
- Relevant emergency equipment and the contents of first-aid kits and resuscitation crash carts.
- Cardiopulmonary resuscitation (CPR).
- Primary assessment and immediate care for trauma and injury, including soft-tissue and bone injuries involving the chest, limbs, face, spine, and eyes, as well as burns and related conditions.
- Care of patients with multiple injuries.
- Medical emergencies, including deep-vein thrombosis, syncope, airway obstruction or asphyxia, poisoning, bites and stings, hypothermia, and frostbite.
- Pediatric emergencies.
- Emergency response to natural disasters, such as earthquakes, and to epidemics and pandemics.

The above topics are delivered as an interactive workshop involving the instructor and students.

Primary references

- Alton J. The Survival Medicine Handbook: The Essential Guide for When Help Is Not on the Way. Latest edition.
- Skinner DV. Cardiopulmonary Resuscitation. Oxford Handbooks in Emergency Medicine. Latest edition.

Overall assessment method

Multiple-choice, descriptive, true/false, fill-in-the-blank, or matching examinations.



Course 32. Professional Ethics and Legal Considerations in Physiotherapy

Course code: 32

Credits: 1 theory credit; 17 theory hours

Prerequisite/corequisite: None

General course objective

To strengthen professional responsibility and professional behavioral skills in communication with patients, patients' families, colleagues, and other medical personnel.

Course description

Students learn the legal requirements governing health-care services, the codes of medical ethics relevant to physiotherapy services, and the ethical requirements for recording, archiving, and disseminating treatment-related findings.

Course content

- Foundations of ethics in rehabilitation sciences and physiotherapy.
- Professional ethics in education, patient care, and treatment.
- Professional ethics in communication with treatment-team colleagues, patients, and patients' families.
- Professional privacy and confidentiality.
- Ethical codes of the Medical Council of the Islamic Republic of Iran.
- Ethical principles and guidance of World Physiotherapy in relation to diseases and target populations.
- Ethical codes for telerehabilitation.
- Ethical judgment and reasoning.
- Ethical and religious considerations in decision-making.
- Respect for patients' beliefs and values in treatment.
- Medical ethics in the recording and archiving of medical documents and records.
- Medical ethics in the dissemination of patient- and disease-related findings.
- International ethical guidelines in the medical sciences, including relevant National Institutes of Health (NIH) guidance.
- Laws and regulations of insurance organizations in relation to health-care services.



Course 33. Clerkship in Physiotherapy for Pelvic Floor Disorders

2 clerkship credits; 102 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To acquire supervised clinical competence in the assessment and evidence-based physiotherapy management of pelvic-floor muscle dysfunction and pelvic-organ prolapse.

Course description

Students apply biomechanical knowledge and physiotherapy methods to patients with pelvic-floor dysfunction in clinical settings.

Course content

- History taking, clinical documentation, and examination of pelvic-floor dysfunction.
- Assessment of pelvic-floor muscle strength and function and pelvic-organ prolapse; vaginal and rectal pressure measurement; squeeze testing; urethral-pressure measurement; and pelvic-floor dynamometry.
- Evidence-based pelvic-floor muscle training, therapeutic exercise, and electrical stimulation for urinary and fecal incontinence, overactive bladder, pelvic pain, constipation, sexual dysfunction, pelvic-organ prolapse, and related disorders.
- Assessment and retraining of breathing patterns in patients with pelvic-floor dysfunction.
- Physiotherapy during pregnancy and after childbirth, after prostatectomy, and across the lifespan to improve quality of life.

Primary references

- Bo K, Berghmans B, Morkved S, Van Kampen M. Evidence-Based Physical Therapy for the Pelvic Floor. Churchill Livingstone. Latest edition.
- Carrière B. Fitness for the Pelvic Floor. Thieme. Latest edition.
- Mantle J, Haslam J, Barton S. Physiotherapy in Obstetrics and Gynecology. Latest edition.
- Porter S. Tidy's Physiotherapy. Latest edition.

Overall assessment method

Checklist-based assessment or OSCE.



Course 34. Clerkship in Physiotherapy for Specific and Emerging Diseases

1 clerkship credit; 51 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To acquire supervised clinical skills in physiotherapy assessment, prevention, treatment, and self-management education for selected specific and emerging diseases.

Course description

Clinical training emphasizes the distinctive examination and management needs of patients with hemophilia, kidney disease or dialysis, cancer, skin disorders, burns, and other emerging conditions.

Course content

- Clinical examination and identification of functional limitations in each patient group.
- Disease-specific physiotherapy prevention and treatment strategies.
- Patient and caregiver education in self-care and management of functional disorders.

Primary references

- Physiotherapy Advances and Approaches Toward Dialysis Patients. 2020.
- Stubblefield MD. Cancer Rehabilitation: Principles and Practice. 2nd ed. Springer; 2018.
- Buzzard B, Beeton K. Physiotherapy Management of Haemophilia. Wiley. Latest edition.
- Physiotherapy in Burn and Wound Care: A Clinical Approach. Latest edition.

Overall assessment method

OSCE.



Course 35. Clerkship in Physiotherapy for Older Adults

2 clerkship credits; 102 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To acquire supervised clinical competence in the assessment and physiotherapy management of functional disorders affecting older adults.

Course description

Clinical training emphasizes examination, treatment, and self-management education adapted to the social, psychological, emotional, and physiological characteristics of aging.

Course content

- Assessment of posture, balance, gait, sitting, standing, transfers, upper-limb function, and other mobility activities.
- Therapeutic exercise for strength, mobility, and prevention or management of joint deformity and soft-tissue shortening.
- Appropriate use of electrotherapy and hydrotherapy in older adults.
- Prevention and management of balance disorders and falls.
- Training in activities of daily living and education of patients, families, students, and caregivers.

Primary references

- Bottomley JM, Lewis CB. A Clinical Approach to Geriatric Rehabilitation. SLACK; 2020.
- Kauffman TL, Scott RW. A Comprehensive Guide to Geriatric Rehabilitation. Latest edition.

Overall assessment method

Checklist-based clinical assessment.



Course 36. Clerkship in Physiotherapy for Advanced Sports Injuries

2 clerkship credits; 102 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To acquire supervised clinical skills in assessment, screening, clinical decision-making, and physiotherapy management of advanced sports injuries.

Course description

Students apply evidence-based examination and treatment methods to sports injuries in clinic, training, competition, and field settings.

Course content

- Assessment and treatment of soft-tissue, joint, limb, and spinal dysfunction associated with sports injury.
- Athlete preparation before competition, during the competitive season, and between competitions.
- Screening for return to sport and identification of sport-related functional capacity.
- Participation in multidisciplinary clinical decision-making for athletes.
- Immediate management of sports emergencies, physiotherapy coverage in sport settings, and specialized massage for injured athletes.

Primary references

- Magee DJ. Orthopedic Physical Assessment. Latest edition.
- Rehabilitation of the Injured Athlete. Latest edition.

Overall assessment method

Checklist-based assessment or OSCE.



Course 37. Clerkship in Physiotherapy in ICU and CCU

1 clerkship credit; 51 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To develop practical competence in physiotherapy assessment and management of patients admitted to intensive and coronary care units.

Course description

Students acquire supervised clinical skills in assessment, prognosis, and practical application of physiotherapy methods for patients hospitalized in ICU and CCU settings.

Course content

- Orientation to ICU and CCU environments, monitoring systems, and cardiopulmonary resuscitation equipment.
- Clinical assessment of patients admitted to these units and selection of appropriate physiotherapy interventions.
- Positioning and movement to maintain or increase joint range of motion and prevent contracture.
- Measures to maintain or improve muscle tone and prevent pressure injury.
- Airway clearance, pulmonary drainage, breathing exercises, and physiotherapy management of pressure ulcers.

Primary references

- Irwin S. Cardiopulmonary Physical Therapy. Latest edition.
- Frownfelter D, Dean E. Cardiovascular and Pulmonary Physical Therapy. Latest edition.
- Paz JC. Acute Care Handbook for Physical Therapists. Latest edition.

Overall assessment method

Checklist-based assessment or OSCE.



Course 38. Independent Internship I

6 internship credits; 408 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To provide independent physiotherapy services for inpatients and outpatients under the supervision of the responsible faculty member.

Course description

Students deliver supervised, progressively independent assessment and treatment across major physiotherapy practice areas.

Course content

Independent physiotherapy services for outpatients and inpatients with neuromuscular, musculoskeletal, cardiopulmonary, pediatric, geriatric, pelvic-floor, and sports-related conditions, including practice in ICU, CCU, and selected specialty-disease settings, under faculty supervision.

Overall assessment method

Checklist-based clinical assessment and OSCE.



Course 39. Independent Internship II

6 internship credits; 408 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To provide independent physiotherapy services for inpatients and outpatients under the supervision of the responsible faculty member.

Course description

Students consolidate independent clinical practice across major physiotherapy specialties while remaining under faculty supervision.

Course content

Independent physiotherapy services for outpatients and inpatients with neuromuscular, musculoskeletal, cardiopulmonary, pediatric, geriatric, pelvic-floor, and sports-related conditions, including practice in ICU, CCU, and selected specialty-disease settings, under faculty supervision.

Overall assessment method

Checklist-based clinical assessment and OSCE.



Course 40. Independent Internship

8 internship credits; 544 hours

Prerequisite/corequisite: *None unless otherwise specified.*

General course objective

To provide independent physiotherapy services for inpatients and outpatients under the supervision of the responsible faculty member.

Course description

Master's-entry students provide supervised, independent physiotherapy services across relevant specialty settings.

Course content

Independent physiotherapy services for outpatients and inpatients with neuromuscular, musculoskeletal, cardiopulmonary, pediatric, geriatric, pelvic-floor, sports-related, and obstetric conditions, including practice in ICU, CCU, and selected specialty-disease settings, under faculty supervision.

Overall assessment method

Checklist-based clinical assessment and OSCE.



Chapter Three: Program Evaluation

Approach to Program Evaluation

The program is evaluated through formative and summative evaluation.

Timing of Final Evaluation

Final evaluation is conducted at completion of each educational cycle and when graduates enter employment.

Program-Evaluation Indicators

- Graduate efficiency and effectiveness in fulfilling professional responsibilities, as perceived by faculty members.
- Graduate efficiency and effectiveness in fulfilling professional responsibilities, as perceived by heads of educational departments.
- Satisfaction of service users, including patients, persons with disabilities, and accompanying persons, with graduates' professional communication and knowledge.
- The extent to which graduates' skills are current, as perceived by faculty members.

Evaluation Method

Faculty involved in the program, residents/assistants, and graduates are surveyed using a predesigned questionnaire. Questionnaires available through the Secretariat's Evaluation and Accreditation Unit are used to:

- Determine the current situation and the program objectives.
- Develop evaluation instruments.
- Examine strengths and weaknesses.
- Identify opportunities.
- Identify threats.
- Analyze findings and support decision-making.

Responsibility for Program Evaluation

Tehran University of Medical Sciences is responsible for program evaluation in cooperation with the curriculum development or revision group, other educational secretariats, and relevant faculty members.

Program-Revision Procedure

- Compile information obtained from surveys, applied and field research, and stakeholder recommendations and opinions.
- Request that the Secretariat establish a program-revision committee.
- Present the compiled information to the program-revision committee.
- Revise the sections requiring modification and prepare a draft of the revised curriculum.

Success Criteria for Each Indicator

- More than 70% efficiency and effectiveness of graduates in performing professional duties, as perceived by faculty members.
- More than 70% efficiency and effectiveness of graduates in performing professional duties, as perceived by heads of educational departments.



- More than 70% satisfaction among service users (patients, persons with disabilities, and accompanying persons) with graduates' professional communication and knowledge.
- More than 70% currency of graduate skills, as perceived by faculty members.