Level Four

PTT401 — Physiotherapy for Neurological Diseases

1. Course Name	Physiotherapy for Neurological Diseases
2. Course Code	PTT401
3. Semester / Year	First Semester / 2026-2027
4. Date of Preparation	15 / 6 / 2026
5. Available Attendance Forms	In-person theoretical and practical lectures
6. Credit Hours / Units	2 theory hours + 3 practical hours / 3 units
7. Course Coordinator Name	Assist. Prof. Mazin Nadheer Farhan

8. Course Objectives

This course aims to provide Level 4 students with the theoretical knowledge and basic applied skills in the field of physical therapy for neurological diseases, through studying the pathophysiology of the central and peripheral nervous systems, understanding the foundations of clinical neurological assessment, and applying approved therapeutic protocols for the most prominent neurological conditions such as stroke, spinal cord injuries, and Parkinson's disease, qualifying the student to move on to specialized applications in subsequent courses.

9. Teaching and Learning Strategies

A. Knowledge Objectives

A1. Identifying the anatomy and physiology of the central and peripheral nervous systems and the mechanisms of common neurological injury. A2. Understanding the pathophysiology of major neurological conditions (stroke, spinal cord injuries, Parkinson's disease, multiple sclerosis). A3. Grasping approved clinical neurological assessment tools (Ashworth Scale, Brunnstrom Scale, MMT test, balance and coordination tests). A4. Recognizing the principles of neurological physical therapy and theories of cortical reorganization (neuroplasticity) and their applications in rehabilitation.	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

B. Skill Objectives Specific to the Course

B1. Conducting a comprehensive clinical neurological assessment and accurately documenting its results within the medical record.

B2. Applying basic neuromotor therapy techniques (Bobath, PNF, Brunnstrom) on models and training cases. B3. Designing staged treatment programs for neurological conditions according to the degree of disability and recovery stage. B4. Employing assistive therapeutic devices (FES, prosthetic devices) within the treatment plan for the neurological patient.	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

C. Affective and Value-Based Objectives

C1. Developing a sense of professional and human responsibility toward neurological patients and their families. C2. Strengthening empathy, patience, and perseverance when dealing with chronic neurological conditions with slow recovery. C3. Instilling values of teamwork and coordination with the multidisciplinary team in neurological rehabilitation. C4. Encouraging the student to keep up with research developments in the field of neurological rehabilitation and its modern techniques.	
Teaching Methods	(In-person lectures), group discussions, clinical case studies.
Assessment Methods	Daily, semester, and final examinations; follow-up reports.

D. General and Transferable Skills (Other skills related to employability and personal development)

D1. Developing professional communication skills with the neurological patient and their family, explaining the rehabilitation plan in simplified language. D2. Acquiring critical-thinking skills in selecting the appropriate treatment protocol based on scientific evidence. D3. Refining documentation skills for tracking the neurological patient's progress and assessing rehabilitation outcomes using standardized measures. D4. Preparing the student to specialize in the field of neurological rehabilitation and to deal with modern technologies (robotics, virtual reality).

10. Course Structure

Week	Hours	Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
1st	2+3	Knowledge & Application	Introduction to Neurological PT: CNS and PNS anatomy review. Pathophysiology of neurological injury.	Whiteboard, PowerPoint slides	Reports, exams

			Neuroplasticity and motor learning principles.		
2nd	2+3	Knowledge & Application	Stroke (CVA) – Part 1: Pathophysiology, types, risk factors. Hemiplegia, spasticity, sensory deficits. Brunnstrom stages of recovery.	Whiteboard, PowerPoint slides	Reports, exams
3rd	2+3	Knowledge & Application	Stroke (CVA) – Part 2: PT assessment (Ashworth, Fugl-Meyer, Berg Balance). Bobath NDT, PNF. Functional electrical stimulation (FES).	Whiteboard, lab practical	Reports, exams
4th	2+3	Knowledge & Application	Spinal Cord Injury (SCI): ASIA classification. Complete vs incomplete. PT assessment and rehabilitation for paraplegia and tetraplegia.	Whiteboard, PowerPoint slides	Reports, exams
5th	2+3	Knowledge & Application	Traumatic Brain Injury (TBI): Rancho Los Amigos levels. Cognitive-motor rehabilitation. Gait re-education strategies.	Whiteboard, case studies	Reports, exams
6th	2+3	Knowledge & Application	Parkinson's Disease: TRAP features. PT assessment (UPDRS). LSVT BIG protocol. Balance and fall prevention programs.	Whiteboard, PowerPoint slides, lab practical	Reports, exams
7th	2+3	Knowledge & Application	Multiple Sclerosis (MS): Types, clinical features. Fatigue management. PT interventions: aquatic therapy, balance training, energy conservation.	Whiteboard, PowerPoint slides	Reports, exams
8th	2+3	Knowledge & Application	Midterm Review: CVA, SCI, TBI, Parkinson's, MS case-based review. Midterm examination.	Comprehensive review	Semester exam
9th	2+3	Knowledge & Application	Peripheral Nerve Injuries: Types (neuropraxia, axonotmesis, neurotmesis). EMG/NCV assessment. Splinting, electrical stimulation, sensory re-education.	Whiteboard, PowerPoint slides	Reports, exams
10th	2+3	Knowledge & Application	Guillain-Barré Syndrome and Motor Neuron Diseases: Clinical phases. PT role in acute and rehabilitation phases. Respiratory PT in MND.	Whiteboard, PowerPoint slides	Reports, exams
11th	2+3	Knowledge & Application	Cerebellar Disorders and Ataxia: Clinical features. Frenkel's exercises, coordination training, assistive devices.	Whiteboard, lab practical	Reports, exams
12th	2+3	Knowledge & Application	Neurological Gait Disorders: Hemiplegic, parkinsonian, ataxic, steppage gait. Gait analysis. Orthotic devices in neurological rehabilitation.	Whiteboard, practical gait analysis	Reports, exams
13th	2+3	Knowledge & Application	Vestibular Rehabilitation: BPPV. Epley maneuver. Cawthorne-Cooksey exercises. Chronic vestibular hypofunction rehabilitation.	Whiteboard, PowerPoint slides, lab practical	Reports, exams
14th	2+3	Knowledge & Application	Technology in Neurorehabilitation: Robotic-assisted therapy, virtual reality, FES, TMS. Evidence-based practice in neurological PT.	Whiteboard, PowerPoint slides	Reports, exams
15th	2+3	Knowledge & Application	Comprehensive Review and Case Presentations: Student case	Student presentations, review	Comprehensive exams

			presentations. Integrated review. Final exam preparation.		

11. Course Assessment
Student activities and reports, oral and written theoretical and practical examinations.

12. Learning and Teaching Resources	
Required Textbooks	O'Sullivan, S. B., Schmitz, T. J., & Fulk, G. D. (2024). Physical Rehabilitation (8th ed.). F.A. Davis Company.
Main References (Sources)	Umphred, D. A., & Lazaro, R. T. (2020). Umphred's Neurological Rehabilitation (7th ed.). Elsevier Mosby.
Recommended Books and References	Shumway-Cook, A., & Woollacott, M. H. (2023). Motor Control (6th ed.). Lippincott Williams & Wilkins. Journal of Neurologic Physical Therapy (JNPT).
Electronic References and Websites	Neuropt – Neurology Section APTA: neuropt.org; Physiopedia – Neurological Conditions: physio-pedia.com

Level Four

PTT402 — Advance Physiotherapy for Neurological Diseases

1. Course Name	Advance Physiotherapy for Neurological Diseases
2. Course Code	PTT402
3. Semester / Year	Second Semester / 2026-2027
4. Date of Preparation	15 / 6 / 2026
5. Available Attendance Forms	In-person theoretical and practical lectures
6. Credit Hours / Units	2 theory hours + 3 practical hours / 3 units
7. Course Coordinator Name	Assist. Prof. Mazin Nadheer Farhan

8. Course Objectives

This course aims to broaden and deepen the student's knowledge in the field of specialized neurological rehabilitation, building on what was acquired in PTT401, by delving into advanced therapeutic protocols for complex neurological conditions (cerebral palsy, moderate brain injuries, rare movement disorders), and using modern techniques in neurological rehabilitation (robotics, virtual reality, magnetic stimulation), and designing comprehensive rehabilitation programs that take into account physical, cognitive, and functional dimensions.

9. Teaching and Learning Strategies

A. Knowledge Objectives

A1. Distinguishing between types of cerebral palsy (CP) clinically and by classification, and understanding the principles of functional motor rehabilitation according to the GMFCS system. A2. Understanding the pathophysiology of specialized movement disorders (dystonia, tremor, ataxia) and their treatment protocols. A3. Grasping the principles of employing modern technologies in neurological rehabilitation (Lokomat, VR, tDCS, TMS) and the supporting scientific evidence. A4. Recognizing the dimensions of cognitive-motor rehabilitation in dementia and moderate brain injuries and its approved protocols.	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

B. Skill Objectives Specific to the Course

B1. Applying specialized physical therapy protocols for cerebral palsy (advanced NDT, Conductive Education, functional strength training). B2. Designing integrated rehabilitation programs for complex neurological conditions that include functional, cognitive, and social goals. B3. Employing functional performance assessment results (FIM, WHODAS, Goal Attainment Scaling) in adjusting plans and measuring their outcomes. B4. Applying the principles of task-oriented training in advanced paralysis cases.	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

C. Affective and Value-Based Objectives

C1. Strengthening awareness of the humane and psychosocial dimensions of chronic neurological disability cases. C2. Instilling values of respect and dignity in dealing with people with severe motor disabilities. C3. Developing readiness for continuous learning in the rapidly evolving, advanced field of neurological rehabilitation. C4. Encouraging the student to advocate for the rights of people with disabilities and strengthen their social inclusion.	
Teaching Methods	(In-person lectures), group discussions, clinical case studies.
Assessment Methods	Daily, semester, and final examinations; follow-up reports.

D. General and Transferable Skills (Other skills related to employability and personal development)

D1. Developing skills for leading multidisciplinary team meetings and developing comprehensive rehabilitation plans for complex cases. D2. Acquiring skills for assessing the quality of life of the neurological patient and employing this in determining rehabilitation priorities. D3. Refining skills for designing home and community rehabilitation environments suited to people with advanced motor disabilities. D4. Preparing the student to specialize in advanced neurological rehabilitation fields (spinal cord care, cerebral palsy, post-brain-surgery rehabilitation).

10. Course Structure					
Week	**Hours**	**Learning Outcomes**	**Unit / Topic Name**	**Teaching Method**	**Assessment Method**
1st	2+3	Knowledge & Application	Review and Advanced Neuroplasticity: Recap of PTT401 key concepts. Advanced neuroplasticity theories. Activity-dependent plasticity. Advanced motor learning principles.	Whiteboard, PowerPoint slides	Reports, exams
2nd	2+3	Knowledge & Application	Cerebral Palsy (CP) – Classification and Assessment: CP types (spastic, dyskinetic, ataxic). GMFCS, MACS, CFCS. CP-specific assessment (GMFM-88/66).	Whiteboard, lab practical	Reports, exams
3rd	2+3	Knowledge & Application	Cerebral Palsy – Advanced Intervention: NDT advanced techniques. Constraint-Induced Movement Therapy (CIMT). Functional strength training. Orthotic management.	Whiteboard, lab practical	Reports, exams
4th	2+3	Knowledge & Application	Movement Disorders – Dystonia and Tremor: Pathophysiology of dystonia, essential tremor, Huntington's. PT assessment and specialized exercise interventions.	Whiteboard, PowerPoint slides	Reports, exams
5th	2+3	Knowledge & Application	Advanced Stroke Rehabilitation: CIMT. Mirror therapy. Mental practice and motor imagery. High-intensity gait training post-stroke.	Whiteboard, lab practical	Reports, exams
6th	2+3	Knowledge & Application	Robotic-Assisted Neurorehabilitation: Lokomat, Armeo, Ekso Bionics. Evidence for robotic therapy in stroke and SCI. FES-cycling integration.	Whiteboard, PowerPoint slides	Reports, exams
7th	2+3	Knowledge & Application	Virtual Reality (VR) in Neurorehabilitation: Principles and clinical evidence. VR systems (Nintendo Wii, CAREN, Oculus). Balance and gait VR training.	Whiteboard, PowerPoint slides	Reports, exams
8th	2+3	Knowledge & Application	Midterm Review: Advanced neurological rehabilitation cases. Technology integration review. Midterm examination.	Comprehensive review	Semester exam
9th	2+3	Knowledge & Application	Brain Stimulation Techniques: tDCS, TMS. Evidence in stroke and TBI rehabilitation. Safety guidelines.	Whiteboard, PowerPoint slides	Reports, exams
10th	2+3	Knowledge & Application	Cognitive-Motor Rehabilitation: Dual-task training. Cognitive rehabilitation in TBI and dementia. CIMT and bilateral training integration.	Whiteboard, lab practical	Reports, exams
11th	2+3	Knowledge & Application	Functional Outcomes and Quality of Life Measures: FIM, WHODAS 2.0, Goal Attainment Scaling (GAS), EQ-5D. Shared decision-making.	Whiteboard, PowerPoint slides	Reports, exams
12th	2+3	Knowledge & Application	Community Reintegration and Vocational Rehabilitation: Return to work after neurological injury. Community mobility. Driving rehabilitation.	Whiteboard, PowerPoint slides	Reports, exams

13th	2+3	Knowledge & Application	Advanced SCI Rehabilitation: ASIA impairment classification. FES-assisted ambulation. SCI-specific wheelchair skills and sports.	Whiteboard, lab practical	Reports, exams
14th	2+3	Knowledge & Application	Pediatric Neurodevelopmental Disorders: ASD sensory-motor interventions. ADHD and developmental coordination. School-based PT.	Whiteboard, case studies	Reports, exams
15th	2+3	Knowledge & Application	Comprehensive Case Presentations: Advanced neurological rehabilitation student presentations. Integrated review. Final exam preparation.	Student presentations, review	Comprehensive exams

11. Course Assessment
Student activities and reports, oral and written theoretical and practical examinations.

12. Learning and Teaching Resources	
Required Textbooks	O'Sullivan, S. B., Schmitz, T. J., & Fulk, G. D. (2024). Physical Rehabilitation (8th ed.). F.A. Davis Company.
Main References (Sources)	Umphred, D. A., & Lazaro, R. T. (2020). Umphred's Neurological Rehabilitation (7th ed.). Elsevier Mosby.
Recommended Books and References	Shumway-Cook, A., & Woollacott, M. H. (2023). Motor Control (6th ed.). Lippincott Williams & Wilkins. Journal of Neurologic Physical Therapy (JNPT).
Electronic References and Websites	Neuropt – Neurology Section APTA: neuropt.org; Physiopedia – Advanced Neurorehabilitation: physio-pedia.com

Level Four

PTT403 — Physiotherapy for Growth and Development of Pediatric

1. Course Name	Physiotherapy for Growth and Development of Pediatric
2. Course Code	PTT403
3. Semester / Year	First Semester / 2026-2027
4. Date of Preparation	15 / 6 / 2026
5. Available Attendance Forms	In-person theoretical and practical lectures
6. Credit Hours / Units	2 theory hours + 3 practical hours / 3 units
7. Course Coordinator Name	Assist. Prof. Mazin Nadheer Farhan

8. Course Objectives

This course aims to provide the student with comprehensive knowledge of the stages of normal growth and motor development of the child from birth to adolescence, understanding gross and fine motor milestones, assessing deviations from normal patterns, and identifying early risk factors, enabling the student to build a solid scientific foundation that prepares them for the Physiotherapy for Pediatric Diseases course in the second semester.

9. Teaching and Learning Strategies

A. Knowledge Objectives

A1. Identifying the stages of normal growth and development of the child and the motor milestones of each stage (newborn, infant, early childhood, preschool, school age). A2. Understanding the principles of neuromotor maturation and theories of motor development (Reflex-Hierarchical Model, Dynamic Systems Theory). A3. Grasping approved pediatric motor assessment tools (GMFM, AIMS, Denver II, Bayley Scales) and interpreting their results. A4. Recognizing risk factors affecting motor development (prematurity, sensory deprivation, congenital disabilities) and indicators for early intervention.	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

B. Skill Objectives Specific to the Course

B1. Applying standardized motor assessment tools to children at different age stages and documenting results accurately.

B2. Identifying deviations from normal motor development patterns and comparing them to age-referenced standards. B3. Designing early intervention programs to stimulate motor development and strengthen delayed motor milestones. B4. Guiding children's families and raising their awareness of methods to support development in the home and community environment.	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

C. Affective and Value-Based Objectives

C1. Developing human sensitivity in dealing with children and their families with warmth and empathy. C2. Strengthening awareness of the importance of early intervention in improving developmental trajectories and achieving the child's maximum potential. C3. Instilling values of cultural and family respect when assessing the child and developing the intervention plan. C4. Encouraging the student to continuously follow research in the field of child development and early intervention programs.	
Teaching Methods	(In-person lectures), group discussions, clinical case studies.
Assessment Methods	Daily, semester, and final examinations; follow-up reports.

D. General and Transferable Skills (Other skills related to employability and personal development)

D1. Developing effective communication skills with children and their families and explaining assessment results simply and clearly. D2. Acquiring precise motor-observation skills and documenting the child's development over time with systematic records. D3. Refining critical-thinking skills in distinguishing between normal motor delay and what requires therapeutic intervention. D4. Preparing the student to work in developmental and early-intervention centers and school inclusion programs.

10. Course Structure

Week	Hours	Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
1st	2+3	Knowledge & Application	Introduction to Pediatric PT: Role of PT in child development. Developmental theories (Reflex-Hierarchical, Dynamic Systems). Overview of assessment principles.	Whiteboard, PowerPoint slides	Reports, exams

2nd	2+3	Knowledge & Application	Motor Development – Neonate and Infant (0–6 months): Primitive reflexes. Postural reactions. Milestones: head control, rolling.	Whiteboard, lab practical	Reports, exams
3rd	2+3	Knowledge & Application	Motor Development – Infant (6–12 months): Sitting, crawling, pulling to stand. Righting and equilibrium reactions. Prehension development.	Whiteboard, practical	Reports, exams
4th	2+3	Knowledge & Application	Motor Development – Toddler and Preschool (1–5 years): Walking, running, jumping, climbing. Fine motor and handedness.	Whiteboard, educational videos	Reports, exams
5th	2+3	Knowledge & Application	Motor Development – School Age and Adolescence (6–18 years): Motor skill refinement. Postural development and screening.	Whiteboard, PowerPoint slides	Reports, exams
6th	2+3	Knowledge & Application	Pediatric Assessment Tools – Part 1: Alberta Infant Motor Scale (AIMS), Gross Motor Function Measure (GMFM). Practical application.	Whiteboard, lab practical	Reports, exams
7th	2+3	Knowledge & Application	Pediatric Assessment Tools – Part 2: Denver Developmental Screening Test II. Bayley Scales. Interpretation and documentation.	Whiteboard, lab practical	Reports, exams
8th	2+3	Knowledge & Application	Midterm Review: Milestones and assessment tools case-based review. Midterm examination.	Review, case discussion	Semester exam
9th	2+3	Knowledge & Application	Risk Factors for Developmental Delay: Prematurity, environmental and genetic factors. Indications for early intervention.	Whiteboard, PowerPoint slides	Reports, exams
10th	2+3	Knowledge & Application	Early Intervention: NDT/Bobath for infants. Sensory integration basics. Family-centered care. Home exercise programs.	Whiteboard, practical	Reports, exams
11th	2+3	Knowledge & Application	Premature Infant Physiotherapy: NICU PT. Positioning and handling. Developmental care. Kangaroo care.	Whiteboard, PowerPoint slides	Reports, exams
12th	2+3	Knowledge & Application	Developmental Coordination Disorder (DCD): DSM-5 criteria. PT interventions. School inclusion support.	Whiteboard, PowerPoint slides	Reports, exams
13th	2+3	Knowledge & Application	Sensory Processing and Integration: Sensory systems and motor development. Sensory processing disorder. Integration therapy.	Whiteboard, practical	Reports, exams
14th	2+3	Knowledge & Application	Parent and Caregiver Education: Communication strategies. Home program design. Cultural considerations. School documentation.	Whiteboard, role-play	Reports, exams
15th	2+3	Knowledge & Application	Comprehensive Review and Case Presentations: Student presentations. Final exam preparation.	Student presentations, review	Comprehensive exams

11. Course Assessment
Student activities and reports, oral and written theoretical and practical examinations.

12. Learning and Teaching Resources	
Required Textbooks	Tecklin, J. S. (2015). Pediatric Physical Therapy (5th ed.). Lippincott Williams & Wilkins.
Main References (Sources)	Campbell, S. K., Palisano, R. J., & Orlin, M. N. (2012). Physical Therapy for Children (4th ed.). Elsevier Saunders.
Recommended Books and References	Shepherd, R. B. (2014). Physiotherapy in Paediatrics (3rd ed.). Butterworth-Heinemann. Pediatric Physical Therapy Journal.
Electronic References and Websites	Physiopedia – Paediatric PT: physio-pedia.com; CDC Developmental Milestones: cdc.gov/ncbddd/actearly

Level Four

PTT404 — Physiotherapy for Pediatric Diseases

1. Course Name	Physiotherapy for Pediatric Diseases
2. Course Code	PTT404
3. Semester / Year	Second Semester / 2026-2027
4. Date of Preparation	15 / 6 / 2026
5. Available Attendance Forms	In-person theoretical and practical lectures
6. Credit Hours / Units	2 theory hours + 3 practical hours / 3 units
7. Course Coordinator Name	Assist. Prof. Mazin Nadheer Farhan

8. Course Objectives

This course aims to apply the basic knowledge acquired in PTT403 to common pathological conditions in children, through studying the pathophysiology of pediatric motor, neurological, respiratory, and orthopedic diseases, applying appropriate physical therapy protocols, and designing integrated rehabilitation plans that take into account the child's developmental age and family situation.

9. Teaching and Learning Strategies

A. Knowledge Objectives

A1. Identifying common neuromotor diseases in children (cerebral palsy, SMA, poliomyelitis) and their pathophysiology. A2. Understanding congenital and acquired musculoskeletal diseases (DDH, clubfoot, scoliosis, hereditary muscular diseases) and the principles of their treatment. A3. Grasping physical therapy protocols for respiratory diseases in children (cystic fibrosis, asthma, pneumonia) and secretion-clearance techniques. A4. Recognizing the specificity of physical therapy for adolescence (adolescent scoliosis, chronic pain syndrome, sports injuries).	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

B. Skill Objectives Specific to the Course

B1. Applying physical therapy protocols for cerebral palsy of its various types according to GMFCS, adapting to the developmental age.

B2. Conducting assessment and a treatment plan for congenital musculoskeletal deformities (DDH, clubfoot) and following up on functional progress. B3. Applying respiratory physical therapy techniques tailored for children (modified postural drainage, AFE, modified ACBT). B4. Designing a therapeutic environment and exercise program suited to the child psychologically and developmentally, with active family involvement.	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

C. Affective and Value-Based Objectives

C1. Developing emotional competence in dealing with sick children and their families under conditions of disability or chronic illness. C2. Strengthening patience and flexibility in dealing with uncooperative children during therapeutic sessions. C3. Instilling awareness of the importance of coordinating with teachers and social workers to achieve comprehensive inclusion of the child. C4. Encouraging the student to keep up with scientific updates in pediatric rehabilitative medicine.	
Teaching Methods	(In-person lectures), group discussions, clinical case studies.
Assessment Methods	Daily, semester, and final examinations; follow-up reports.

D. General and Transferable Skills (Other skills related to employability and personal development)

D1. Developing communication skills with the child using play-based methods and positive motivation, and quickly building therapeutic trust. D2. Acquiring skills for guiding the family and training them to apply the treatment plan at home and measure progress. D3. Refining writing skills for pediatric physical therapy reports directed at schools and legal and insurance bodies. D4. Preparing the student to work in centers for children with special needs and children's hospitals.

10. Course Structure

Week	Hours	Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
1st	2+3	Knowledge & Application	Cerebral Palsy – Advanced PT Protocols: Review of CP classification. GMFCS-based treatment planning. Evidence-based interventions: CIMT, goal-directed training, hip surveillance.	Whiteboard, lab practical	Reports, exams

2nd	2+3	Knowledge & Application	Spinal Muscular Atrophy (SMA): Classification (Type I–IV). Pathophysiology. PT goals: respiratory support, positioning, mobility aids. Gene therapy implications.	Whiteboard, PowerPoint slides	Reports, exams
3rd	2+3	Knowledge & Application	Duchenne Muscular Dystrophy (DMD): Pathophysiology and stages. Gower's sign. PT management: stretching, respiratory PT, wheelchair mobility, spinal management.	Whiteboard, PowerPoint slides	Reports, exams
4th	2+3	Knowledge & Application	Developmental Hip Dysplasia (DDH) and Legg-Calvé-Perthes Disease: Pavlik harness, post-surgical PT. Perthes stages and activity modification.	Whiteboard, lab practical	Reports, exams
5th	2+3	Knowledge & Application	Congenital Talipes Equinovarus (CTEV): Ponseti method. Serial casting. Post-casting exercise and orthotic management.	Whiteboard, lab practical	Reports, exams
6th	2+3	Knowledge & Application	Scoliosis in Children and Adolescents: Cobb angle measurement. PT management (SEAS, Schroth method). Bracing and post-surgical PT.	Whiteboard, measurement practical	Reports, exams
7th	2+3	Knowledge & Application	Pediatric Respiratory Conditions – Cystic Fibrosis: Pathophysiology. Airway clearance: ACBT, AFE, PEP mask. Exercise in CF.	Whiteboard, respiratory practical	Reports, exams
8th	2+3	Knowledge & Application	Midterm Review: Neurological, orthopedic, and respiratory pediatric conditions. Midterm examination.	Comprehensive review	Semester exam
9th	2+3	Knowledge & Application	Pediatric Burns and Trauma Rehabilitation: Phases of healing. Positioning, splinting, scar management, exercise progression.	Whiteboard, PowerPoint slides	Reports, exams
10th	2+3	Knowledge & Application	Juvenile Idiopathic Arthritis (JIA): Classification and clinical features. PT goals: joint protection, exercise. Hydrotherapy. School integration.	Whiteboard, PowerPoint slides	Reports, exams
11th	2+3	Knowledge & Application	Down Syndrome: Motor characteristics. Atlantoaxial instability precautions. PT interventions for hypotonia and functional mobility.	Whiteboard, practical	Reports, exams
12th	2+3	Knowledge & Application	Autism Spectrum Disorder (ASD) – Motor Perspective: Sensory-motor characteristics. Proprioceptive and vestibular interventions. PT role in ASD multidisciplinary team.	Whiteboard, PowerPoint slides	Reports, exams
13th	2+3	Knowledge & Application	Adolescent Sports Injuries: Osgood-Schlatter, Sever's disease. Apophysitis management. Return-to-sport protocols for adolescents.	Whiteboard, practical	Reports, exams
14th	2+3	Knowledge & Application	Family-Centered Care and School-Based PT: Collaborative goal setting. IEP participation. Report writing for educational settings.	Whiteboard, role-play	Reports, exams

15th	2+3	Knowledge & Application	Comprehensive Review and Case Presentations: Pediatric PT student cases. Integrated review. Final exam preparation.	Student presentations, review	Comprehensive exams

11. Course Assessment
Student activities and reports, oral and written theoretical and practical examinations.

12. Learning and Teaching Resources	
Required Textbooks	Tecklin, J. S. (2015). Pediatric Physical Therapy (5th ed.). Lippincott Williams & Wilkins.
Main References (Sources)	Campbell, S. K., Palisano, R. J., & Orlin, M. N. (2012). Physical Therapy for Children (4th ed.). Elsevier Saunders.
Recommended Books and References	Shepherd, R. B. (2014). Physiotherapy in Paediatrics (3rd ed.). Butterworth-Heinemann. Pediatric Physical Therapy Journal.
Electronic References and Websites	APTA – Academy of Pediatric Physical Therapy: pediatricapta.org; CDC Developmental Disabilities: cdc.gov/ncbddd

Level Four

PTT405 — Radiology and Diagnostic Imaging for Physiotherapy

1. Course Name	Radiology and Diagnostic Imaging for Physiotherapy
2. Course Code	PTT405
3. Semester / Year	First Semester / 2026-2027
4. Date of Preparation	15 / 6 / 2026
5. Available Attendance Forms	In-person theoretical lectures
6. Credit Hours / Units	2 theory hours / 2 units
7. Course Coordinator Name	Assist. Prof. Mazin Nadheer Farhan

8. Course Objectives

This course aims to provide the student with basic knowledge of radiology and diagnostic imaging and their applications in physical therapy, through understanding the principles of X-ray, MRI, CT, and ultrasound, and training the student to read and interpret radiological reports for musculoskeletal and neurological conditions, thereby strengthening their competence in making clinical decisions based on imaging evidence.

9. Teaching and Learning Strategies

A. Knowledge Objectives

A1. Identifying the physical principles of X-Ray and Computed Tomography (CT) and distinguishing normal images of the body's bones and tissues. A2. Understanding the principles of Magnetic Resonance Imaging (MRI), indications for its use, and distinguishing tissue signals (T1, T2). A3. Grasping the principles of ultrasound imaging and its applications in assessing muscles, tendons, and joints. A4. Recognizing common radiological terminology in physical therapy reports and linking it to clinical data.	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

B. Skill Objectives Specific to the Course

B1. Reading X-ray images of the skeletal system and distinguishing types of fractures and structural deviations.
B2. Interpreting MRI report terminology for the spine and extremities and linking it to clinical symptoms.

B3. Using imaging results to adjust the treatment plan and identify contraindications for therapeutic techniques. B4. Communicating professionally with the radiologist and reading conclusions within the clinical context.	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

C. Affective and Value-Based Objectives

C1. Appreciating the role of medical imaging as a supportive tool, not a substitute for direct clinical assessment. C2. Strengthening commitment to protecting the patient from unjustified radiation exposure. C3. Instilling values of cooperation with the medical team and radiology staff for the patient's benefit. C4. Developing critical thinking in evaluating the quality of radiological studies and their suitability to the case.	
Teaching Methods	(In-person lectures), group discussions, clinical case studies.
Assessment Methods	Daily, semester, and final examinations; follow-up reports.

D. General and Transferable Skills (Other skills related to employability and personal development)

D1. Developing communication skills with the radiology team to employ imaging results therapeutically.
D2. Acquiring database-research skills for imaging studies relevant to clinical cases.
D3. Refining critical-thinking skills in analyzing medical images and linking them to clinical symptoms.
D4. Preparing the student to deal with modern medical imaging technologies as part of advanced assessment tools.

10. Course Structure

Week	Hours	Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
1st	2	Knowledge	Introduction to Diagnostic Imaging in PT: Role of imaging in clinical decision-making. Types of modalities. Imaging request principles and contraindications.	Whiteboard, PowerPoint slides	Reports, exams
2nd	2	Knowledge	X-Ray Principles: Physics of X-rays. Radiographic densities. Positioning and projections.	Whiteboard, sample X-ray images	Reports, exams
3rd	2	Knowledge & Application	X-Ray Interpretation – Skeletal System: Normal bone anatomy. Fracture types and classification. Joint space assessment.	Whiteboard, image-reading exercises	Reports, exams
4th	2	Knowledge & Application	X-Ray of the Spine: Cervical, thoracic, lumbar views. Normal alignment.	Whiteboard, PowerPoint slides	Reports, exams

			Degenerative changes: osteophytes, disc narrowing, spondylolisthesis.		
5th	2	Knowledge & Application	CT Scan: Physics and Hounsfield units. CT of brain, spine, and joints. PT-related indications.	Whiteboard, PowerPoint slides	Reports, exams
6th	2	Knowledge & Application	MRI Principles – Part 1: Physics (T1, T2 weighting). Signal characteristics of tissues. MRI safety and contraindications.	Whiteboard, PowerPoint slides	Reports, exams
7th	2	Knowledge & Application	MRI Principles – Part 2: Spine MRI (disc herniation, stenosis). Joint MRI (meniscus, ligaments, cartilage).	Whiteboard, sample MRI reports	Reports, exams
8th	2	Knowledge & Application	Midterm Review: X-ray and MRI case-based imaging analysis. Midterm examination.	Comprehensive review	Semester exam
9th	2	Knowledge & Application	Musculoskeletal Ultrasound: Principles and technique. Muscles, tendons, bursae imaging. Common findings: rotator cuff, tendinopathy.	Whiteboard, PowerPoint slides	Reports, exams
10th	2	Knowledge & Application	Bone Scan and Nuclear Medicine: Bone scintigraphy principles. Indications: stress fractures, infection, metastases.	Whiteboard, PowerPoint slides	Reports, exams
11th	2	Knowledge & Application	Neurological Imaging in PT: Brain MRI/CT (stroke, TBI, MS plaques). EMG/NCV interpretation basics.	Whiteboard, PowerPoint slides	Reports, exams
12th	2	Knowledge & Application	Pediatric and Sports Imaging: Growth plate injuries (Salter-Harris). Stress fractures. DDH imaging.	Whiteboard, PowerPoint slides	Reports, exams
13th	2	Knowledge & Application	Cardiopulmonary Imaging: Chest X-ray (pneumonia, pleural effusion, cardiomegaly). CTPA in pulmonary embolism.	Whiteboard, sample reports	Reports, exams
14th	2	Knowledge & Application	Clinical Integration: Case-based sessions integrating imaging with PT assessment and treatment planning.	Whiteboard, integrated case studies	Reports, exams
15th	2	Knowledge & Application	Comprehensive Review: Integrated imaging review. Final case analysis. Final exam preparation.	Comprehensive review	Written examinations

11. Course Assessment
Student activities and reports, oral and written theoretical and practical examinations.

12. Learning and Teaching Resources	
Required Textbooks	Brant, W. E., & Helms, C. A. (2019). Fundamentals of Diagnostic Radiology (5th ed.). Lippincott Williams & Wilkins.
Main References (Sources)	Greenspan, A., & Beltran, J. (2015). Orthopedic Imaging: A Practical Approach (6th ed.). Lippincott Williams & Wilkins.
Recommended Books and References	Reeder & Felson's Gamuts in Radiology (5th ed.). Springer. Skeletal Radiology Journal (Springer).

Electronic References and Websites	Radiopaedia: radiopaedia.org; Physiopedia – Diagnostic Imaging: physio-pedia.com

Level Four

PTT406 — Physiotherapy for Cardiopulmonary Diseases

1. Course Name	Physiotherapy for Cardiopulmonary Diseases
2. Course Code	PTT406
3. Semester / Year	First Semester / 2026-2027
4. Date of Preparation	15 / 6 / 2026
5. Available Attendance Forms	In-person theoretical and practical lectures
6. Credit Hours / Units	2 theory hours + 3 practical hours / 3 units
7. Course Coordinator Name	Assist. Prof. Mazin Nadheer Farhan

8. Course Objectives

This course aims to qualify the student to deal with cardiac and pulmonary cases in the clinical environment, through studying the pathophysiology of common cardiovascular and respiratory diseases, applying approved cardiac and pulmonary rehabilitation programs, and training the student in chest physical therapy techniques and rehabilitative cardiac exercise, with a focus on clinical safety and monitoring vital signs during exercise.

9. Teaching and Learning Strategies

A. Knowledge Objectives

A1. Identifying the anatomy and physiology of the cardiovascular and respiratory systems, mechanisms of adaptation to exercise, and standards for monitoring cardiopulmonary response. A2. Understanding the pathophysiology of common heart diseases (myocardial infarction, heart failure, angina) and respiratory diseases (COPD, asthma, pneumonia). A3. Grasping clinical cardiopulmonary assessment tools (6-minute walk test, Borg scale, basic ECG reading, spirometry). A4. Recognizing the principles of cardiopulmonary rehabilitation through its three phases, criteria for stopping exercise, and its contraindications.	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

B. Skill Objectives Specific to the Course

B1. Applying chest physical therapy techniques (postural drainage, chest percussion, diaphragmatic breathing, ACBT) on models and training cases.

B2. Conducting the 6-Minute Walk Test (6MWT) and interpreting its results within the cardiopulmonary rehabilitation protocol. B3. Designing cardiopulmonary rehabilitation programs according to the patient's stage, risk level, and SpO2 measurements. B4. Monitoring the patient's physiological response during exercise and applying safe session-termination criteria.	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

C. Affective and Value-Based Objectives

C1. Developing clinical caution and professional responsibility when dealing with sensitive cardiac and pulmonary patients. C2. Strengthening commitment to safety standards and cardiac emergency protocols (CPR, AED) in the rehabilitation environment. C3. Instilling values of patience and continuous motivation to help the patient overcome the limitations of the disease and achieve independence. C4. Encouraging the student to keep up with updated international cardiac rehabilitation guidelines (AHA/ESC).	
Teaching Methods	(In-person lectures), group discussions, clinical case studies.
Assessment Methods	Daily, semester, and final examinations; follow-up reports.

D. General and Transferable Skills (Other skills related to employability and personal development)

D1. Developing communication skills with the cardiopulmonary patient and motivating them to adhere to the rehabilitation program. D2. Acquiring coordination skills with the medical team to ensure integration between the medication plan and rehabilitation. D3. Refining vital-sign monitoring skills and making rapid clinical decisions in cases of instability. D4. Preparing the student to work in cardiac rehabilitation units and respiratory care centers.

10. Course Structure

Week	Hours	Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
1st	2+3	Knowledge & Application	Introduction to Cardiopulmonary PT: Role of PT. Cardiopulmonary anatomy and physiology review. Exercise physiology and cardiorespiratory response.	Whiteboard, PowerPoint slides	Reports, exams
2nd	2+3	Knowledge & Application	Cardiac Conditions – Part 1: Ischemic heart disease (MI, angina).	Whiteboard, sample ECGs	Reports, exams

			Pathophysiology, clinical features. ECG interpretation basics for PT practice.		
3rd	2+3	Knowledge & Application	Cardiac Conditions – Part 2: Heart failure. CABG and valve replacement. Post-cardiac surgery PT management (Phase I).	Whiteboard, PowerPoint slides	Reports, exams
4th	2+3	Knowledge & Application	Cardiac Rehabilitation – Phases I, II, III: Risk stratification. FITT principle. 6-Minute Walk Test (6MWT) protocol and interpretation.	Whiteboard, lab practical	Reports, exams
5th	2+3	Knowledge & Application	Pulmonary Conditions – Part 1: COPD staging (GOLD). Asthma: triggers, management, exercise-induced asthma.	Whiteboard, PowerPoint slides	Reports, exams
6th	2+3	Knowledge & Application	Pulmonary Conditions – Part 2: Pneumonia, pleural effusion, pulmonary fibrosis, bronchiectasis. Post-COVID pulmonary rehabilitation.	Whiteboard, PowerPoint slides	Reports, exams
7th	2+3	Knowledge & Application	Chest Physiotherapy Techniques: Postural drainage, percussion, vibration. Active Cycle of Breathing (ACBT). Autogenic drainage. Incentive spirometry.	Whiteboard, lab practical	Reports, exams
8th	2+3	Knowledge & Application	Midterm Review: Cardiac and pulmonary conditions. Practical skills review. Midterm examination.	Comprehensive review	Semester exam
9th	2+3	Knowledge & Application	Pulmonary Function Tests (PFTs): Spirometry (FVC, FEV1). Obstructive vs restrictive patterns. SpO2 and arterial blood gas basics.	Whiteboard, spirometry practical	Reports, exams
10th	2+3	Knowledge & Application	Pulmonary Rehabilitation: Program components. Dyspnea management and Borg Scale. Upper and lower limb training.	Whiteboard, rehabilitation programs practical	Reports, exams
11th	2+3	Knowledge & Application	ICU and Acute Care PT: PT in intensive care. Early mobilization protocols. Secretion clearance in mechanically ventilated patients.	Whiteboard, PowerPoint slides	Reports, exams
12th	2+3	Knowledge & Application	Cardiopulmonary PT in Special Populations: Pediatric conditions (cystic fibrosis, congenital heart disease). Elderly. Post-transplant rehabilitation.	Whiteboard, PowerPoint slides	Reports, exams
13th	2+3	Knowledge & Application	Exercise Testing and Prescription: GXT. Target heart rate zones. Safety monitoring during exercise.	Whiteboard, testing practical	Reports, exams
14th	2+3	Knowledge & Application	Secondary Prevention and Lifestyle Modification: Cardiovascular risk factor modification. Smoking cessation. Physical activity guidelines (WHO/AHA).	Whiteboard, PowerPoint slides	Reports, exams
15th	2+3	Knowledge & Application	Comprehensive Review and Case Presentations: Student case presentations. Final exam preparation.	Student presentations, review	Comprehensive exams

11. Course Assessment
Student activities and reports, oral and written theoretical and practical examinations.

12. Learning and Teaching Resources	
Required Textbooks	Frownfelter, D., & Dean, E. (2012). Cardiovascular and Pulmonary Physical Therapy: Evidence to Practice (5th ed.). Elsevier Mosby.
Main References (Sources)	Watchie, J. (2010). Cardiovascular and Pulmonary Physical Therapy: A Clinical Manual (2nd ed.). Saunders Elsevier.
Recommended Books and References	Pryor, J. A., & Prasad, S. A. (2008). Physiotherapy for Respiratory and Cardiac Problems (4th ed.). Churchill Livingstone. Journal of Cardiopulmonary Rehabilitation and Prevention.
Electronic References and Websites	American Heart Association: heart.org; Physiopedia – Cardiopulmonary: physio-pedia.com

Level Four

PTT407 — Workshop Therapeutic Exercises

1. Course Name	Workshop Therapeutic Exercises
2. Course Code	PTT407
3. Semester / Year	First Semester / 2026-2027
4. Date of Preparation	15 / 6 / 2026
5. Available Attendance Forms	Practical lectures (workshop)
6. Credit Hours / Units	4 practical hours / 2 units
7. Course Coordinator Name	Assist. Prof. Mazin Nadheer Farhan

8. Course Objectives

This applied course aims to strengthen and consolidate the student's practical skills in the field of therapeutic exercises through intensive workshops addressing the application of protocols for musculoskeletal, neurological, and cardiopulmonary cases, with a focus on mastering manual techniques, exercise programs, and designing integrated rehabilitation plans, in preparation for clinical training and professional practice.

9. Teaching and Learning Strategies

A. Knowledge Objectives

A1. Reviewing and consolidating theoretical knowledge of the foundations of therapeutic exercises (strengthening, flexibility, endurance, balance, coordination) in an applied context. A2. Understanding the principles of designing exercise programs (FITT principle) according to the clinical condition and recovery stage. A3. Grasping the principles of Progressive Overload and exercise safety for different groups. A4. Recognizing the contraindications specific to each type of exercise according to the medical condition and stage of healing.	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

B. Skill Objectives Specific to the Course

B1. Mastering exercise protocols for common conditions (back pain, knee injuries, frozen shoulder, post-surgical rehabilitation).

B2. Applying manual therapy techniques integrated with exercises (trigger point release, joint mobilization, tissue stretching). B3. Using workshop equipment (Theraband, free weights, stability balls, balance tools) efficiently. B4. Designing an integrated therapeutic session (warm-up + main exercises + cool-down) and applying it practically.	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

C. Affective and Value-Based Objectives

C1. Strengthening self-confidence in delivering therapeutic exercises professionally. C2. Instilling values of discipline and perseverance in developing manual skills that require continuous repetition. C3. Developing a spirit of constructive feedback among colleagues and supervisors to improve applied performance. C4. Establishing the principle of safety and continuous patient assessment during exercise as a non-negotiable pillar.	
Teaching Methods	(In-person lectures), group discussions, clinical case studies.
Assessment Methods	Daily, semester, and final examinations; follow-up reports.

D. General and Transferable Skills (Other skills related to employability and personal development)

D1. Developing teaching and clinical guidance skills in explaining exercises to the patient and ensuring correct performance. D2. Acquiring motor-performance assessment skills and correcting technical errors during exercise immediately. D3. Refining teamwork and peer-training skills with a spirit of professionalism. D4. Preparing the student for immediate integration into the clinical training environment with high practical competence.

10. Course Structure

Week	Hours	Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
1st	4 practical	Application	Workshop Orientation and Safety: Lab rules, equipment overview. Warm-up and cool-down protocols. FITT principle review. Partner assessment basics.	Interactive practical workshop	Continuous practical assessment
2nd	4 practical	Application	Stretching and Flexibility: Static, dynamic, PNF stretching. Application	Practical workshop	Practical assessment

			on major muscle groups (hamstrings, hip flexors, shoulder, calf).		
3rd	4 practical	Application	Strengthening – Lower Extremity: Quadriceps, hamstrings, hip muscles. Open and closed kinetic chain. Theraband and free weights.	Practical workshop	Practical assessment
4th	4 practical	Application	Strengthening – Upper Extremity and Core: Shoulder girdle, rotator cuff. Core stabilization (plank, dead bug, bird-dog).	Practical workshop	Practical assessment
5th	4 practical	Application	Balance and Proprioception Training: Static and dynamic balance. Balance board, BOSU, wobble cushion. Ankle and knee rehabilitation.	Practical workshop	Practical assessment
6th	4 practical	Application	Therapeutic Exercise for Low Back Pain: McKenzie basics. Core stabilization. Lumbar stabilization progression. Posture correction.	Practical workshop	Practical assessment
7th	4 practical	Application	Post-Surgical Rehabilitation – Knee: ACL reconstruction protocol (phases 1–4). Total knee replacement exercises. Scar tissue management.	Practical workshop	Practical assessment
8th	4 practical	Application	Post-Surgical Rehabilitation – Shoulder: Rotator cuff repair protocol. Shoulder impingement rehabilitation. Frozen shoulder program.	Practical workshop	Practical assessment
9th	4 practical	Application	Neurological Rehabilitation Exercises: Bobath-based exercises. PNF patterns. Weight-bearing for hemiplegia. Gait re-education drills.	Practical workshop	Practical assessment
10th	4 practical	Application	Aquatic Therapy Simulation: Hydrotherapy principles. Water-based exercises for arthritis, LBP, and neurological conditions.	Practical workshop / simulation	Practical assessment
11th	4 practical	Application	Therapeutic Exercise for Elderly: Fall prevention (Otago Exercise Program). Chair-based exercises. Osteoporosis safety guidelines.	Practical workshop	Practical assessment
12th	4 practical	Application	Sports Rehabilitation: Return-to-sport progression. Plyometric training basics. Agility drills. Functional movement screening (FMS) basics.	Practical workshop	Practical assessment
13th	4 practical	Application	Manual Therapy Integration: Soft tissue mobilization. Grade I–II joint mobilizations. Muscle energy techniques. Integration with exercise prescription.	Practical workshop	Practical assessment
14th	4 practical	Application	Full Case Simulation – Part 1: Student groups manage complete clinical cases (assessment → exercise program → progression). Peer feedback.	Full clinical simulation	Group practical assessment
15th	4 practical	Application	Full Case Simulation – Part 2 and Final Assessment: Final practical skill assessment. Program design presentation.	Clinical simulation, presentations	Final practical examination

11. Course Assessment
Student activities and reports, oral and written theoretical and practical examinations.

12. Learning and Teaching Resources	
Required Textbooks	Kisner, C., Colby, L. A., & Borstad, J. (2017). Therapeutic Exercise: Foundations and Techniques (7th ed.). F.A. Davis Company.
Main References (Sources)	Houglum, P. A. (2016). Therapeutic Exercise for Musculoskeletal Injuries (4th ed.). Human Kinetics.
Recommended Books and References	Prentice, W. E. (2014). Rehabilitation Techniques in Sports Medicine (5th ed.). McGraw-Hill. Journal of Orthopaedic & Sports Physical Therapy (JOSPT).
Electronic References and Websites	JOSPT: jospt.org; Physiopedia – Therapeutic Exercise: physio-pedia.com

Level Four

NTU400 — Scientific Research Methodology

1. Course Name	Scientific Research Methodology
2. Course Code	NTU400
3. Semester / Year	First Semester / 2026-2027
4. Date of Preparation	15 / 6 / 2026
5. Available Attendance Forms	In-person theoretical lectures
6. Credit Hours / Units	2 theory hours / 2 units
7. Course Coordinator Name	Assist. Prof. Mazin Nadheer Farhan

8. Course Objectives

This course aims to equip Level 4 students with the basic concepts and tools of scientific research in physical therapy and health sciences, by giving them skills in formulating research questions and hypotheses, selecting appropriate research methodologies, analyzing and interpreting data, and writing the scientific report according to international academic standards, in preparation for completing the graduation research project in the second semester.

9. Teaching and Learning Strategies

A. Knowledge Objectives

A1. Identifying the foundations of scientific knowledge and the concept, ethics, and types of research (descriptive, analytical, experimental, systematic review). A2. Understanding the components of scientific research (research problem, hypothesis, variables, design, tools, statistical treatment) and distinguishing between quantitative and qualitative approaches. A3. Grasping the principles of literature review and searching scientific databases (PubMed, Scopus, Google Scholar, Cochrane) and documenting sources using the APA system. A4. Recognizing the concepts of Evidence-Based Practice (EBP) and levels of evidence and applying them in physical therapy practice.	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

B. Skill Objectives Specific to the Course

B1. Formulating a measurable research question according to the PICO model and building a clear, specific research hypothesis. B2. Designing a simple research protocol that includes selecting the population and sample, measurement tools, and appropriate statistical treatment. B3. Applying basic statistical tests using SPSS or Excel and interpreting their results. B4. Writing a research proposal with sound academic structure (introduction, objectives, methodology, results, conclusions, references).	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

C. Affective and Value-Based Objectives

C1. Strengthening the student's appreciation of the role of scientific research in developing clinical practice in physical therapy. C2. Instilling values of academic integrity and research ethics (informed consent, privacy, non-plagiarism). C3. Developing a spirit of critical thinking in evaluating scientific evidence and not accepting results without systematic review. C4. Encouraging the student to engage with research communities and publish study results in peer-reviewed journals.	
Teaching Methods	(In-person lectures), group discussions, clinical case studies.
Assessment Methods	Daily, semester, and final examinations; follow-up reports.

D. General and Transferable Skills (Other skills related to employability and personal development)

D1. Developing academic writing and scientific documentation skills according to APA standards and mastering the formulation of the research abstract. D2. Acquiring advanced electronic search skills in medical databases and assessing study quality (JADAD, PEDro). D3. Refining skills for presenting research results orally and in writing in a clear, persuasive scientific style. D4. Preparing the student to complete the graduation research project and participate in producing scientific knowledge in the field of physical therapy.

10. Course Structure					
Week	**Hours**	**Learning Outcomes**	**Unit / Topic Name**	**Teaching Method**	**Assessment Method**

1st	2	Knowledge	Introduction to Scientific Research: Definition, importance, types. Ethics in research. Overview of evidence-based practice (EBP) in physiotherapy.	Whiteboard, PowerPoint slides	Reports, exams
2nd	2	Knowledge	Research Problem and Objectives: Identifying a research problem. PICO framework. Objectives and hypothesis formulation.	Whiteboard, formulation exercises	Reports, exams
3rd	2	Knowledge & Application	Literature Review and Database Search: PubMed, Scopus, Google Scholar, Cochrane. Search strategies (MeSH terms, Boolean operators). Critical appraisal.	Whiteboard, hands-on electronic search	Reports, exams
4th	2	Knowledge & Application	APA Referencing and Academic Writing: APA 7th edition citation rules. In-text citation and reference list. Plagiarism and academic integrity.	Whiteboard, citation exercises	Reports, exams
5th	2	Knowledge & Application	Research Designs – Quantitative: Experimental (RCT), quasi-experimental, observational (cohort, case-control, cross-sectional). Levels of evidence.	Whiteboard, PowerPoint slides	Reports, exams
6th	2	Knowledge & Application	Research Designs – Qualitative and Mixed Methods: Phenomenology, grounded theory, case study. When to use qualitative vs quantitative.	Whiteboard, PowerPoint slides	Reports, exams
7th	2	Knowledge & Application	Sampling and Data Collection: Population and sampling methods. Sample size estimation. Questionnaire design, interviews, observation.	Whiteboard, practical exercises	Reports, exams
8th	2	Knowledge & Application	Midterm Review: Research design concepts. PICO exercise review. Midterm examination.	Comprehensive review	Semester exam
9th	2	Knowledge & Application	Measurement and Validity: Reliability and validity. ICC, Cronbach's alpha, kappa coefficient. Clinimetrics in physiotherapy research.	Whiteboard, PowerPoint slides	Reports, exams
10th	2	Knowledge & Application	Descriptive Statistics: Measures of central tendency and dispersion. Normal distribution. SPSS/Excel data entry and basic analysis.	Whiteboard, hands-on SPSS/Excel	Reports, exams
11th	2	Knowledge & Application	Inferential Statistics – Part 1: Hypothesis testing, p-value, confidence interval. t-test (independent, paired). Chi-square. Practical application in SPSS.	Whiteboard, hands-on SPSS	Reports, exams
12th	2	Knowledge & Application	Inferential Statistics – Part 2: ANOVA, correlation (Pearson, Spearman). Regression basics. Common errors in data analysis.	Whiteboard, hands-on SPSS	Reports, exams
13th	2	Knowledge & Application	Writing the Research Proposal: Title, abstract, introduction, objectives, methodology, ethical considerations, timeline.	Whiteboard, writing workshop	Reports, exams

14th	2	Knowledge & Application	Systematic Reviews and Meta-Analysis: PRISMA guidelines. Forest plots and heterogeneity. PEDro and JADAD scales.	Whiteboard, PowerPoint slides	Reports, exams
15th	2	Knowledge & Application	Research Presentation and Publication: Scientific poster and oral presentation. Journal selection and submission. Introduction to graduation project requirements.	Student presentations, workshop	Written examinations

11. Course Assessment
Student activities and reports, oral and written theoretical and practical examinations.

12. Learning and Teaching Resources	
Required Textbooks	Portney, L. G. (2020). Foundations of Clinical Research: Applications to Evidence-Based Practice (4th ed.). F.A. Davis Company.
Main References (Sources)	Greenhalgh, T. (2019). How to Read a Paper: The Basics of Evidence-Based Medicine (6th ed.). Wiley-Blackwell.
Recommended Books and References	Peat, J., Elliott, E., Baur, L., & Keena, V. (2002). Scientific Writing: Easy When You Know How. BMJ Books. Physiotherapy (Journal of the Chartered Society of Physiotherapy).
Electronic References and Websites	PubMed: pubmed.ncbi.nlm.nih.gov; PEDro: pedro.org.au; Cochrane Library: cochranelibrary.com

Level Four

MTCD401 — Preventive and Social Medicine

1. Course Name	Preventive and Social Medicine
2. Course Code	MTCD401
3. Semester / Year	First Semester / 2026-2027
4. Date of Preparation	15 / 6 / 2026
5. Available Attendance Forms	In-person theoretical lectures
6. Credit Hours / Units	2 theory hours / 2 units
7. Course Coordinator Name	Assist. Prof. Mazin Nadheer Farhan

8. Course Objectives

This course aims to provide the student with the basic concepts of preventive medicine, public health, and social medicine, and understanding the social and environmental determinants of health and disease, and the principles of epidemiology, immunization, and primary healthcare, enabling the student to contribute to prevention programs and promote community health within their role as a physical therapist on the healthcare team.

9. Teaching and Learning Strategies

A. Knowledge Objectives

A1. Identifying the concepts of health, disease, and preventive medicine at its three levels (primary, secondary, tertiary) and their relationship to the physical therapist's role. A2. Understanding the basic principles of epidemiology (prevalence, incidence, causative factors, chain of infection) and employing them in understanding musculoskeletal diseases. A3. Grasping the concepts of social determinants of health (income, education, environment) and their effect on access to physical therapy services. A4. Recognizing the principles of occupational health and safety in the healthcare work environment and occupational diseases related to the physical therapy profession.	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

B. Skill Objectives Specific to the Course

B1. Applying health-education concepts and designing awareness messages directed at patients and their families about preventing chronic diseases. B2. Analyzing the community health situation using basic epidemiological tools and identifying groups most at risk of physical disability. B3. Describing the physical therapist's role in community health programs and Community-Based Rehabilitation (CBR). B4. Formulating a simple health-education plan for one of the common non-communicable diseases for a specific community group.	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

C. Affective and Value-Based Objectives

C1. Developing awareness of the social responsibility of the physical therapist as an active member in promoting community health. C2. Strengthening professional belonging and recognizing that prevention is an integral part of physical therapy practice, not a supplement to it. C3. Instilling values of respect for the cultural and social diversity of patients in providing preventive health services. C4. Encouraging the student to engage in community initiatives to raise awareness of the importance of physical activity and disability prevention.	
Teaching Methods	(In-person lectures), group discussions, clinical case studies.
Assessment Methods	Daily, semester, and final examinations; follow-up reports.

D. General and Transferable Skills (Other skills related to employability and personal development)

D1. Developing communication skills with the community and delivering preventive health messages in a manner suited to the target audience. D2. Acquiring epidemiological thinking skills in analyzing public health problems and identifying priorities for preventive intervention. D3. Refining skills for working within the multidisciplinary healthcare team in community health programs. D4. Preparing the student to contribute to community rehabilitation programs and develop local health policies.

10. Course Structure					
Week	**Hours**	**Learning Outcomes**	**Unit / Topic Name**	**Teaching Method**	**Assessment Method**

1st	2	Knowledge	Introduction to Preventive and Social Medicine: Concepts of health and disease. Levels of prevention. Role of PT in preventive healthcare.	Whiteboard, PowerPoint slides	Reports, exams
2nd	2	Knowledge	Epidemiology Basics – Part 1: Definition and scope. Key measures: prevalence, incidence, mortality rates. Epidemiological transition.	Whiteboard, PowerPoint slides	Reports, exams
3rd	2	Knowledge	Epidemiology Basics – Part 2: Study designs overview (cohort, case-control, cross-sectional, RCT). Causation vs correlation. Bias and confounding.	Whiteboard, PowerPoint slides	Reports, exams
4th	2	Knowledge	Social Determinants of Health: WHO framework. Impact of income, education, housing on health. Health inequalities and PT access.	Whiteboard, group discussions	Reports, exams
5th	2	Knowledge	Communicable Disease Control: Chain of infection. Prevention of healthcare-associated infections. Iraqi national immunization program.	Whiteboard, PowerPoint slides	Reports, exams
6th	2	Knowledge	Non-Communicable Diseases (NCDs): Global burden of NCDs (cardiovascular, diabetes, musculoskeletal). Risk factor modification. PT role in NCD prevention.	Whiteboard, PowerPoint slides	Reports, exams
7th	2	Knowledge & Application	Health Promotion and Education: Principles and behavior change theories (Health Belief Model, TTM). Designing health promotion messages for PT patients.	Whiteboard, design workshop	Reports, exams
8th	2	Knowledge	Midterm Review: Epidemiology and social determinants review. Case-based discussion. Midterm examination.	Comprehensive review	Semester exam
9th	2	Knowledge	Primary Healthcare and Rehabilitation: WHO Alma-Ata Declaration. PHC components. Community-Based Rehabilitation (CBR) model and PT role.	Whiteboard, PowerPoint slides	Reports, exams
10th	2	Knowledge	Occupational Health and Safety: Work-related musculoskeletal disorders (WMSDs). Ergonomics. Workplace injury prevention. PT in occupational health.	Whiteboard, PowerPoint slides	Reports, exams
11th	2	Knowledge	Environmental Health: Environmental determinants of musculoskeletal and respiratory diseases. Climate change and health. PT in disaster rehabilitation.	Whiteboard, PowerPoint slides	Reports, exams
12th	2	Knowledge	Maternal and Child Health: Antenatal and postnatal PT. Childhood disability prevention. School health programs.	Whiteboard, PowerPoint slides	Reports, exams
13th	2	Knowledge	Aging and Geriatric Public Health: Demographic transition in Iraq. Falls prevention programs. Long-term care and PT services.	Whiteboard, PowerPoint slides	Reports, exams
14th	2	Knowledge & Application	Mental Health and Disability: Biopsychosocial model. ICF (International Classification of	Whiteboard, discussions	Reports, exams

			Functioning) framework in community PT.		
15th	2	Knowledge & Application	Iraqi Healthcare System and Health Policy: Structure of Iraqi healthcare. National health strategy. PT service development in Iraq. Final review.	Whiteboard, open discussion	Written examinations

11. Course Assessment
Student activities and reports, oral and written theoretical and practical examinations.

12. Learning and Teaching Resources	
Required Textbooks	Park, K. (2021). Park's Textbook of Preventive and Social Medicine (26th ed.). M/s Banarsidas Bhanot Publishers.
Main References (Sources)	Bonita, R., Beaglehole, R., & Kjellstrom, T. (2006). Basic Epidemiology (2nd ed.). World Health Organization.
Recommended Books and References	WHO (2010). Community-Based Rehabilitation: CBR Guidelines. World Health Organization. Journal of Public Health (Oxford University Press).
Electronic References and Websites	World Health Organization: who.int; Iraqi Ministry of Health: moh.gov.iq

Level Four

PTT408 — Hearing and Speech Rehabilitation

1. Course Name	Hearing and Speech Rehabilitation
2. Course Code	PTT408
3. Semester / Year	Second Semester / 2026-2027
4. Date of Preparation	15 / 6 / 2026
5. Available Attendance Forms	In-person theoretical and practical lectures
6. Credit Hours / Units	2 theory hours + 3 practical hours / 3 units
7. Course Coordinator Name	Assist. Prof. Mazin Nadheer Farhan

8. Course Objectives

This course aims to provide the student with a comprehensive understanding of hearing and speech disorders and their relationship to physical therapy, through studying the anatomy and physiology of the auditory and articulatory systems, the causes and types of hearing and speech disabilities, and rehabilitation protocols within multidisciplinary teams, with a focus on the physical therapist's role in the orofacial musculoskeletal aspect and integrated functional rehabilitation.

9. Teaching and Learning Strategies

A. Knowledge Objectives

A1. Identifying the anatomy of the auditory system, the physiology of hearing, and classifications of hearing loss (conductive, sensorineural, mixed). A2. Understanding the anatomy of the speech and swallowing apparatus and the types of speech and communication disorders (aphasia, dysarthria, stuttering, voice disorders). A3. Grasping basic auditory assessment tools (Audiometry, Tympanometry) and interpreting their results, and becoming familiar with hearing aids and cochlear implants. A4. Recognizing the principles of integrated functional rehabilitation for the hard of hearing and patients with communication disorders, and the physical therapist's role within this team.	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

B. Skill Objectives Specific to the Course

B1. Conducting an initial examination of facial, oral, and laryngeal muscle function (orofacial assessment) and identifying motor disorders affecting speech and swallowing. B2. Applying orofacial myofunctional therapy exercises for facial palsy cases and swallowing disorders (dysphagia). B3. Communicating professionally with the speech therapist and preparing joint reports for swallowing-disorder cases in stroke and cerebral palsy patients. B4. Guiding the patient and their family on alternative communication mechanisms (AAC) and hearing and speech assistive devices.	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

C. Affective and Value-Based Objectives

C1. Developing empathy and patience in communicating with patients with hearing and speech disorders. C2. Strengthening a culture of respect and inclusion with deaf and hard-of-hearing individuals and recognizing their cultural identity. C3. Instilling awareness of the importance of functional swallowing rehabilitation and the clinical danger of neglecting this aspect. C4. Encouraging the student to develop non-verbal communication skills to provide therapeutic service to these groups.	
Teaching Methods	(In-person lectures), group discussions, clinical case studies.
Assessment Methods	Daily, semester, and final examinations; follow-up reports.

D. General and Transferable Skills (Other skills related to employability and personal development)

D1. Developing teamwork skills with speech therapists and ENT physicians on the multidisciplinary team. D2. Acquiring clinical documentation skills for swallowing-disorder cases according to the standardized ASHA protocol. D3. Refining professional communication skills with the patient using alternative methods (sign language, writing, digital applications). D4. Preparing the student to work in centers for the deaf and hard of hearing and swallowing-rehabilitation units in specialized hospitals.

10. Course Structure					
Week	**Hours**	**Learning Outcomes**	**Unit / Topic Name**	**Teaching Method**	**Assessment Method**

1st	2+3	Knowledge	Anatomy of the Auditory System: External, middle, and inner ear. Vestibular anatomy. Physiology of hearing and sound processing. Introduction to audiological tests.	Whiteboard, PowerPoint slides	Reports, exams
2nd	2+3	Knowledge	Types and Causes of Hearing Loss: Conductive vs sensorineural vs mixed. Congenital and acquired causes. Audiogram interpretation. Noise-induced hearing loss.	Whiteboard, sample audiograms	Reports, exams
3rd	2+3	Knowledge & Application	Hearing Aids and Cochlear Implants: Types of hearing aids. Cochlear implant surgery and rehabilitation. PT role post-implant: balance and vestibular rehabilitation.	Whiteboard, PowerPoint slides	Reports, exams
4th	2+3	Knowledge	Anatomy of Speech and Swallowing: Oral, pharyngeal, laryngeal anatomy. Physiology of speech. Phases of swallowing. Neural control of speech and swallowing.	Whiteboard, anatomical models	Reports, exams
5th	2+3	Knowledge	Speech and Language Disorders: Aphasia (Broca, Wernicke). Dysarthria types. Apraxia of speech. Stuttering. Voice disorders (dysphonia).	Whiteboard, PowerPoint slides	Reports, exams
6th	2+3	Knowledge & Application	Dysphagia – Assessment and Management: Bedside swallowing assessment. Modified Barium Swallow (MBS). Dysphagia in stroke, TBI, and PD. PT role in dysphagia rehabilitation.	Whiteboard, assessment practical	Reports, exams
7th	2+3	Knowledge & Application	Orofacial Physiotherapy: Orofacial myofunctional therapy. Bell's palsy PT management. NMES for dysphagia. Exercises for orbicularis oris, buccinator, masseter.	Whiteboard, lab practical	Reports, exams
8th	2+3	Knowledge & Application	Midterm Review: Audiology, speech disorders, and dysphagia. Case-based discussion. Midterm examination.	Comprehensive review	Semester exam
9th	2+3	Knowledge & Application	Hearing Rehabilitation Programs: Auditory training. Lip-reading (speechreading). Rehabilitation after cochlear implant. Pediatric hearing rehabilitation.	Whiteboard, PowerPoint slides	Reports, exams
10th	2+3	Knowledge & Application	Speech Rehabilitation in Neurological Conditions: PT and SLP collaboration in stroke, TBI, CP. NMES for swallowing. MDT dysphagia protocols.	Whiteboard, training practical	Reports, exams
11th	2+3	Knowledge & Application	Augmentative and Alternative Communication (AAC): Low-tech and high-tech AAC systems. Communication boards. Digital AAC apps. PT role in positioning for AAC access.	Whiteboard, PowerPoint slides	Reports, exams
12th	2+3	Knowledge & Application	Vestibular Rehabilitation (Advanced): VOR exercises. Canalith repositioning for BPPV. Chronic vestibular hypofunction. Falls prevention in hearing-impaired elderly.	Whiteboard, lab practical	Reports, exams

13th	2+3	Knowledge & Application	Pediatric Communication Disorders: Hearing loss in children and early intervention. Cleft palate: PT and SLP roles. School reintegration support.	Whiteboard, PowerPoint slides	Reports, exams
14th	2+3	Knowledge & Application	Documentation and MDT Reporting: ASHA documentation standards. Interdisciplinary report writing. Case conference simulation.	Documentation workshop, role-play	Reports, exams
15th	2+3	Knowledge & Application	Comprehensive Review and Case Presentations: Student cases integrating hearing/speech/swallowing with PT management. Final exam preparation.	Student presentations, review	Comprehensive exams

11. Course Assessment
Student activities and reports, oral and written theoretical and practical examinations.

12. Learning and Teaching Resources	
Required Textbooks	Katz, J., Chasin, M., English, K., Hood, L. J., & Tillery, K. L. (2015). Handbook of Clinical Audiology (7th ed.). Lippincott Williams & Wilkins.
Main References (Sources)	Logemann, J. A. (1998). Evaluation and Treatment of Swallowing Disorders (2nd ed.). Pro-Ed. ASHA Clinical Practice Guidelines.
Recommended Books and References	Freed, D. B. (2012). Motor Speech Disorders (2nd ed.). Delmar Cengage Learning. Dysphagia Journal (Springer).
Electronic References and Websites	American Speech-Language-Hearing Association: asha.org; Physiopedia – Dysphagia and Orofacial: physio-pedia.com

Level Four

PTT409 — Health Psychology

1. Course Name	Health Psychology
2. Course Code	PTT409
3. Semester / Year	Second Semester / 2026-2027
4. Date of Preparation	15 / 6 / 2026
5. Available Attendance Forms	In-person theoretical and practical lectures
6. Credit Hours / Units	2 theory hours + 3 practical hours / 3 units
7. Course Coordinator Name	Assist. Prof. Mazin Nadheer Farhan

8. Course Objectives

This course aims to provide the student with the basic concepts of health psychology and its relationship to clinical physical therapy practice, through understanding the interaction between the physical, psychological, and social dimensions in illness and recovery, and recognizing common psychological disorders (depression, anxiety, PTSD) and their effect on the course of rehabilitation, while equipping the student with psychological communication and basic support skills in the physical therapy environment.

9. Teaching and Learning Strategies

A. Knowledge Objectives

A1. Identifying the basic concepts of health psychology and the Biopsychosocial Model and its applications in physical therapy. A2. Understanding common psychological disorders in the rehabilitation environment (depression, chronic anxiety, PTSD, adjustment disorders) and their effect on treatment compliance and recovery. A3. Grasping the psychological concepts of chronic pain management (Pain Catastrophizing, Fear-Avoidance Model, Central Sensitization) and their relationship to motor rehabilitation. A4. Recognizing the principles of therapeutic communication and active-listening techniques and motivational interviewing (MI).	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

B. Skill Objectives Specific to the Course

B1. Applying basic therapeutic communication skills (active listening, empathy, reframing) in physical therapy sessions. B2. Using psychological symptom-measurement tools (PHQ-9, GAD-7, Tampa Scale for Kinesiophobia, PCS) and interpreting their results clinically. B3. Applying multidimensional chronic-pain management principles (Pain Education, Graded Exposure, Pacing) within the treatment protocol. B4. Identifying signs of psychological crisis that warrant referral to a psychiatrist and applying the professional referral protocol.	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

C. Affective and Value-Based Objectives

C1. Strengthening self-awareness of the psychological impact of the physical therapy profession on the practitioner themselves (burnout, compassion fatigue) and methods of prevention. C2. Instilling values of respect, discretion, and privacy in handling patients' psychological information. C3. Developing cultural competence in dealing with patients from different backgrounds, taking cultural and religious factors into account. C4. Encouraging the student to adopt the biopsychosocial model as a comprehensive framework for dealing with the patient.	
Teaching Methods	(In-person lectures), group discussions, clinical case studies.
Assessment Methods	Daily, semester, and final examinations; follow-up reports.

D. General and Transferable Skills (Other skills related to employability and personal development)

D1. Developing motivational interviewing (MI) skills and employing them to motivate treatment adherence and change the patient's health behavior. D2. Acquiring personal stress-management skills and maintaining psychological balance while dealing with complex cases. D3. Refining clinical-writing skills that integrate psychosocial dimensions into assessment reports and the treatment plan. D4. Preparing the student to work efficiently within multidisciplinary care teams that include psychiatrists and social workers.

10. Course Structure					
Week	**Hours**	**Learning Outcomes**	**Unit / Topic Name**	**Teaching Method**	**Assessment Method**

1st	2+3	Knowledge	Introduction to Health Psychology: Biopsychosocial vs biomedical model. Psychological factors in physical illness. PT implications.	Whiteboard, PowerPoint slides	Reports, exams
2nd	2+3	Knowledge	Stress, Coping, and Health: Physiological stress response (HPA axis). Types of stressors. Coping strategies. Stress and musculoskeletal pain.	Whiteboard, PowerPoint slides	Reports, exams
3rd	2+3	Knowledge	Depression in Rehabilitation: DSM-5 criteria. Prevalence in chronic musculoskeletal conditions. PHQ-9 screening. Impact on PT compliance and outcomes.	Whiteboard, PowerPoint slides	Reports, exams
4th	2+3	Knowledge	Anxiety Disorders and PT: GAD, panic disorder, social anxiety. GAD-7. Anxiety and pain perception. Breathing retraining.	Whiteboard, PowerPoint slides	Reports, exams
5th	2+3	Knowledge & Application	PTSD and Trauma-Informed Care: DSM-5 criteria. PTSD in traumatic injury, SCI, burn survivors. Trauma-informed care principles in PT.	Whiteboard, case studies	Reports, exams
6th	2+3	Knowledge & Application	Chronic Pain Psychology: Fear-Avoidance Model. Pain Catastrophizing (PCS). Central sensitization. Pain Neuroscience Education (PNE). Graded exposure.	Whiteboard, pain-education practical	Reports, exams
7th	2+3	Knowledge & Application	Kinesiophobia and Movement Fear: Tampa Scale (TSK). Psychological barriers to physical activity. Graded activity and pacing in chronic LBP.	Whiteboard, practical	Reports, exams
8th	2+3	Knowledge & Application	Midterm Review: Biopsychosocial model, mental health tools, chronic pain psychology. Midterm examination.	Comprehensive review	Semester exam
9th	2+3	Knowledge & Application	Therapeutic Communication Skills: Active listening, empathy, open-ended questions. OARS technique. Role-play practice sessions.	Practical communication workshop	Reports, exams
10th	2+3	Knowledge & Application	Motivational Interviewing (MI) in PT: RULE principles. MI techniques: reflective listening, affirmation, eliciting change talk. Adherence counseling application.	Applied MI workshop	Reports, exams
11th	2+3	Knowledge & Application	Behavior Change Theories in PT: Transtheoretical Model (TTM). Health Belief Model. Self-efficacy and rehabilitation outcomes.	Whiteboard, PowerPoint slides	Reports, exams
12th	2+3	Knowledge & Application	Psychological Aspects of Disability and Adjustment: Grief model in acquired disability. Body image and self-concept. Quality of life in PT context.	Whiteboard, discussions	Reports, exams
13th	2+3	Knowledge & Application	Burnout and Self-Care for PT Practitioners: Burnout phases. Compassion fatigue. Mindfulness-based stress reduction (MBSR) basics. PT practitioner well-being.	Whiteboard, self-care workshop	Reports, exams

14th	2+3	Knowledge & Application	Mental Health Referral and MDT Collaboration: Red flags for urgent psychiatric referral. Documentation of psychological concerns. Psychologically-informed physiotherapy (PiP).	Whiteboard, role-play	Reports, exams
15th	2+3	Knowledge & Application	Comprehensive Review and Reflective Practice: Biopsychosocial integration across PT specialties. Student reflective presentations. Final exam preparation.	Reflective presentations, review	Comprehensive exams

11. Course Assessment
Student activities and reports, oral and written theoretical and practical examinations.

12. Learning and Teaching Resources	
Required Textbooks	Main, C. J., Sullivan, M. J. L., & Watson, P. J. (2008). Pain Management: Practical Applications of the Biopsychosocial Perspective (2nd ed.). Churchill Livingstone.
Main References (Sources)	Miller, W. R., & Rollnick, S. (2013). Motivational Interviewing: Helping People Change (3rd ed.). Guilford Press.
Recommended Books and References	Linton, S. J., & Shaw, W. S. (2011). Impact of Psychological Factors in Pain. Physical Therapy, 91(5), 700–711. Journal of Health Psychology (SAGE).
Electronic References and Websites	Pain Health – Pain Management Resources: painhealth.csse.uwa.edu.au; Physiopedia – Psychologically Informed Practice: physio-pedia.com

Level Four

MTCD402 — Serology and Vaccines

1. Course Name	Serology and Vaccines
2. Course Code	MTCD402
3. Semester / Year	Second Semester / 2026-2027
4. Date of Preparation	15 / 6 / 2026
5. Available Attendance Forms	In-person theoretical lectures
6. Credit Hours / Units	2 theory hours / 2 units
7. Course Coordinator Name	Assist. Prof. Mazin Nadheer Farhan

8. Course Objectives

This course aims to provide the student with basic knowledge of hematology, immunology, serology, and vaccinations and their relationship to clinical physical therapy practice, through understanding the components of blood and their functions, the principles of the immune system and immune response, classifications of immune diseases affecting the musculoskeletal system, and the foundations of immunization and preventive vaccinations related to the healthcare work environment.

9. Teaching and Learning Strategies

A. Knowledge Objectives

A1. Identifying the components of blood (red blood cells, white blood cells, platelets, plasma) and their functions, and reading a Complete Blood Count (CBC) in the clinical context. A2. Understanding the principles of the immune system (innate and acquired immunity, antibodies, immune cells) and the immune response to infection and injury. A3. Grasping autoimmune diseases relevant to physical therapy (rheumatoid arthritis, lupus erythematosus, ankylosing spondylitis) and the role of immunity in their development. A4. Recognizing the principles of immunization and vaccinations according to the Iraqi national program, and the importance of occupational vaccines for healthcare sector workers.	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

B. Skill Objectives Specific to the Course

B1. Reading basic CBC results and interpreting abnormal values in the context of the clinical case and their impact on the treatment plan. B2. Identifying serological inflammation markers (CRP, ESR, RF, ANA) in laboratory reports and linking them to common rheumatic conditions. B3. Applying appropriate clinical precautions when dealing with autoimmune disease patients and adjusting exercise intensity. B4. Describing appropriate infection-control protocols in light of the transmission routes of serological and bloodborne diseases.	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

C. Affective and Value-Based Objectives

C1. Developing awareness of the importance of self-protection and commitment to occupational preventive vaccinations for the physical therapist. C2. Strengthening commitment to infection-control procedures and protection from bloodborne and serologically transmitted diseases. C3. Instilling awareness of the rights of patients with immune diseases to receive safe physical therapy care. C4. Encouraging the student to continuously follow WHO recommendations and national vaccination guidelines.	
Teaching Methods	(In-person lectures), group discussions, clinical case studies.
Assessment Methods	Daily, semester, and final examinations; follow-up reports.

D. General and Transferable Skills (Other skills related to employability and personal development)

D1. Developing skills for reading hematological and serological laboratory reports and employing them in adjusting the treatment plan. D2. Acquiring communication skills with the medical team regarding updates on the immune and laboratory status and their effect on rehabilitation. D3. Refining health-education skills for patients regarding the importance of vaccinations and prevention of immune diseases. D4. Preparing the student to deal with patients in high-risk clinical environments (oncology units, immunosuppression) with professional awareness and clinical safety.

10. Course Structure					
Week	**Hours**	**Learning Outcomes**	**Unit / Topic Name**	**Teaching Method**	**Assessment Method**

1st	2	Knowledge	Introduction to Hematology: Blood composition and functions. Hematopoiesis. CBC: parameters and clinical significance.	Whiteboard, PowerPoint slides	Reports, exams
2nd	2	Knowledge	Anemia and PT Implications: Types of anemia (iron-deficiency, B12/folate, hemolytic, aplastic). Impact on exercise tolerance and PT planning.	Whiteboard, PowerPoint slides	Reports, exams
3rd	2	Knowledge	White Blood Cell Disorders: Leukocytosis and leukopenia. Leukemia overview. PT in hematological malignancies: precautions and exercise-based rehabilitation.	Whiteboard, PowerPoint slides	Reports, exams
4th	2	Knowledge	Coagulation and Bleeding Disorders: Hemostasis mechanism. Thrombocytopenia. Hemophilia. DVT and anticoagulation: PT precautions and contraindications.	Whiteboard, PowerPoint slides	Reports, exams
5th	2	Knowledge	Principles of Immunology: Innate vs adaptive immunity. B cells, T cells, NK cells. Antibody classes. Complement system. Hypersensitivity reactions.	Whiteboard, PowerPoint slides	Reports, exams
6th	2	Knowledge	Serology and Laboratory Tests: CRP, ESR, RF, ANA, Anti-dsDNA, HLA-B27. Interpretation in musculoskeletal and rheumatological conditions.	Whiteboard, sample laboratory reports	Reports, exams
7th	2	Knowledge & Application	Autoimmune Diseases – Part 1: Rheumatoid arthritis: pathophysiology, DMARDs, PT management. Systemic lupus erythematosus (SLE): PT approach.	Whiteboard, case studies	Reports, exams
8th	2	Knowledge & Application	Midterm Review: Hematology, immunology, serology review. Case-based laboratory interpretation. Midterm examination.	Comprehensive review	Semester exam
9th	2	Knowledge & Application	Autoimmune Diseases – Part 2: Ankylosing spondylitis (AS). PT exercise protocols. Sjögren's syndrome overview.	Whiteboard, PowerPoint slides	Reports, exams
10th	2	Knowledge	Infectious Diseases – Bloodborne Pathogens: HIV/AIDS: transmission and precautions. Hepatitis B and C: universal precautions. Long-haul COVID-19 PT.	Whiteboard, PowerPoint slides	Reports, exams
11th	2	Knowledge	Vaccines and Immunization Principles: Types of vaccines (live-attenuated, inactivated, subunit, mRNA). Herd immunity. Cold chain. Adverse effects management.	Whiteboard, PowerPoint slides	Reports, exams
12th	2	Knowledge	Occupational Immunization for Healthcare Workers: Hepatitis B, influenza, COVID-19, MMR. Iraqi national immunization program. Post-exposure prophylaxis.	Whiteboard, PowerPoint slides	Reports, exams
13th	2	Knowledge	Oncology and Hematology – PT Applications: Cancer and immune system interaction. PT during	Whiteboard, PowerPoint slides	Reports, exams

			chemotherapy and radiotherapy. Lymphedema management overview.		
14th	2	Knowledge	Organ Transplantation and Immunosuppression: Transplant types. Immunosuppressive drugs and PT implications. Infection risk in immunocompromised patients.	Whiteboard, PowerPoint slides	Reports, exams
15th	2	Knowledge & Application	Comprehensive Review: Integration of hematology, immunology, serology, and vaccination in PT clinical practice. Final case analysis. Final exam preparation.	Comprehensive review	Written examinations

11. Course Assessment
Student activities and reports, oral and written theoretical and practical examinations.

12. Learning and Teaching Resources	
Required Textbooks	Hoffbrand, A. V., & Moss, P. A. H. (2016). Hoffbrand's Essential Haematology (7th ed.). Wiley-Blackwell.
Main References (Sources)	Abbas, A. K., Lichtman, A. H., & Pillai, S. (2022). Cellular and Molecular Immunology (10th ed.). Elsevier.
Recommended Books and References	Goodman, C. C., & Snyder, T. E. K. (2013). Differential Diagnosis for Physical Therapists (5th ed.). Elsevier Saunders. Annals of the Rheumatic Diseases (BMJ).
Electronic References and Websites	World Health Organization – Immunization: who.int/immunization; Physiopedia – Rheumatological Conditions: physio-pedia.com

Level Four

MTCD403 — Graduation Project

1. Course Name	Graduation Project
2. Course Code	MTCD403
3. Semester / Year	Second Semester / 2026-2027
4. Date of Preparation	15 / 6 / 2026
5. Available Attendance Forms	Individual and group academic supervision
6. Credit Hours / Units	4 units
7. Course Coordinator Name	Assist. Prof. Mazin Nadheer Farhan

8. Course Objectives

This course aims to enable the student to apply the research knowledge and skills acquired throughout their academic journey to complete an original scientific research project in the field of physical therapy according to sound scientific methodology, and to defend it before the supervision and discussion committee, thereby strengthening critical research thinking and preparing the student for graduate studies and contributing to the development of professional knowledge.

9. Teaching and Learning Strategies

A. Knowledge Objectives

A1. Employing the methodological knowledge acquired from NTU400 in designing scientific research according to international academic standards. A2. Understanding research ethics with human subjects (ethics committee approval, informed consent, privacy protection) and adhering to them. A3. Grasping the standards for evaluating research quality and reading its results critically compared to recent scientific literature. A4. Recognizing the importance of publishing research results and sharing them in the local and regional academic community.	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

B. Skill Objectives Specific to the Course

B1. Formulating a clear research question, a testable hypothesis, and specific objectives according to the SMART model in the field of physical therapy.

B2. Collecting data and analyzing it statistically using SPSS or Excel and interpreting the results in light of the research questions. B3. Writing a complete research report (introduction, literature review, methodology, results, discussion, conclusions, recommendations). B4. Presenting the research project before the discussion committee with confidence and professionalism while answering scientific questions.	
Teaching Methods	Theoretical and practical lectures, PowerPoint slides, clinical case studies, group discussions.
Assessment Methods	Daily tests, semester exams, final written and oral exams, weekly reports.

C. Affective and Value-Based Objectives

C1. Strengthening a sense of academic responsibility, scientific integrity, and commitment to professional standards throughout all stages of the project. C2. Instilling the value of perseverance and patience in facing research challenges (data-collection difficulties, sample limitations). C3. Developing readiness for constructive criticism and learning from supervisors' feedback with an open scientific spirit. C4. Encouraging the student to take pride in their contribution to producing knowledge and elevating the level of physical therapy research in Iraq.	
Teaching Methods	(In-person lectures), group discussions, clinical case studies.
Assessment Methods	Daily, semester, and final examinations; follow-up reports.

D. General and Transferable Skills (Other skills related to employability and personal development)

D1. Developing research-project-management skills (planning, scheduling, task allocation) within the framework of academic supervision. D2. Acquiring advanced academic writing skills and mastering source documentation according to APA and preparing an abstract for publication. D3. Refining scientific presentation skills and preparing the research poster for participation in conferences. D4. Preparing the student to engage in graduate studies and scientific research in the field of physical therapy locally and internationally.

10. Course Structure					
Week	**Hours**	**Learning Outcomes**	**Unit / Topic Name**	**Teaching Method**	**Assessment Method**
1st	Supervision	Application	Project Finalization and Supervisor Meeting: Final topic approval. Research protocol review. Ethics	Individual supervision meeting	Supervision follow-up

			committee submission preparation. Timeline setting.		
2nd	Supervision	Application	Literature Review Completion: Final systematic search and critical appraisal. Gap analysis. Theoretical framework finalization.	Supervision meeting	Literature review report
3rd	Supervision	Application	Methodology Chapter Writing: Finalize research design, sample, instruments, procedures. Ethical consent forms preparation.	Supervision meeting	Submission of methodology chapter
4th	Supervision	Application	Instrument Validation and Pilot Study: Reliability testing. Pilot data collection and analysis. Instrument modification if needed.	Supervision meeting	Pilot study report
5th	Supervision	Application	Data Collection – Phase 1: Beginning of main data collection. Participant recruitment. Data entry and initial review.	Field implementation	Data-collection records
6th	Supervision	Application	Data Collection – Phase 2: Continuation of data collection. Addressing practical challenges. Mid-project progress report.	Field implementation	Mid-project report
7th	Supervision	Application	Data Collection – Phase 3 and Completion: Final data collection. Dataset cleaning and preparation for analysis.	Field implementation	Closing of data collection
8th	Supervision	Application	Statistical Analysis – Part 1: Descriptive statistics. Data visualization. Normality testing. Preliminary findings.	Supervision meeting, SPSS	Preliminary analysis report
9th	Supervision	Application	Statistical Analysis – Part 2: Inferential statistics. Hypothesis testing. Effect size calculation. Final statistical output interpretation.	Supervision meeting, SPSS	Final analysis report
10th	Supervision	Application	Results Chapter Writing: Presenting findings in tables and figures. APA-compliant results chapter. Supervisor review and revision.	Supervision meeting, writing	Submission of results chapter
11th	Supervision	Application	Discussion and Conclusion Chapter Writing: Interpreting results in light of literature. Limitations. Recommendations. Conclusion writing.	Supervision meeting, writing	Submission of discussion chapter
12th	Supervision	Application	Full Draft Submission: Complete thesis draft to supervisor. Comprehensive review and feedback. Plagiarism check (iThenticate).	Supervision meeting	Submission of complete draft
13th	Supervision	Application	Revision and Final Corrections: Incorporating supervisor feedback. Final editing and proofreading. Reference list review. Abstract finalization.	Supervision meeting	Revised version
14th	Supervision	Application	Presentation Preparation: Designing PowerPoint presentation. Poster	Presentation training,	Final presentation review

			preparation. Oral defense rehearsal. Anticipating committee questions.	supervision meeting	
15th	Supervision	Application	Final Oral Defense: Formal presentation to examination committee. Q&A session. Incorporating committee recommendations. Final project submission.	Discussion committee	Final discussion and evaluation

11. Course Assessment
Student activities and reports, oral and written theoretical and practical examinations.

12. Learning and Teaching Resources	
Required Textbooks	Portney, L. G. (2020). Foundations of Clinical Research (4th ed.). F.A. Davis Company.
Main References (Sources)	American Psychological Association. (2020). Publication Manual of the APA (7th ed.). APA.
Recommended Books and References	Greenhalgh, T. (2019). How to Read a Paper (6th ed.). Wiley-Blackwell. PEDro Scale for Physiotherapy Research Quality.
Electronic References and Websites	PubMed: pubmed.ncbi.nlm.nih.gov; PEDro: pedro.org.au; Cochrane Library: cochranelibrary.com; APA Style: apastyle.apa.org