        - ❖ Whirlpool tanks
    - Sound agents:
        - ❖ Phonophoresis
        - ❖ Ultrasound
    - Thermotherapy
        - ❖ Dry heat
        - ❖ Hot packs*
        - ❖ Paraffin baths
    - Mechanical modalities: Compression therapies (prefabricated)
        - ❖ Compression garments: Skill Category Description of Minimum Skills
        - ❖ Vasopneumatic compression devices
        - ❖ Taping
        - ❖ Compression bandaging (excluding lymphedema)
    - Gravity-assisted compression devices:
        - ❖ Standing frame
        - ❖ Tilt table
    - Mechanical motion devices:
        - ❖ Continuous passive motion (CPM)
    - Traction devices
        - ❖ Intermittent
        - ❖ Positional
        - ❖ Sustained
    - Documentation of all listed competencies in SOAP notes format.

EIGHTH SEMESTER

1. **MEDICINE - II**
2. **SURGERY - II**
3. **NEUROLOGICAL PHYSICAL THERAPY**
4. **EVIDENCE BASED PRACTICE**
5. **PROSTHETICS & ORTHOTICS**
6. **SUPERVISED CLINICAL PRACTICE - IV**

MEDICINE - II

CREDIT HOURS 3 (3-0)

COURSE DESCRIPTION:

This course intends to familiarize students with medical terminology and abbreviations for efficient and effective chart reviewing and documentation. It also explores select systemic diseases, focusing on epidemiology, pathology, histology, etiology, as well as primary and secondary clinical characteristics and their management. Discusses and integrates subsequent medical and surgical management to formulate appropriate intervention indications, precautions and contraindications.

COURSE OUTLINE:

DERMATOLOGY

- Introduction to disorders and diseases
- Acne vulgaris
- Psoriasis
- Boils
- Carbuncles
- Alopecia
- Mycosis fungoides
- Polymorphic light eruptions
- Vitilogo
- Pityriasis
- Hyperhydrosis.

DISEASES OF BRAIN AND SPINAL CORD

- Common neurological symptoms
- Neurological examination
- The brain death
- Stroke, types of stroke
- Parkinson's disease
- Epilepsy
- Multiple Sclerosis
- Infective and Inflammatory diseases
- Intracranial tumors
- Hydrocephalus
- Headache
- Migraine
- Facial pain
- Head injury
- Motor neuron disease
- Diseases of spinal cord
- Diseases of Cranial nerves
- Peripheral nerve lesions
- Diseases of voluntary muscles and of neuromuscular junction
- Sleep
- Unconsciousness and Comma.

RENAL DISEASES

- Glomerulonephritis
- Acute nephritic syndrome
- Nephrotic syndrome
- Urinary tract infection
- Renal hypertension
- Renal failure

- Benign enlargement of prostate gland
- Prostatic carcinoma.

DISEASES OF THE BLOOD

- Anaemia
- Brief description of types of Anaemia
- Brief description of Bleeding and Coagulation, only Haemophilia and Thrombosis is described in detail.

MISCELLANEOUS DISEASES

- Brief description of Diabetes Mellitus and its complications
- Detailed description of Diabetic Neuropathy and Diabetic foot
- Steroid induced Myopathy.

RECOMMENDED TEXT BOOKS:

1. *Practice of medicine* by: Davidson.
2. *Clinical medicine* by: Parveen j Kumar & Michael Clark.
3. *Short text book by medicine* by: M. Inam Danish.
4. *Hutchison's clinical methods* by: Michael swash. 21st edition.
5. *Bed side techniques.*

SURGERY - II

CREDIT HOURS 3 (3-0)

COURSE DESCRIPTION:

This course intends to familiarize students with principles othopaedic surgery along with familiarization with terminology and abbreviations for efficient and effective chart reviewing and documentation. It also explores various orthopaedic conditions needing surgical attention, focusing on epidemiology, pathology, as well as primary and secondary clinical characteristics and their surgical management. The purpose of this course is to make physiotherapy students aware of various surgical conditions so these can be physically managed effectively both pre as well as postoperatively

COURSE OUTLINE:

GENERAL SURGERY

- Introduction
- Indications for surgery
- Types of incisions
- Wounds, types of wounds, factors affecting wounds healing, care of wounds
- Bandages and dressing
- Trauma and metabolic response to trauma
- Detailed description of chest and abdominal trauma

- Hemorrhage, hemostasis and blood transfusion
- Classification and brief description of shock
- Fluid and electrolyte balance
- Classification of body fluid changes
- Pre, intra and post operative fluid therapy
- Surgery and diabetes
- Burns and grafts
- Neoplasia
- Preoperative assessment & preparation
- Post operative treatment, complications and their management
- Types of anaesthesia
  - Local anaesthetic agents
  - Regional anaesthesia (spinal and epidural)
- Intravenous anaesthetic agents
- Muscle relaxants
- Inhalational anaesthetic agents
- Anaesthesia and associated diseases.
- Complications of anaesthesia.
- Perioperative management.
- Cardiopulmonary Resuscitation. CPR.
- Recovery from anaesthesia.
- Pain management and postoperative care.
- Ulcers, sinuses and fistulas
- Transplantation
- Brief description of operation performed on: oesophagus, stomach, intestine gall bladder, bile duct, spleen, pancreas, liver, abdominal wall, hernias, breast, kidneys, ureters, prostate, peritoneum, mesentery and retroperitoneal space

THORACIC SURGERY:

PULMONARY SURGERY

- Introduction
- types of incision
- types of operation
- complications of pulmonary surgery
- drains , tubes
- pneumonectomy, lobectomy , thoracoplasty
- Operations on pleura
- Chest injuries
- Brief description of indication for pulmonary surgery:
- Diseases of chest wall and pleura
- Diseases of bronchi
- Tumors of lung
- Lung abscess
- Hydatid disease of lung

- Pulmonary embolism
- Mediastinal masses
- Problems related to diaphragm.

CARDIAC SURGERY

- Introduction
- Cardiorespiratory resuscitation
- Special investigation procedures in cardiac surgery
- Basic techniques in cardiac surgery
- Types of incision
- Types of operation
- Complications of cardiac surgery
- Lines, drains and tubes
- Brief description of indications for cardiac surgery
- Congenital heart disease
- Acquired heart diseases
- Diseases of the pericardium
- Cardiac transplantation.

VASCULAR SURGERY

- Introduction
- Investigation in vascular disease types of operation
- Indication for vascular surgery
- Complication of vascular surgery
- Brief description of arterial occlusion
- Gangrene
- Detailed description of amputation
- Aneurysm
- Burgers disease
- Raynaud's disease and syndrome
- Varicose veins
- Superficial and deep venous thrombosis
- Venous hemorrhage
- Lymph edema
- Lymph adenitis and lymphomas.

NEUROSURGERY:

CRANIAL SURGERY

- Introduction
- Special investigation in brain diseases and traumas
- Types of operations, indications and complications of cranial surgery
- Head injuries to the brain
- Acute intracranial hematomas
- Fractures of the skull

- Intra cranial abscess
- Intracranial tumors
- Intra cranial aneurysm and hydrocephalus.

SURGERY OF VERTEBRAL COLUMN SPINAL CORD AND PERIPHERAL NERVES

- Dislocation and management of dislocation of vertebral column
- Tumors of vertebral column
- Prolapse intervertebral disc
- Disc protrusion
- Spondylosis and spondylolisthesis
- Spinal cord injuries and their management
- Tumors of spinal cord types of operations performed on nerves
- Nerve injuries and their surgical management
- Brief description of lesions of cranial and spinal nerves and their management.

RECOMMENDED TEXT BOOKS:

1. Short practice of surgery by Baily and Love's.
2. Text Book of Surgery by Ijaz Ahsan.
3. Outline of Fractures by david hamblen, Hamish Simpsons.
4. Outline of orthopedics. by david hamblen, Hamish Simpsons.
5. Apley's systems of orthopedics and fractures by Louis Solomon 9th ed, publisher holder Arnold.

NEUROLOGICAL PHYSICAL THERAPY

CREDIT HOPURS 3 (2-1)

COURSE DESCRIPTION:

This course provides an in-depth exploration of the assessment and intervention procedures used with persons with various neurological pathologies. The focus of this course will be on neurological problems acquired in adulthood. Theories of motor control and motor learning will be studied and applied to assessment and treatment. Laboratories will be used to strengthen evaluation and intervention skills, especially the analysis of movement as well as planning, practicing, and modifying treatment. The format of this course includes lectures, discussions, laboratory experiences, problem-based learning activities, community based experiences, and patient-centred case study learning activities.There will also be contact with persons with neurological dysfunction as part of this course. Clinical competence in the evaluation and treatment of persons with neurological impairments is to be developed. Topics will focus on medical terminology, clinical examination, evaluation, comparing contemporary, traditional interventions and the impact of evolving technology in this area.

COURSE OUTLINE:

MEDICAL TERMINOLOGY REGARDING NEUROLOGICAL SYSTEM:

ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM (BRIEF REVISION)

- Brain
- Spinal cord
- CNS Support Structures
- Neurons
- PNS
- Spinal Level Reflexes.

NEUROLOGICAL EXAMINATION

- History
- System review
- Test and measures.

INTERVENTIONS

Introduction to Theories of Neurological Rehabilitation

- Remediation & facilitation approaches
    - Bobath-NDT
    - Motor relearning program(MRP)
    - Kabat, Knott, Voss (PNF)
    - Constraint induced movement therapy (CIMT)
- Motor Control / Motor Learning Approach
- Neural plasticity/ adoptability
- Balance
- Role of sensory system
- Skill acquisition
- Postural Control
- Mobility Function
- Task-Related Training Approach
- Compensatory Training Approach
- Normal Reach, Grasp and Manipulation.

NEUROLOGICAL DYSFUNCTIONS

- CVA (Stroke)
- Traumatic Brain Injury (TBI)
- Spinal Cord Injury (SCI)
- Degenerative Diseases (Progressive CNS disorders)
- Multiple Sclerosis (MS)
- Parkinson’s Disease (PD)
- Post Polio Syndrome (PPS)
- Cerebellar Disorders

- Vestibular Disorders
- Cranial Nerves Disorders
- Poly Neuropathies.

NEUROMUSCULAR DISORDERS

CASE HISTORIES

- Principles of assessment and outcome measures
- Documentation in SOAP notes format
- Evidence based neurological Physical Therapy Treatment protocols.

PRACTICAL/ CLINICAL TRAINING:

In the laboratory sessions, neurological physiotherapy skills will be demonstrated and practiced. Various reflective case studies related to the neurological rehabilitation will be assigned to the students.

Note:

The students are expected to make a record of his/her achievements in the log book. The log book is a collection of evidence that learning has taken place. It is a reflective record of achievements. The log book shall also contain a record of the procedures which student would have performed/observed. This log book will be an integral part of the Physiotherapy in Practice I and Physiotherapy in Practice II.

RECOMMENDED TEXT BOOKS:

1. Neurological Physiotherapy Bases of evidence for practice *Treatment and management of patients described by specialist clinicians* by Cecily Partridge
2. *Neurological Physiotherapy A problem-solving approach* By Susan Edwards, second edition.
3. *Neurologic examination* By Robert j. Schwartzman , first edition

EVIDENCE BASED PRACTICE

CREDIT HOURS 3 (2-1)

COURSE DESCRIPTION:

This course introduces the concept of evidence-based practice in physical therapy including the formulation of answerable clinical questions, methods of obtaining peer-reviewed evidence to those clinical questions, and how to critically appraise evidence once located. This course is a lecture and seminar course that will focus on developing the skills need for evaluating, critiquing, and consuming the literature germane to physical therapy practice. Current journal articles, texts, and online resources will be used in the course to develop critical reading and writing skills.

COURSE OUTLINE:

EVIDENCE-BASED PHYSIOTHERAPY

- An introduction about evidence-based Physiotherapy:
  - What do we mean by 'high quality clinical research'?
  - What do we mean by 'patient preferences'?
  - What do we mean by 'practice knowledge'?
  - Additional factors
  - The process of clinical decision-making
- Importance of evidence-based Physiotherapy:
  - For patients
  - For physiotherapists and the profession
  - For funders of physiotherapy services
  - History of Evidence-Based Health Care
  - Steps for practicing evidence-based Physiotherapy.

WHAT DO WE NEED TO KNOW?

- Relevant clinical questions
- Refining your question
- Effects of intervention
- Experiences
- Prognosis
- Diagnosis.

WHAT CONSTITUTES EVIDENCE?

- Evidence about effects of interventions
- Different forms of evidence
- Different sources of evidence
- Hierarchy of evidence
- Research study design.

FINDING THE EVIDENCE

- Search Strategies
  - The World Wide Web
  - Selecting search terms AND OR
- Finding Evidence of Effects of Interventions
  - PEDro
  - The Cochrane Library
- Finding Evidence of Prognosis and Diagnostic Tests
- Finding Evidence of Experiences
  - CINAHL
  - Pub Med
- Getting full text
- Finding evidence of advances in clinical
- Practice (Browsing).

TRUST UPON EVIDENCE

- A process for critical appraisal of evidence
- Critical appraisal of evidence about the Effects of intervention
  - Randomized trials
  - Systematic reviews of randomized trials
- Critical appraisal of evidence about experiences
- Critical appraisal of evidence about prognosis
  - Individual studies of prognosis
  - Systematic reviews of prognosis
- Critical Appraisal of Evidence about Diagnostic Tests
  - Individual studies of diagnostic tests
  - Systematic reviews of diagnostic tests.

CLINICAL GUIDELINES AS A RESOURCE FOR EVIDENCE-BASED PHYSIOTHERAPY

- What are clinical guidelines?
- History of clinical guidelines and why they are important
- Where can I find clinical guidelines?
- How do I know if I can trust the recommendations in a clinical Guideline?
  - Scope and purpose
  - Stakeholder involvement
  - Rigor of development
  - Clarity and presentation
  - Applicability
  - Editorial independence
  - What do the results of the critical appraisal mean for my practice?
- Legal Implications of Clinical Guidelines
  - Clinical guidelines or 'reasonable care': which do the courts consider more important?
  - Documenting the use of a clinical guideline in practice: legal implications
- Reflections on the Future of Guideline Development
  - Who should develop clinical guidelines?
  - Collaboration in guideline development
  - Uniprofessional or multiprofessional guideline development?.

CRITICAL THINKING

- The Benefit of Asking the Right Questions
- What Are the Issue and the Conclusion?
- What Are the Reasons?
- What Words or Phrases Are Ambiguous?
- What Are the Value Conflicts and Assumptions?
- What Are the Descriptive Assumptions?
- Are There Any Fallacies in the Reasoning?
- How Good Is the Evidence: Intuition, Personal Experience?

- Testimonials, and Appeals to Authority?
- How Good Is the Evidence: Personal Observation, Research?
- Studies, Case Examples, and Analogies
- Are There Rival Causes?
- Are the Statistics Deceptive?
- What Significant Information Is Omitted?
- What Reasonable Conclusions Are Possible?
- Practice and Review
- The Tone of Your Critical Thinking
- Strategies for Effective Critical Thinking.

PRACTICAL:

- Identify the different sources of evidence
- Critically appraised topics (CAT)
- How to evaluate web page
- Ways of searching strategies for different databases
- Selection of search terminology
- Retrieving of articles from data bases

RECOMMENDED TEXT BOOKS:

1. *Practical Evidence based physiotherapy By*, Rob Herbert, Gro Jamtdvedt, Judy Mead & Kare Birger Hagen.
2. *Asking the right question-A guide to critical thinking,* 8th Edition By, M. Neil. Browne & Stuart M Keeley.
3. *Additional reading material as assigned.*

PROSTHETICS & ORTHOTICS

CREDIT HOURS 2 (2-0)

COURSE DESCRIPTION:

This course intends to study prosthetic and orthotic management as applied to a variety of patient populations across a life span. It also addresses the considerations of various pathologies and medical, surgical management to formulate appropriate patient examinations, evaluation, diagnosis, prognosis and intervention that are consistent with physical therapy practice guidelines. Principles of normal biomechanics, pathomechanics, physiology and Pathophysiology will be a major focus for evaluation, intervention and education of the vascular, neuromuscular, and / or musculoskeletal compromised patient who may utilize prosthetic or orthotic devices. Basic principles of mechanical physics and material characteristics will be applied.

COURSE OUTLINE:

ORTHOTICS
INTRODUCTION TO ORTHOTICS

- Basic Terminology
- Historical Background
- Factors In Prescription Orthotics
- Nomenclature of Orthotics
- Biomechanical Principles
- Materials Used in Orthotics Manufacturing
- Methods of Construction.

FOOT ORTHOSES

- Shoe Style
- Parts of Shoes
- Special Purpose Shoes
- Foot Examination
- Orthotics Interventions
- Fabrication Options
- Pediatric Foot Orthoses
- Guideline for Prescription Foot Orthoses.

ANKLE FOOT ORTHOSES

- Plastic Ankle Foot Orthoses
- Lather Metal Ankle Foot Orthoses
- Composite Materials
- Weight Relieving Ankle Foot Orthoses
- Support (Fabric , Leather, Gel And Air)
- Contracture Reducing Ankle Foot Orthoses
- Guidelines for Prescription Ankle Foot Orthoses.

KNEE ANKLE FOOT ORTHOSES AND KNEE ORTHOSES

- Plastic Metal Knee Ankle Foot Orthoses
- Knee Immobilizer
- Supra- Condylar Knee Ankle Foot Orthoses
- Weight Relieving Orthoses, Fracture Orthoses
- Lather Metal Knee Ankle Foot Orthoses
- Knee Orthoses
- Guidelines For Prescription Knee Ankle Foot Orthoses.

ORTHOSES FOR PARAPLEGIA AND HIP DISORDERS

- Paraplegia
- Standing Frames
- Orthoses Designed For Ambulation
- Functional Electrical Stimulation

- Specific Devices for Paraplegia
- Hip Orthoses
- Guidelines for Prescription.

EVALUATION PROCEDURES FOR LOWER LIMB ORTHOSES

- Need of Evaluation
- Static Evaluation
- Dynamic Evaluation
- Gait Disorders with Orthoses Usage.

TRUNK AND CERVICAL ORTHOSES

- Trunk Orthoses
- Trunk Orthoses Evaluation
- Scoliosis and Kyphosis Orthoses
- Scoliosis And Kyphosis Orthoses Evaluation
- Cervical Orthoses
- Cervical Orthoses Evaluation
- Guideline For Prescription.

UPPER LIMB ORTHOSES

- Hand And Wrist Hand Orthoses
- Forearm And Elbow Orthoses
- Shoulder Orthoses, Fabrication Option
- Upper limb Orthoses Evaluation (Hand, Wrist, Fingers, Shoulder and Elbow)
- Guideline For Prescription.

ORTHOSES FOR BURNS AND OTHER SOFT TISSUE DISORDERS

- Importance of Orthoses for Burns and Other Soft Tissue Disorders
- Orthoses for Burn Management
- Orthoses for Patients with Soft Tissues Problem Associated With Neuromuscular Disorders.

GOAL SETTING AND TREATMENT PLAN

- Long-Term Goals
- Short-Term Goals
- Treatment Planning
- Criteria for Discharge
- Care of Orthoses.

PROSTHETICS:
EARLY MANAGEMENT

- Clinic Team Approach to Rehabilitation
- Amputation Surgery: Osteomyoplastic Reconstructive Technique
- Postoperative Management

- Pain Management
- Skin Disorders and Their Management
- Psychological Consequences of Amputation.

REHABILITATION OF ADULTS WITH LOWER-LIMB AMPUTATIONS

- Partial Foot and Syme's Amputations and Prosthetic Designs
- Transtibial Prosthetic Designs
- Transfemoral Prosthetic Designs
- Hip Disarticulations and Transpelvic Prosthetic Designs
- Basic Lower-Limb Prosthetic Training.

REHABILITATION OF ADULTS WITH UPPER-LIMB AMPUTATIONS

- Body-Powered Upper-Limb Prosthetic Designs
- Upper-Limb Externally Powered Prosthetic Designs
- Training Patients with Upper-Limb Amputations.

BEYOND THE BASICS

- Special Considerations with Children
- Rehabilitation Outcomes
- Adaptive Prostheses for Recreation
- Future Prosthetic Advances and Challenges
- Future Surgical and Educational Advances and Challenges.

RECOMMENDED TEXT BOOKS:

1. Prosthetics and Patient Management: A Comprehensive Clinical Approach By: Kevin Carroll; Joan Edelstein.
2. Orthotics a comprehensive clinical approach By: Joan E Eldestein& Jan Bruckner.

SUPERVISED CLINICAL PRACTICE - IV

CREDIT HOURSS 3(0-3)

NEUROLOGICAL

SEMESTER	SUPERVISION	FOCUS	WARDS	COMPETENCIES
8	Supervised by trained PT	Evaluation, Examination, and Intervention	Neurological (IPD/OPD; surgical & non-surgical)	Listed below

COURSE DESCRIPTION:

During this supervised clinical practice, students are responsible for successful execution of examination, evaluation, and interventions relating to neurological disorders. Students become familiar with performance of these skills in all settings (inpatient and outpatient) as well as on all types of

conditions (surgical, non-surgical, pediatric and geriatric.) Students learn to objectively perform these skills under the supervision of trained physical therapists. Student is required to keep a performance record of all listed competencies and successfully perform on real patients during the final evaluation of the course.

COMPETENCIES:

EXAMINATION

- Based on best available evidence select examination tests and measures that are appropriate for the patient/client.
- Perform posture tests and measures of postural alignment and positioning.
- Perform gait, locomotion and balance tests including quantitative and qualitative measures such as:
    - Balance during functional activities with or without the use of assistive, adaptive, orthotic, protective, supportive, or prosthetic devices or equipment
    - Balance (dynamic and static) with or without the use of assistive, adaptive, orthotic, protective, supportive, or prosthetic devices or equipment
    - Gait and locomotion during functional activities with or without the use of assistive, adaptive, orthotic, protective, supportive, or prosthetic devices or equipment to include:
        - ❖ Bed mobility
        - ❖ Transfers (level surfaces and floor)
        - ❖ Wheelchair management
        - ❖ Uneven surfaces
        - ❖ Safety during gait, locomotion, and balance
    - Perform gait assessment including step length, speed, characteristics of gait, and abnormal gait patterns.
- Characterize or quantify body mechanics during self-care, home management, work, community, tasks, or leisure activities.
- Characterize or quantify ergonomic performance during work (job/school/play)
    - Dexterity and coordination during work
    - Safety in work environment
    - Specific work conditions or activities
    - Tools, devices, equipment, and workstations related to work actions, tasks, or activities
- Characterize or quantify environmental home and work (job/school/play) barriers:
    - Current and potential barriers
    - Physical space and environment
    - Community access
- Observe self-care and home management (including ADL and IADL)
- Measure and characterize pain* to include:

    - Pain, soreness, and nocioception
    - Specific body parts
- Recognize and characterize signs and symptoms of inflammation.
- Perform neurological tests and measures including:
- Perform arousal, attention and cognition tests and measures to characterize or quantify (including standardized tests and measures)
- Perform cranial and peripheral nerve integrity tests and measures
    - Motor distribution of the cranial nerves (eg, muscle tests, observations)
    - Motor distribution of the peripheral nerves (eg, dynamometry, muscle tests, observations, thoracic outlet tests)
    - Response to neural provocation (e.g. tension test, vertebral artery compression tests)
    - Response to stimuli, including auditory, gustatory, olfactory, pharyngeal, vestibular, and visual (eg, observations, provocation tests)
  - Perform motor function tests and measures to include:
    - Dexterity, coordination, and agility
    - Initiation, execution, modulation and termination of movement patterns and voluntary postures
  - Perform neuromotor development and sensory integration tests and measures to characterize or quantify:
    - Acquisition and evolution of motor skills, including age-appropriate development
    - Sensorimotor integration, including postural responses, equilibrium, and righting reactions
  - Perform tests and measures for reflex integrity including:
    - Deep reflexes (eg, myotatic reflex scale, observations, reflex tests)
    - Postural reflexes and reactions, including righting, equilibrium and protective reactions
    - Primitive reflexes and reactions, including developmental
    - Resistance to passive stretch
    - Superficial reflexes and reactions
    - Resistance to velocity dependent movement
  - Perform sensory integrity tests and measures that characterize or quantify including*:
    - Light touch
    - Sharp/dull
    - Temperature
    - Deep pressure
    - Localization
    - Vibration
    - Deep sensation
    - Stereognosis
    - Graphesthesia.

EVALUATION

- Clinical reasoning
- Clinical decision making
- Synthesize available data on a patient/client expressed in terms of the International
- Classification of Function, Disability and Health (ICF) model to include body functions and structures, activities, and participation.
- Use available evidence in interpreting the examination findings.
- Verbalize possible alternatives when interpreting the examination findings.
- Cite the evidence (patient/client history, lab diagnostics, tests and measures and scientific literature) to support a clinical decision.

DIAGNOSIS

- Integrate the examination findings to classify the patient/client problem in terms of body functions and structures, and activities and participation (ie, practice patterns in the Guide)
- Identify and prioritize impairments in body functions and structures, and activity limitations and participation restrictions to determine specific body function and structure, and activities and participation towards which the intervention will be directed.

PROGNOSIS

- Determine the predicted level of optimal functioning and the amount of time required to achieve that level.
- Recognize barriers that may impact the achievement of optimal functioning within a predicted time frame including
  - Age
  - Medication(s)
  - Socioeconomic status
  - Co-morbidities
  - Cognitive status
  - Nutrition
  - Social Support
  - Environment

PLAN OF CARE

- Goal setting
- Coordination of Care
- Progression of care
- Discharge
- Design a Plan of Care
  - Write measurable functional goals (short-term and long-term) that are time referenced with expected outcomes.
  - Consult patient/client and/or caregivers to develop a mutually agreed to plan of care.

- Identify patient/client goals and expectations.
- Identify indications for consultation with other professionals.
- Make referral to resources needed by the patient/client (assumes knowledge of referral sources).
- Select and prioritize the essential interventions that are safe and meet the specified functional goals and outcomes in the plan of care
  - identify precautions and contraindications,
  - provide evidence for patient-centered interventions that are identified and selected,
  - define the specificity of the intervention (time, intensity, duration, and frequency),
  - set realistic priorities that consider relative time duration in conjunction with family, caregivers, and other health care professionals).
- Establish criteria for discharge based on patient goals and current functioning and disability.

- Coordination of Care
  - Identify who needs to collaborate in the plan of care.
  - Identify additional patient/client needs that are beyond the scope of physical therapist practice, level of experience and expertise, and warrant referral
  - Refer and discuss coordination of care with other health care professionals
  - Articulate a specific rational for a referral.
  - Advocate for patient/client access to services.
- Progression of Care
  - Identify outcome measures of progress relative to when to progress the patient further.
  - Measure patient/client response to intervention.
  - Monitor patient/client response to intervention.
  - Modify elements of the plan of care and goals in response to changing patient/client status, as needed.
  - Make on-going adjustments to interventions according to outcomes including environmental factors and personal factors and, medical therapeutic interventions.
  - Make accurate decisions regarding intensity and frequency when adjusting interventions in the plan of care.
- Discharge Plan
  - Re-examine patient/client if not meeting established criteria for discharge based on the plan of care.
  - Differentiate between discharge of the patient/client, discontinuation of service, and transfer of care with re-evaluation.*
  - Prepare needed resources for patient/client to ensure timely discharge, including follow-up care.
  - Include patient/client and family/caregiver as a partner in discharge.*
  - Discontinue care when services are no longer indicated.

- When services are still needed, seek resources and/or consult with others to identify alternative resources that may be available.
- Determine the need for equipment and initiate requests to obtain.

INTERVENTIONS

- Safety, Emergency Care, CPR and First Aid
- Standard Precautions
- Body Mechanics and
- Positioning
- Categories of Interventions
  - Safety, Cardiopulmonary Resuscitation Emergency Care, First Aid
    - ❖ Ensure patient safety and safe application of patient/client care.
    - ❖ Perform first aid.
    - ❖ Perform emergency procedures.
    - ❖ Perform Cardiopulmonary Resuscitation (CPR).
    - ❖ Precautions
  - Demonstrate appropriate sequencing of events related to universal precautions.
  - Use Universal Precautions.
  - Determine equipment to be used and assemble all sterile and non-sterile materials.
  - Use transmission-based precautions.
  - Demonstrate aseptic techniques.
  - Apply sterile procedures.
  - Properly discard soiled items.
- Body Mechanics and Positioning
  - Apply proper body mechanics (utilize, teach, reinforce, and observe)
  - Properly position, drape, and stabilize a patient/client when providing physical therapy.
- Interventions
  - Coordination, communication, and documentation may include:
  - Addressing required functions:
    - ❖ Establish and maintain an ongoing collaborative process of decision-making with patients/clients, families, or caregivers prior to initiating care and throughout the provision of services.
    - ❖ Discern the need to perform mandatory communication and reporting (eg, incident reports, patient advocacy and abuse reporting).
    - ❖ Follow advance directives.
  - Admission and discharge planning.
  - Case management.
  - Collaboration and coordination with agencies, including:
    - ❖ Home care agencies
    - ❖ Equipment suppliers
    - ❖ Schools
    - ❖ Transportation agencies

- ❖ Payer groups
- Communication across settings, including:
  - ❖ Case conferences
  - ❖ Documentation
  - ❖ Education plans
- Cost-effective resource utilization.
- Data collection, analysis, and reporting of:
  - ❖ Outcome data
  - ❖ Peer review findings
  - ❖ Record reviews
- Documentation across settings, following APTA's Guidelines for Physical Therapy Documentation, including:
  - ❖ Elements of examination, evaluation, diagnosis, prognosis, and Intervention
  - ❖ Changes in body structure and function, activities and participation.
  - ❖ Changes in interventions
  - ❖ Outcomes of intervention
- Interdisciplinary teamwork:
  - ❖ Patient/client family meetings
  - ❖ Patient care rounds
  - ❖ Case conferences
- Referrals to other professionals or resources.
- Patient/client-related instruction may include:
- Instruction, education, and training of patients/clients and caregivers regarding:
- Current condition, health condition, impairments in body structure and function, and activity limitations, and participation restrictions)
- Enhancement of performance
- Plan of care:
- Risk factors for health condition, impairments in body structure and function, and activity limitations, and participation restrictions.
- Preferred interventions, alternative interventions, and alternative modes of delivery
- Expected outcome
- Health, wellness, and fitness programs (management of risk factors)
- Transitions across settings

THERAPEUTIC EXERCISE MAY INCLUDE PERFORMING

Balance coordination and agility training:

- Developmental activities training*
- Motor function (motor control and motor learning) training orretraining
- Neuromuscular education or reeducation*
- Perceptual training
- Posture awareness training*
- Sensory training or retraining

- Standardized, programmatic approaches
- Task-specific performance training

Neuromotor development training:

- Developmental activities training*
- Motor training
- Movement pattern training
- Neuromuscular education or reeducation
  - Functional training in self-care and home management may include
  - Functional training in work (job/school/play), community, and leisure integration or reintegration may include
  - Activities of daily living (ADL) training: Bed mobility and transfer training, Age appropriate functional skills
  - Barrier accommodations or modifications
- Device and equipment use and training:
- Assistive and adaptive device or equipment training during ADL (specifically for bed mobility and transfer training, gait and locomotion, and dressing)*
- Orthotic, protective, or supportive device or equipment training during self-care and home management*
- Prosthetic device or equipment training during ADL (specifically for bed mobility and transfer training, gait and locomotion, and dressing)*
- Functional training programs:
- Simulated environments and tasks*
- Task adaptation
- Injury prevention or reduction:
- Safety awareness training during self-care and home management*
- Injury prevention education during self-care and home management
- Injury prevention or reduction with use of devices and equipment
- Prescription, application, and, as appropriate, fabrication of devices and equipment may include:
- Adaptive devices:
  - Hospital beds
  - Raised toilet seats
  - Seating systems – prefabricated
- Assistive devices:
  - Canes
  - Crutches
  - Long-handled reachers
  - Static and dynamic splints – prefabricated
  - Walkers
  - Wheelchairs
- Orthotic devices:
  - Prefabricated braces

    - Prefabricated shoe inserts
    - Prefabricated splints
- Prosthetic devices (lower-extremity)
- Protective devices:
    - Braces
    - Cushions
    - Helmets
    - Protective taping
- Supportive devices
    - Prefabricated compression garments
    - Corsets
    - Elastic wraps
    - Neck collars
    - Slings
    - Supplemental oxygen - apply and adjust
    - Supportive taping
- Electrotherapeutic modalities may include:
    - Biofeedback
    - Electrotherapeutic delivery of medications (eg, iontophoresis)*
    - Electrical stimulation: Electrical muscle stimulation (EMS), Functional electrical stimulation (FES) High voltage pulsed current (HVPC) Neuromuscular electrical stimulation (NMES) Transcutaneous electrical nerve stimulation (TENS)
- Physical agents and mechanical modalities may include: *Physical agents:*
- Cryotherapy:
    - Cold packs
    - Ice massage
    - Vapocoolant spray
- Hydrotherapy*:
    - Contrast bath
    - Pools
    - Whirlpool tanks
- Sound agents:
    - Phonophoresis
    - Ultrasound
- Thermotherapy:
    - Dry heat
    - Hot packs*
    - Paraffin baths*
- Mechanical modalities:
    - Compression therapies (prefabricated)*
        - ❖ Compression garments: Skill Category Description of Minimum Skills
        - ❖ Vasopneumatic compression devices*
        - ❖ Taping
        - ❖ Compression bandaging (excluding lymphedema)

        - Gravity-assisted compression devices:
            - ❖ Standing frame*
            - ❖ Tilt table*
        - Mechanical motion devices*:
            - ❖ Continuous passive motion (CPM)*
    - Traction devices*:
        - ❖ Intermittent
        - ❖ Positional
        - ❖ Sustained
    - Documentation of all listed competencies in SOAP notes format.

NINTH SEMESTER

1. **CARDIOPULMONARY PHYSICAL THERAPY**
2. **EMERGENCY PROCEDURES & PRIMARY CARE IN PHYSICAL THERAPY**
3. **CLINICAL DECISION MAKING & DIFFERENTIAL DIAGNOSIS**
4. **SCIENTIFIC INQUIRY & RESEARCH & METHODOLOGY**
5. **PROFESSIONAL PRACTICE**
6. **(LAWS, ETHICS & ADMINISTRATION)**
7. **INTEGUMENTRY PHYSICAL THERAPY**
8. **SUPERVISED CLINICAL PRACTICE - V**

CARDIOPULMONARY PHYSICAL THERAPY

CREDIT HOURS 3 (2-1)

COURSE DESCRIPTION:

This course includes a study of anatomy and physiology of the cardiovascular, pulmonary, and lymphatic systems and pathological changes of the systems and function, including diagnostic tests and measurements. This course discuss relevant testes and measures for determining impairment and differentiating the diagnosis based on the specificity and sensitivity of the assessment instruments as related to patients with cardiovascular, pulmonary, and lymphatic systems disorders. The use of evidence-based physical therapy intervention for cardiovascular, pulmonary, and lymphatic systems disorders is emphasized Topics will focus on medical terminology, clinical examination, evaluation, comparing contemporary, traditional interventions and the impact of evolving technology in this area.

COURSE OUTLINE:

MEDICAL TERMINOLOGY REGARDING CARDIOPULMONARY SYSTEM

INTRODUCTION
ANATOMY AND PHYSIOLOGY

- Anatomy of the Cardiovascular and Respiratory Systems