

SEVENTH SEMESTER

1. **MEDICINE - I**
2. **SURGERY - I**
3. **RADIOLOGY & DIAGNOSTIC IMAGING**
4. **MUSCULOSKELETAL PHYSICAL THERAPY**
5. **HUMAN DEVELOPMENT, GROWTH & COMMUNITY BASED REHABILITATION**
6. **SUPERVISED CLINICAL PRACTICE - III**

MEDICINE - I **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:

CARDIOVASCULAR DISEASES

CARDIAC DISEASES

- Chest pain
- Dyspnoea
- Palpitation
- Peripheral edema
- Syncope
- Cardiac failure
- Acute pulmonary edema
- Cardiogenic shock
- Systemic hypertension
- Ischemic heart disease
- Angina pectoris
- Unstable angina
- Myocardial infarction
- Rheumatic fever
- Valvular heart diseases
- Congenital heart diseases
- Ventricular septal defect
- Atrial septal defect
- pulmonary heart disease

- Pericardial disease
- Pulmonary hypertension
- Cardiac arrhythmias and heart in pregnancy.

VASCULAR DISEASES

- Arteriosclerosis
- Acute & Chronic ischemia of leg
- Aortic aneurysm
- Buerger's disease
- Raynaud's disease
- Varicose veins
- Venous thrombosis.

RHEUMATOLOGY AND BONE DISEASES: ARTHRITIS

- Osteoarthritis
- Rheumatoid arthritis
- Connective tissue diseases
- Arthritis in elderly
- Arthritis in children,
- Seronegative spondyloarthropathies
- Crystals deposition disease
- Arthritis associated with other diseases.

BACK PAIN

- Back Pain due to serious disease
- Inflammatory Back Pain
- Disc disease
- Mechanical problems
- Soft tissues problems
- Psychogenic Back Pain
- Nonspecific Back Pain
- Neck pain.

SOFT TISSUE RHEUMATISM: BONE DISEASES

- Paget's disease
- Infections of bones
- Neoplastic disease
- Skeletal dysplasia
- Other hereditary diseases.

RESPIRATORY DISEASES

DISEASES OF UPPER RESPIRATORY TRACT

- Common cold
- Sinusitis
- Rhinitis

- Pharyngitis
- Acute laryngo-tracheobronchitis
- Influenza
- Inhalation of the foreign bodies.

DISEASE OF LOWER RESPIRATORY TRACT

- Acute & chronic Bronchitis
- Bronchiectasis
- Cystic fibrosis
- Asthma
- Emphysema
- Pneumonias
- Tuberculosis
- Pulmonary fibrosis
- Radiation damage
- Common tumours of the lungs
- Respiratory failure
- Adult distress respiratory syndrome
- Disorders of chest wall and pleura
- Chest trauma
- Deformities of rib cage
- Dry pleurisy
- Pleural effusion
- Empyema
- Pneumothorax.

RECOMMENDED TEXT BOOKS:

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

SURGERY - I

CREDIT HOURS 3 (3-0)

COURSE DESCRIPTION:

This course intends to familiarize students with principles orthopaedic 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:

ORTHOPEDIC SURGERY FRACTURES

- Definition
- Classification
- Causes
- Clinical features
- Healing of fractures
- Complications
- Principles of general management of
 - Fracture of the Upper Extremity
 - Fracture of the Lower Extremity
 - Fracture of the vertebral column, thorax and pelvis
- Basic and advanced trauma life support.

DISLOCATIONS & SUBLUXATIONS

- Definition
- Traumatic dislocation
- General description
- Principles of general description and management of traumatic dislocation and subluxation of
 - Shoulder joint
 - Acromioclavicular joint
 - Elbow joint
 - Hip joint
 - Knee joint.

SOFT TISSUE INJURIES

- Introduction
- Anatomy & physiology general description and management of injuries of:
 - Ligaments
 - Tendons
 - Muscles
 - Fascia
 - Bursae
- Detailed description of physiotherapy management of individual tissue injuries around:
 - Shoulder region
 - Elbow region
 - Wrist and hand region
 - Knee region
 - Ankle region
- Muscles and tendons injuries of upper and lower limb
- Cervicolumbar injuries

- Whiplash of the cervical spine
- Crush injuries
- Spinal pain
- Degenerative and Inflammatory Conditions:
 - Osteo-orthosis/Arthritis
 - Spondylosis
 - Spondylolysis
 - Pyogenic arthritis
 - Rheumatoid arthritis
 - Juvenile arthritis
 - Tuberculosis arthritis
 - Gouty arthritis
 - Haemophilic arthritis
 - Neuropathic arthritis
 - Ankylosing spondylitis
 - psoriatic arthritis.

GENERAL ORTHOPEDIC DISORDERS

- Carpel tunnel syndrome
- Compartment syndromes
- Muscular dystrophies
- Neuropathies
- Avascular necrosis of bone in adult and children
- Ischemic contracture
- Gangrene
- Rickets
- Osteoporosis and osteomalacia
- Shoulder pain
- Neck pain
- Knee pain
- Backache
- Painful conditions around elbow
- Detailed description of :
 - Orthotics
 - Prosthetics
 - Splintage
 - Traction
 - POP.

TUMOURS

- Classification
- Principles of general management
- General description of benign and malignant tumours of musculoskeletal system.

DEFORMITIES AND ANOMALIES

- Definition
- Causes
- Classification
- Congenital and acquired deformities
- Physical and clinical and radiological features
- Complications
- Principles of medical and surgical management of the deformities
- General description of following deformities.

DEFORMITIES OF THE SPINE

- Torticollis
- Scoliosis
- Kyphosis
- Lordosis
- Flat back.

DEFORMITIES OF THE LOWER LIMB

- CDH
- coxa vera
- coxa valga
- anteversion
- Retroversion
- Genu valgum
- Genu varum
- Genu recurvatum
- CDK
- Talipes calcaneus equinus, varus & valgus
- Talipes calcaneovarus
- Talipes calcaneovalgus
- Talipes equinovarus
- Pes cavus
- Pes planus
- Hallux valgus & varum,
- Hallux rigidus and hammer toe.

DEFORMITIES OF SHOULDER AND UPPER LIMB

- Sprengels shoulder
- Cubitus varum
- Cubitus valgum
- Deputryn's contracture.

RECOMMENDED TEXT BOOKS:

1. *Short practice of surgery* by Baily and Love's.
2. *Text Book of Surgery* by Ijaz Ahsan.
3. *Out line of Fractures*.

RADIOLOGY & DIAGNOSTIC IMAGING

CREDIT HOURS 3 (2-1)

COURSE DESCRIPTION:

This course covers the study of common diagnostic and therapeutic imaging tests. At the end of the course students will be aware of the indications and implications of commonly used diagnostic imaging tests as they pertain to patient's management. The course will cover that how X-Ray, CT, MRI, Ultrasound and Other Medical Images are created and how they help the health professionals to save lives.

FROM THE WATCHING OF SHADOWS

- History
- A New Kind of Ray
- How a Medical Image Helps
- What Imaging Studies Reveal
- Radiography(x-rays)
- Fluoroscopy
- Computed Tomography (CT)
- Magnetic Resonance Imaging (MRI)
- Ultrasound
- Endoscopy.

RADIOGRAPHY AND MAMMOGRAPHY

- Equipment components
- Procedures for Radiography & Mammography
- Benefits versus Risks and Costs
- Indications and contraindications.

FLUOROSCOPY

- What is Fluoroscopy?
- Equipment used for fluoroscopy
- Indications and Contra indications
- How it helps in diagnosis
- The Findings in Fluoroscopy
- Benefits versus Risks and Costs.

COMPUTED TOMOGRAPHY (CT)

- What is Computed Tomography?
- Equipment used for Computed Tomography
- Indications and Contra indications
- How it helps in diagnosis
- The Findings in Computed Tomography
- Benefits versus Risks and Costs.

MAGNETIC RESONANCE IMAGING (MRI)

- What is MRI?
- Equipment used for MRI

- Indications and Contra indications
- How it helps in diagnosis
- The Findings in MRI
- Benefits versus Risks and Costs
- Functional MRI.

ULTRASOUND

- What is Ultrasound?
- Equipment used for Ultrasound
- Indications and Contra indications
- How it helps in diagnosis
- The Findings in Ultrasound
- Benefits versus Risks and Costs.

ENDOSCOPY

- What is Endoscopy?
- Equipment used for Endoscopy
- Indications and Contra indications
- How it helps in diagnosis
- The Findings in Endoscopy
- Benefits versus Risks and Costs.

NUCLEAR MEDICINE

- What is Nuclear Medicine?
- Equipment used for Nuclear Medicine
- Indications and Contra indications
- How it helps in diagnosis.
- Benefits versus Risks and Costs.

INTERVENTIONAL RADIOLOGY

RECOMMENDED TEXT BOOKS

1. Looking Within (How X-ray, CT, MRI, Ultrasound and Other Medical Images Created and How They Help Physicians Save Lives) by Anthony Brinton Wolbarst.
2. *A–Z of Musculoskeletal and Trauma Radiology* By: James R. D. Murray.
3. *Essentials of Radiology* by Fred. A. Mettler, 2nd edition.
4. *Imaging in rehabilitation*, By: Terry. R. Malone, Charles Hazle & Michael L. Grey. McGraw Hill Publishers.

MUSCULOSKELETAL PHYSICAL THERAPY

CREDIT HOURS 3 (2-1)

COURSE DESCRIPTION:

This course includes a study of anatomy and physiology of the musculoskeletal system and pathological changes of the system and function, including diagnostic tests and measurements. Relevant tests and measures for determining impairment and differentiating the diagnosis based on the specificity and sensitivity of the assessment instruments as related to patients with musculoskeletal conditions are discussed. The use of evidence-based physical therapy intervention for musculoskeletal conditions 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 MUSCULOSKELETAL SYSTEM

PRINCIPLES AND CONCEPTS OF MUSCULOSKELETAL EVALUATION & ASSESSMENT

- Patient history
- Observation
- Examination

Principles, vital signs, examination of specific joints, functional assessment, specific diagnostic test, reflexes and cutaneous distribution, joint play movements, palpation

Evaluation /Assessment of spine and peripheral joints

- Causes
- Effects of range limitation on functional activities

Principles of assessment and outcome measures

Documentation in SOAP notes format

Evidence based musculoskeletal Physical Therapy Treatment protocols

PRINCIPLES OF INTERVENTION

SOFT TISSUE INJURY, REPAIR, AND MANAGEMENT

- Soft tissue lesions
- Management during the acute stage
- Management during the sub acute
- Management during the chronic stage
- Cumulative trauma–chronic recurring pain

JOINT, CONNECTIVE TISSUE, AND BONE DISORDERS AND MANAGEMENT

- Arthritis–arthrosis
- Fibromyalgia and myofascial pain syndrome

- Osteoporosis
- Fractures—post-traumatic immobilization.

SURGICAL INTERVENTIONS AND POSTOPERATIVE MANAGEMENT

- Indications for surgical intervention
- Guidelines for preoperative and Postoperative management; considerations for preoperative management, considerations for postoperative management, potential postoperative complications
- Overview of common orthopedic surgeries and postoperative management; surgical approaches—open, arthroscopic, and arthroscopically assisted procedures, use of tissue grafts, repair, reattachment, reconstruction, stabilization, or transfer of soft tissues, release, lengthening, or decompression of Soft tissues.

PERIPHERAL NERVE DISORDERS AND MANAGEMENT

- Review of peripheral nerve structure; nerve structure, nervous system mobility characteristics, common sites of injury to peripheral nerves
- Impaired nerve function
- Nerve injury and recovery
- Neural tension disorders and their managements
- Musculoskeletal diagnoses involving impaired
- Nerve function thoracic outlet syndrome
- Carpal tunnel syndrome
- Compression in tunnel of Guyon
- Complex regional pain syndrome: reflex sympathetic Dystrophy and causalgia.

EXERCISE INTERVENTIONS BY BODY REGION

THE SPINE AND POSTURE: STRUCTURE, FUNCTION, POSTURAL IMPAIRMENTS & MANAGEMENT GUIDELINES

POSTURE AND BIOMECHANICAL INFLUENCES

- Alignment
- Stability.

IMPAIRED POSTURE

- Etiology of pain
- Common faulty postures: characteristics and Impairments.

MANAGEMENT OF IMPAIRED POSTURE

- General management guidelines
- Tension headache/cervical headache.

THE SPINE: IMPAIRMENTS, DIAGNOSES, & MANAGEMENT GUIDELINES

- Review of the structure and function of the spine.

SPINAL PATHOLOGIES AND IMPAIRED SPINAL FUNCTION

- Pathology of the intervertebral disk

- Pathomechanical relationships of the intervertebral disk and facet joints
- Pathology of the zygapophyseal (facet)
- Pathology of muscle and soft tissue injuries: strains, tears, and contusions
- Pathomechanics of spinal instability.

MANAGEMENT GUIDELINES BASED ON IMPAIRMENTS

- Principles of management for the Spine
- Management guidelines–non-weight-bearing bias
- Management guidelines–extension bias
- Management guidelines–flexion bias
- Management guidelines–stabilization
- Management guidelines–mobilization
- Management guidelines–soft tissue injuries
- Management Guidelines–Temporomandibular Joint Dysfunction.

THE SPINE: EXERCISE INTERVENTIONS

- Basic concepts of spinal management with exercise
- Fundamental interventions
- Patient education
- General exercise guidelines
- Kinesthetic awareness
- Elements of kinesthetic training–fundamental techniques
- Progression to active and habitual control of Posture
- Mobility/flexibility
- Cervical and upper thoracic
- Region–stretching techniques
- Mid and lower thoracic and lumbar
- Regions–stretching techniques
- Muscle performance: stabilization, muscle endurance, and strength training
- Stabilization training–fundamental techniques and Progressions
- Isometric and dynamic exercises
- Cardiopulmonary endurance
- Common aerobic exercises and effects on the spine
- Functional activities
- Early functional training–fundamental techniques
- Preparation for functional activities–basic exercise Techniques
- Body mechanics and environmental adaptations
- Intermediate to advanced exercise techniques for Functional training
- Education for prevention.

THE SHOULDER AND SHOULDER GIRDLE

- Examination, evaluation and assessment of shoulder joint
- Referred pain and nerve injury
- Management of shoulder disorders and surgeries

- Joint Hypomobility: non-operative management
- Glenohumeral joint surgery and postoperative management
- Painful shoulder syndromes (rotator cuff disease, impingement syndromes, shoulder instabilities):
 - Non-operative management
 - Painful shoulder syndromes: surgery and postoperative management
- Shoulder dislocations: non-operative management
- Shoulder instabilities: surgery and post-operative management
- Exercise interventions for the shoulder
- Girdle Exercise Techniques During Acute And Early Subacute Stages of tissue healing
- Exercise techniques to increase flexibility and range of motion
- Exercises to develop and improve muscle performance and functional control.

THE ELBOW & FOREARM COMPLEX

- Examination, evaluation and assessment of elbow and forearm complex
- Referred pain and nerve injury in the elbow region
- Management of elbow and forearm disorders and surgeries
- Joint Hypomobility: nonoperative management
- Joint surgery and postoperative management
- Myositis ossificans
- Overuse syndromes: repetitive trauma syndromes
- Exercise interventions for the elbow and Forearm
- Exercise techniques to increase flexibility and range of Motion
- Exercises to develop and improve muscle performance and functional.

THE WRIST & HAND

- Examination, evaluation and assessment of wrist and hand
- Major nerves subject to pressure and trauma at the Wrist and hand
- Management of wrist and hand disorders And surgeries
- Joint Hypomobility: non-operative management
- Joint surgery and postoperative management
- Repetitive trauma syndromes/overuse
- Traumatic lesions in the wrist and hand
- Exercise interventions for the wrist and Hand
- Techniques for musculotendinous mobility
- Exercise techniques to increase flexibility and range Of motion
- Exercises to develop and improve muscle Performance, neuromuscular control, and coordination.

THE HIP

- Examination, evaluation and assessment of hip joint
- The hip and gait

- Referred pain and nerve injury
- Management of hip disorders and surgeries
- Joint Hypomobility: non-operative management
- Joint surgery and post-operative management
- Fractures of the hip—surgical and postoperative management
- Painful hip syndromes/overuse syndromes: non-operative management
- Exercise interventions for the hip region
- Exercise techniques to increase flexibility and range of motion
- Exercises to develop and improve muscle performance and functional control.

THE KNEE

- Examination, evaluation and assessment of knee joint
- Referred pain and nerve injuries
- Management of knee disorders and surgeries
- Joint Hypomobility: non-operative management
- Joint surgery and post-operative management
- Patellofemoral dysfunction: non-operative management
- Patellofemoral and extensor mechanism dysfunction: Surgical and postoperative management
- Ligament injuries: non-operative management
- Ligament injuries: surgical and postoperative Management
- Meniscal tears: non-operative management
- Meniscal tears: surgical and postoperative management
- Exercise interventions for the knee
- Exercise techniques to increase flexibility and range of motion
- Exercises to develop and improve muscle performance and functional control.

THE ANKLE & FOOT

- Examination, evaluation and assessment of ankle and foot joint
- Referred pain and nerve injury
- Management of foot and ankle disorders and surgeries
- Joint Hypomobility: non-operative management
- Joint surgery and post-operative management
- Overuse (repetitive trauma) syndromes: non-operative management
- Ligamentous injuries: non-operative management
- Traumatic soft tissue injuries: surgical and postoperative management
- Exercise interventions for the ankle and foot
- Exercise techniques to increase flexibility and range of motion
- Exercises to develop and improve muscle performance and functional control.

PRACTICAL TRAINING:

- The practical training will be sought in physiotherapy treatment based settings. Keeping in view therapeutic principles, management of various pre and post operative conditions will be practiced under supervision and later independently by the students, the practical work might include:
- Therapeutic Management of conditions of spine
- Therapeutic Management of conditions of extremities
- Therapeutic Management of vascular disorders
- Therapeutic Management of pulmonary conditions
- Therapeutic Management of gynaecological conditions
- Reflective clinical case studies
- Supervised and independent Practical application of therapeutic techniques on patients in outdoor and indoor physiotherapy treatment settings.

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.

RECOMMENDED TEXT BOOKS:

1. *Therapeutics Exercises and Technique*, By: Carolyn Kisner & Lynn Allen Colby 4th 5th edition.
2. *Therapeutics Exercises: Techniques for Intervention* By: Willim D.Bandy.
3. *Clinical decision making in therapeutic exercise* By: Patricia e. Sullivan & prudence d. Markos, Appleton & Lange Norwalk, Connecticut.
4. Hertling, D, and Kessler RM. *Management of Common Musculoskeletal Disorders: Physical Therapy Principles and Methods*. 3rd ed. Philadelphia, PA: WB Saunders 1995.
5. *Orthopaedic Physical Therapy* By: Donatelli & Michael J. Wooden 4th Edition.
6. *Physiotherapy in Orthopaedics, A problem-solving approach* By: Atkinson, Coutts & Hassenkamp 2nd Edition.
7. *Clinical orthopaedic rehabilitation* By S. Brent. Brotzman & Kevin. E. Wilk, 2nd edition, Mosby publishers.
8. *Management of Common Musculoskeletal Disorder* by: Hertling, D, and Kessler RM *Physical Therapy Principles and Methods*. 3rd ed. Philadelphia.PA: WB Saunders.
9. *Orthopedic Physical Assessment*. Magee, D.4th ed. Philadelphia PA: WB Saunders 1995.
10. *Physical Rehabilitations Assessments and Treatment*". By Susan B,O'Sullivan &Thomas J. Schmitz , 4th edition.
11. *Tidy's Physiotherapy* by Thomas A Skinner & Piercy.

HUMAN GROWTH, DEVELOPMENT & COMMUNITY BASED REHABILITATION

CREDIT HOURS 2 (2-0)

COURSE DESCRIPTION:

This course intends to give the physiotherapy students basic knowledge about the human development from new life to adulthood. It deals with scientific study of processes of change in stability throughout the human life span, it focuses on the physical, psychosocial and cognitive development from conception to late adulthood.

COURSE OUTLINE:

Human Growth and Development

INTRODUCTION

- Forming a New Life
- The Study of Human Development
- Theory and Research
- Physical Development during the First Three Years
- Cognitive Development during the First Three Years
- Psychosocial Development during the First Three Years.

EARLY CHILDHOOD

- Physical and Cognitive Development in Early Childhood
- Psychosocial Development in Early Childhood
- Physical and Cognitive Development in Middle Childhood
- Psychosocial Development in Middle Childhood.

ADOLESCENCE

- Physical and Cognitive Development in Adolescence
- Psychosocial Development in Adolescence
- Physical and Cognitive Development in Young Adulthood
- Psychosocial Development in Young Adulthood.

MIDDLE ADULTHOOD

- Physical and Cognitive Development in Middle Adulthood
- Psychosocial Development in Middle Adulthood
- Physical and Cognitive Development in Late Adulthood
- Psychosocial Development in Late Adulthood
- Dealing with Death and Bereavement.

Community Based Rehabilitation

HEALTH IN THE COMMUNITY

- Handicap and the community
- Nutrition and mal nutrition
- Breast feeding

- Immunization
- Oral rehydration.

NORMAL BODY FUNCTION

- Normal development
- Growth and weight of children.

CONDITIONS AND TREATMENTS

- Cerebral palsy in children
- Down syndrome
- Mental handicap
- Hydro-cephalus
- Spin bifida
- Poliomyelitis
- Blindness
- Deafness
- Strokes
- Spinal cord injuries
- Amputation.

MANAGEMENT OF PATIENTS

- Assessment and recoding
- Fits
- Contractures
- Pressure sores
- Urine and bowel management
- Chest infection
- Feeding children with cerebral palsy
- Toy making workshop
- Welfare assistance.

RECOMMENDED TEXT BOOKS:

1. *Introduction to Special Education* By: Allen and Beacon, (1992), A Simon & Superter Comp. Needham Heights.
2. *Exceptional Children*, Howard, W. I. (1988); Columbus, Merrill.
3. *Exceptional Children and Adults*, Patton, J. R. (1991); Boston Scott Foresmen and Co.
4. *Exceptional Children in Focus* by: Patton J. R. (1991); New York, Macmillan pub. Co.
5. *Community based rehabilitation worker manual*, marion loveday, global health publication.

SUPERVISED CLINICAL PRACTICE - III
CREDITS 3 (0-3)

MUSCULOSKELETAL

| SEMESTER | SUPERVISION | FOCUS | WARDS | COMPETENCIES |
|-----------------|--------------------------|---|--|---------------------|
| 7 | Supervised by trained PT | Evaluation, Examination, and Intervention | MSK (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 musculoskeletal 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 nociception
 - Specific body parts
- Recognize and characterize signs and symptoms of inflammation.

PERFORM MUSCULOSKELETAL SYSTEM TESTS AND MEASURES INCLUDING:

- Accessory movement tests
- Anthropometrics
 - Limb length
 - Limb girth
 - Body composition
- Functional strength testing
- Joint integrity
- Joint mobility
- Ligament laxity tests
- Muscle length
- Muscle strength including manual muscle testing, dynamometry, one repetition max
- Palpation
- Range of motion including goniometric measurements.

PERFORM ORTHOTIC TESTS AND MEASURES INCLUDING

- Components, alignment, fit, and ability to care for orthotic, protective, and supportive devices and equipment.
- Evaluate the need for orthotic, protective, and supportive devices used during functional activities.

- Remediation of impairments in body function and structure, activity limitations, and participation restrictions with use of orthotic, protective, and supportive device.
- Residual limb or adjacent segment, including edema, range of motion, skin integrity and strength.
- Safety during use of orthotic, protective, and supportive device.
- Perform prosthetic tests and measures including*:
 - ❖ Alignment, fit, and ability to care for prosthetic device.
 - ❖ Prosthetic device use during functional activities.
 - ❖ Remediation of impairments in body function and structure, activity limitations, and participation restrictions, with use of prosthetic device.
 - ❖ Evaluation of residual limb or adjacent segment, including edema, range of motion, skin integrity, and strength.
- Safety during use of the prosthetic device.
- Perform tests and measures for assistive and adaptive devices including*:
 - ❖ Assistive or adaptive devices and equipment use during functional activities.
 - ❖ Components, alignment, fit, and ability to care for the assistive or adaptive devices and equipment.
 - ❖ Remediation of impairments in body function and structure, activity limitations, and participation restrictions with use of assistive or adaptive devices and equipment.
 - ❖ Safety during use of assistive or adaptive equipment.

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 rationale 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 outcomes
 - Health, wellness, and fitness programs (management of risk factors)
 - Transitions across settings.

THERAPEUTIC EXERCISE MAY INCLUDE PERFORMING

- Body mechanics and postural stabilization:
 - Body mechanics training
 - Postural control training
 - Postural stabilization activities
 - Posture awareness training
- Flexibility exercises:
 - Muscle lengthening
 - Range of motion
 - Stretching
- Gait and locomotion training:
 - Developmental activities training
 - Gait training
 - Device training
 - Perceptual training
 - Basic wheelchair training
- Strength, power, and endurance training for head, neck, limb, and trunk:

- Active assistive, active, and resistive exercises (including concentric, dynamic/isotonic, eccentric, isokinetic, isometric, and plyometric exercises)
 - Aquatic programs*
 - Task-specific performance training
- Strength, power, and endurance training for pelvic floor:
 - Active (Kegel)
- Strength, power, and endurance training for ventilatory muscles:
 - Active and resistive
- Manual therapy techniques may include:
 - Passive range of motion
 - Massage:
 - ❖ Connective tissue massage
 - ❖ Therapeutic massage
 - Manual traction
 - Mobilization/manipulation:
 - ❖ Soft tissue (thrust and nonthrust)
 - ❖ Spinal and peripheral joints (thrust and nonthrust)
- 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.

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.