## Letter of Content

1. Introduction 3
2. Programme Objectives 4
3. Evaluation Criteria 5
4. Course Outline 6
5. The Syllabus

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Description</th>
<th>Page number</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY 001</td>
<td>Human Anatomy (Systemic, Regional)</td>
<td>10</td>
</tr>
<tr>
<td>PHY 002</td>
<td>Human Physiology</td>
<td>11</td>
</tr>
<tr>
<td>BIOL 222</td>
<td>Biochemistry</td>
<td>17</td>
</tr>
<tr>
<td>BIOL 223</td>
<td>Medical Terminology</td>
<td>20</td>
</tr>
<tr>
<td>PSYCH 234</td>
<td>General Psychology</td>
<td>22</td>
</tr>
<tr>
<td>SOCI 122</td>
<td>Sociology</td>
<td>25</td>
</tr>
<tr>
<td>PHAR 109</td>
<td>Pharmacology</td>
<td>27</td>
</tr>
<tr>
<td>PHY 008</td>
<td>Ethics &amp; Professional Practice of Physiotherapy</td>
<td>28</td>
</tr>
<tr>
<td>MICR 101</td>
<td>Microbiology</td>
<td>29</td>
</tr>
<tr>
<td>BIOL 202</td>
<td>Pathology</td>
<td>31</td>
</tr>
<tr>
<td>PHY 003</td>
<td>Medical Electronics</td>
<td>34</td>
</tr>
<tr>
<td>PHY 004</td>
<td>Bio Mechanics of Human Motion</td>
<td>37</td>
</tr>
<tr>
<td>PHY 005</td>
<td>Clinical orientation 01</td>
<td>40</td>
</tr>
<tr>
<td>PHY 006</td>
<td>Exercise Therapy</td>
<td>41</td>
</tr>
<tr>
<td>PHY 007</td>
<td>Electrotherapy</td>
<td>45</td>
</tr>
<tr>
<td>PHY 008</td>
<td>Bio Engineering</td>
<td>49</td>
</tr>
<tr>
<td>PHY 009</td>
<td>Clinical Orthopedics</td>
<td>50</td>
</tr>
<tr>
<td>PHY 010</td>
<td>Physiotherapy in Orthopedics</td>
<td>53</td>
</tr>
<tr>
<td>PHY 011</td>
<td>General Medicine including Cardiac &amp; chest conditions</td>
<td>55</td>
</tr>
<tr>
<td>PHY 012</td>
<td>General surgery including Cardio Thoracic conditions</td>
<td>60</td>
</tr>
<tr>
<td>PHY 013</td>
<td>Community Physiotherapy</td>
<td>62</td>
</tr>
<tr>
<td>PHY 014</td>
<td>Neurology &amp; Neurosurgery</td>
<td>64</td>
</tr>
<tr>
<td>PHY 015</td>
<td>Pediatric Physiotherapy</td>
<td>67</td>
</tr>
<tr>
<td>Code</td>
<td>Course</td>
<td>Page</td>
</tr>
<tr>
<td>--------</td>
<td>---------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>PHY 020</td>
<td>Physiotherapy in Gynecology &amp; Obstetrics</td>
<td>69</td>
</tr>
<tr>
<td>PHY 021</td>
<td>Clinical orientation 02</td>
<td>70</td>
</tr>
<tr>
<td>HM001</td>
<td>Health Management</td>
<td>71</td>
</tr>
<tr>
<td>HM 004</td>
<td>Health Research</td>
<td>74</td>
</tr>
<tr>
<td>PHY 022</td>
<td>Community Based Rehabilitation</td>
<td>75</td>
</tr>
<tr>
<td>PHY 023</td>
<td>Clinical orientation 03</td>
<td>77</td>
</tr>
</tbody>
</table>
1. Introduction

At International Institute of Health Sciences, in Physiotherapy degree course is based on a fully integrated curriculum that includes interdisciplinary studies structured around patient centered learning. Conditions for which people typically seek physiotherapy today has provided the context for integrating learning about biomedical sciences and physiotherapy skills, hence the curriculum is also designed to meet these conditions.

Demand for physiotherapists grows across the world; however people increasingly find themselves lacking a service sufficient for their needs. Considering this situation this course is designed to expand the professional opportunities for students, as well as address the shortages of health professionals in the related fields.

Students will complete the course, with the knowledge to formulate physiotherapeutic diagnoses and provide appropriate programs of therapeutic exercise and treatments to those primarily with physical disabilities. Studies in behavioral and biomedical science and clinical experience will prepare them for employment as entry-level physiotherapists in a variety of health care settings. Students will not only have specific skills to practice locally, but will also be equipped to practice internationally.

Our aim is to enable them to work professionally as physiotherapists throughout the health care system, in hospitals, within the community, and private practices, and also in fields of education, management, research, rehabilitation centers, and public or private health care sectors as a consultant.
2. Programme Objectives

After successfully completing the course, the physiotherapist is expected,

1. To Work in any department (general physiotherapy, medical, surgical, orthopedic, cardiothoracic, neurological, pediatrics, obstetric and gynecology etc) that require their services for physiotherapy and rehabilitative purposes

2. To optimize the therapeutic outcome by advising the health care team concerning physiotherapy

3. To act as role models in both performance and future development of clinical services.

4. To assist in preventive health campaigns and other community projects with the intention of protecting the public.
3. Evaluation Criteria

Internal assessments will be conducted at the end of each 6 months and the board exam will be conducted at the End of each 24 months and it will consist of following components:

- Theory
- Practical
- Viva voce

In order to obtain the certificate the following should be satisfied:

- The candidates should complete all components of the examination.
- A minimum mark of 50% should be obtained for both theory and practical in all examinations
- Each candidate will be given 3 attempts to obtain required marks.
- At the end of the 12 months if the candidate has not passed in > 4 subjects they cannot attend teaching activities except clinical training of the next 12 months
4. Course Outline

Duration of the Course: 03 years full time theory & particle programme with clinical orientation and placement. This includes total of 2490 hour programme with 1240 and 1450 theory and practical hours respectively. The description is as follows:

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5. Description of the Syllabus
PHY 001 – HUMAN ANATOMY

1. Course Objectives

- To introduces the structure and function of the normal human body which enable the student to apply theoretical knowledge in to the health care setting.
- To enable better understanding of disease conditions and to plan and provide proper and specific treatment.
- To develops the students’ ability to perform procedures efficiently and qualitatively

2. Course description

- Lecturers should be qualified medical officers and physiotherapists
- Method of instruction is lectures, presentations and demonstrations

3. Course Outline

Theory

1. Histology – cell, tissues of the body, epithelium, connective tissue, cartilage, bone, lymphoid tissue.

2. Embryology - a) Ovum, Spermatozoa, fertilization and formation of the Germ layers and their derivations (b) development of skin, Fascia, brood vessels, lymphatic, (c) axial and apendicular skeleton & muscles, (d) Neural tube, brain vessels and spinal cord (e)Development of brain and brain stem structures, Developmental anomalies.

3. Musculoskeletal anatomy - (All the topics to be taught in details)
   a. Anatomical positions of body, axes, planes common anatomical terminologics (groove, tuberosity, trochanters etc)
   b. Connective tissue classification.
   c. Bones - composition & functions, classification & types according to morphology & development
   d. Joints - definition - classification, structure of fibrous, cartilaginous joints, blood supply and nerve supply of joints
4. Regional Anatomy
   a. Skin and its appendages (Brief outline)
   b. Cardiovascular system – Heart ; (Gross Anatomy and Functions) Arteries, Veins,Collateral Circulation
   d. Digestive system (Brief outline of gastrointestinal tract and associated glands).
   e. Excretory system (Brief outline of Kidney, ureters, urinary bladder and urethra in male and female).
   f. Male and Female reproductive system (Brief outline of genital organs).
   g. Endocrine system (Brief outline and classification of glands, sites-and secretion).
   h. Lymphatic system (Brief-outline)
   i. Upper Extremity:
      I. Oestology : clavicles, scapula, Humerus, Radius, Urna, carpars, Metacarpals,
      II. Phalanges
      III. Soft Parts: Breast, pectoral region, axilla, front of arm, back of arm, cubical fossa, vessels and front of the arm, back of forearm, palm, dorsum of hand, muscles, facial nerves, lymphatic drainage of upper extremity
      IV. Joints: shoulder girdle, shoulder joint, elbow joint, radio ulnar joint, wrist joint and joints of the hand
      V. Arches of hand, skin of the palm ad dorsum of hand
   j. Lower Extremity:
      b. Soft parts: Gluteal region, front and back of the thigh, medical side of the thigh, lateral side of the thigh, popliteal fossa, anterior and posterior compartment of leg, sole of the foot, lymphtic drainage of lower limb, venous drainage of the lower limb, arterial supply of the lower limb, arches of foot, skin of foot
k. Trunk:
   Osteology: Cervical, thoracic, lumbar, sacral and coccygeal vertebrae and ribs
   Soft tissue: Pre and Para vertebral muscles, intercostals muscles, anterior abdominal wall muscles, intervertebral disc.
   Joints: Hip joint, knee joint, ankle joint, joints of the foot

l. Head and Neck:
   a. Osteology: Mandible and bones of the skull
   b. Soft parts: Muscles of the face and neck and their nerve and blood supply – extra ocular muscles, salient points about the eye ball and internal ear

5. Neuroanatomy
   a. Organization of Central Nervous system – spinal nerves and autonomic nervous system – mainly pertaining to cardiovascular, respiratory and urogenital systems.
   b. Cranial nerves
   c. Peripheral nervous system
   d. Central Nervous system

b. Practical Exercise

1. Upper extremity including surface anatomy
2. Lower extremity including surface anatomy
3. Head and Spinal cord and neck and brain
4. Thorax including surface anatomy, abdominal muscles joints
5. Histology – elementary tissue including surface anatomy
6. Embryology- models, charts and x-rays
PHY 002 -HUMAN PHYSIOLOGY

1. **Course objectives**
   - To enable student to understand the functions of different systems in the body
   - To understand the physiological changes in all systems of the body
   - To enable them to apply this knowledge for treatment modalities in physiotherapy

2. **Course description**
   - Lecturer should be a qualified medical officer.
   - Methods of instructions are lectures, presentations and demonstrations.

3. **Course Outline**

   **Theory**

   1. **Blood**
      a. Composition and functions of blood, plasma and their formation
      b. Structure and formation of RBC, WBC and platelets
      c. Hemoglobin
      d. Coagulation, bleeding time, clotting time and their defects
      e. Blood groups and their significance
      f. Reticulo-endothelial system

   2. **Digestive system**
      a. Introduction, structure
      b. Composition and function of each
      c. Movements of G.I

   3. **Urinary system**
      a. Introduction and structure and function

   4. **Endocrine**
      a. Secretion, regulation and functions of each gland

   5. **Respiratory**
a. Introduction
b. Mechanism of respiration
c. Functions
d. Transport of respiratory gases
e. Nervous and chemical control of respiration
f. Pulmonary functions test

6. Cardiovascular
   a. Structure and properties of cardiac muscle
   b. Cardiac cycle
   c. Cardiac output
   d. Blood pressure
   e. Regional circulation
   f. Cardio respiratory changes during exercise
g. Normal E.C.G

7. Vision
   a. General outline
   b. Visual perception
   c. Pupillary and conjunctival reflexes
   d. Extra ocular muscles and eye movements
   e. Nutritional deficiency and blindness

8. Audition
   a. General concept
   b. Test for hearing, types of deafness and hearing aids

9. Speech and its disorders
   a. Vestibular apparatus

10. Reproductive system
    a. Changes during puberty: classification of male sex hormones and their functions, spermatogenesis
    b. Changes in puberty, classification and functions of female sex hormones, menstrual cycle, ovulation and contraception
    c. Physiology changes during pregnancy, child birth, functions of placents and physiology of lactation

11. Neuromuscular physiology
    a. Nerve and muscle – structure and function
    b. Central nervous system
    c. Autonomic nervous system

12. Physiology of Exercise
    1. Introduction to Exercise Therapy
2. Effect of exercise on
   a. Oxygen transport
   b. Muscle strength/ power and endurance
   c. Mobility
   d. Neuromuscular system
   e. Body composition
   f. Body temperature and basal metabolic rate
   g. Hormonal system
   h. Body fluid and electrolyte balance
   i. Cardiovascular function
   j. Respiratory function

13. Physiology of Pain and Re-Education

   a. Types of muscle and nerve fibers and their properties and response to various electrical Stimulation

   b. Generation of action potential and its propagation

   c. Neuromuscular function and transmission of impulse

   d. Physiology of pain

   e. Psychosomatic physiology of pain

   f. Physiology of biofeed back

14. Neurophysiology of Movement

   1. Normal human development process
   2. Reflex and reaction maturation
   3. Sensory – motor integration
   4. Rotation
   5. Perception and motor learning
   6. Growth development and maturation
Practical Exercise

1. Hematology
   a. RBC count
   b. WBC count
   c. Differential count
   d. E S R
   e. Bleeding and Clotting time
   f. Estimation of hemoglobin
   g. Blood groups

2. Human physiology
   a. Examination of systems
   b. Demonstrations of Pulmonary Function Tests, Ergography and work done
BIOL 222 – BIOCHEMISTRY

1. Modular objectives:

This session introduces the language of Biochemistry and the structure and function of the most important classes of biological molecules. This aid in nurses to understand the concepts of Nutrition and Pharmacology throughout the course.

2. Course Description

- Allocated total number of hours is 26.
- Lecturer should be a qualified Medical Officer.
- Methods of instruction are lectures and presentations.
- Performances are evaluated by through quizzes and assignments during the sessions.
- Term exam papers include MCQ, structured essays and essay questions.

3. References


4. Course outline

1. Introduction
   - The Cell and the Body
   - Transport mechanisms

2. Nucleic Acids
   - DNA
   - RNA
3. Carbohydrates
- Structure
- Energy production
- Metabolism
  - Anaerobic metabolism of Glucose
  - Aerobic metabolism (Kreb's cycle)
  - HMP pathway
  - Regulation of blood glucose concentration
  - Glycogenesis
  - Glycogenolysis
  - Gluconeogenesis

4. Proteins
- Structure
- Amino Acids
- Plasma Proteins
- Metabolism
  - Synthesis
    - Transmission and expression of genetic information
    - DNA genetic role
    - DNA Structure and replication
    - RNA and transcription
    - Gene-protein relationship
    - Control of Protein Synthesis

5. Lipids
- Structure
- Classification
- Metabolism
  - Fatty acid metabolism
  - Oxidation of fatty acids
  - Biosynthesis of fatty acids
  - Synthesis and degradation of Triglycerides
  - Hormonal influence on the mobilisation of fat in adipose tissue
  - Ketosis
6. Enzymes
- Structure
- Function
- Classification of enzymes
- General mechanisms of enzyme action
- Factors affecting the velocity of enzyme catalysed reaction
- Activators and inactivators of enzymatic reactions
- Application of metabolic antagonism

7. Hemoglobin
- Structure
- Function

8. Homeostasis
- Blood-glucose homeostasis

9. Neurotransmitters
- Structure and function

10. Oxidants and Antioxidants
- Structure and function

11. Liver
- Bilirubin metabolism
- Jaundice

12. Biological oxidations
- Oxidation-reduction chains in nature
- Oxidative Phosphorylation
1. Modular objectives
This session introduces the common medical terms to understand the language of medicine and to improve knowledge by reading new trends in health sector. When dealing with medical instruments and procedures also it gives the confident to the nurse.

2. Course Description

❖ Allocated total number of hours is 24.

❖ Lecturer should be a qualified Nurse.

❖ Methods of instruction are lectures and word games.

❖ Performances are evaluated by through quizzes and assignments during the sessions.

❖ Term exam papers include MCQ and structured essays

3. References


4. Course Outline

1. Building Medical Terms
   • Prefixes
   • Suffixes
   • Roots

2. Directional Terms
   • Anatomical positions
3. **Anatomical Terms**
   - Anatomical structure of Systems

4. **Disease Terms**
   - Main categories of diseases

5. **Pharmacology Terms**
   - Abbreviations
   - Routes of drug administration

6. **Laboratory Test Terms**
   - Common laboratory tests
PSYCH 234 - GENERAL PSYCHOLOGY

4.1 Module objectives

General Psychology utilizes a beginning knowledge in psychology which helps for the nursing functions in the assessment of the client in both hospitals and community settings.

4.2 Course Description

- Allocated total number of hours is 30.
- Lecturer should be a qualified Medical Officer.
- Methods of instruction are lectures and presentations.
- Performances are evaluated through quizzes and assignments during the sessions.
- Term exam papers include MCQ, structured essays and essay questions.

4.3 References


4.4 Course Outline

1. **Introduction to Psychology**
   - Definition of Psychology
   - Early ideas about human behavior
   - What is behavior

2. **Biological bases of behavior**
   - The link between human behavior and biological processes

   Organize an assignment.

3. **Critical thinking**
   - The human Information – Processing system
   - Decision Making
   - Thinking ability
   - Concepts
   - Reasoning and problem solving

4. **Intelligence Tests**
   - Scoring IQ Tests
   - The Stanford-Binet Tests

5. **Emotion**
   - Emotion and the Autonomic Nervous System
   - Consciousness and Autonomic Nervous System
   - Self-observations: James-Lange Theory
   - Functions of Emotional Expressions

6. **Developmental Theories**
   - Piaget’s Period of Cognitive Development
   - Erickson’s Stages of Psychosocial Development
7. Hypnosis
   - Induction of Hypnosis
   - Indication of Hypnosis

8. Psychoactive Drugs
   - Depressants
   - Stimulants
   - Narcotics
   - Psychedelics and Hallucinogens

9. Learning-
   - Classical conditioning- Ivan Pavlov’s Experiment
   - Instrumental/Operant Conditioning-
     Stimuli, Reinforcements, Punishments, Applications
   - Social learning- Vicarious and observational

10. Gender Identity
    - Gender Identification

11. Memory
    - Types of memory
    - Basic memory process
    - Three stages of memory
    - Sensory memory

12. Abnormal Psychology
    - Normal and abnormal behavior
    - Major mental disorders

13. Treatments of Psychological Disorders
    - Types of treatment
    - Indication for treatment
    - Theories that affect treatments
SOCI 122- SOCIOLOGY

1. Objectives:
   - To introduce students to the basic sociology concepts, principle and social process, social institutions, and various social factors affecting the family in rural and urban communities

2. Course description
   - Lecturer should be a graduate in sociology.
   - Methods of instructions are lectures, presentations and demonstrations

3. Course Outline
   - Introduction
     - Definition and scope of sociology
     - Methods of sociological investigations
     - Study with special reference to health care professionals
   - Social factors in health and disease situations
     - Meaning of social factors
     - Role of social factors in health and illness
   - Socialization
     - Meaning and nature of socialization
     - Primary secondary and anticipatory socialization
     - Agencies of socialization
   - Social groups
     - Concept of social groups, influence of formal and informal groups on health and sickness
     - The role of primary and secondary groups in the hospital and rehabilitation
   - Family
     - Meaning, definition, functions and types of family
     - Influence of family on the individuals health, family and nutrition, the effects of sickness in the family and the psychosomatic disease and their importance to physiotherapy
• Community
  o Rural and urban community

• Culture and health
  o Concept of culture and health
  o Culture and health disorders

• Social change
  o Meaning, factors, human adaptation, of social change
  o Social change and stress, deviance, health programs,
  o Social planning in the improvement of health and rehabilitation

• Social problems of disability
  o Consequences of the following social problems in relation to sickness and
    disability remedies to prevent this problems
    ▪ Population explosion
    ▪ Poverty and unemployment
    ▪ Beggary
    ▪ Juvenile delinquency
    ▪ Prostitution
    ▪ Alcoholism
    ▪ Women in employment

• Social security
  o Social security and social legislations in relation to the disabled

• Social worker
  o Meaning of social work
  o The role of a medical social worker

Recommended references

• Sachdeva and Vidyabushan Introduction to sociology
• Indrani T. K. Text book of sociology
PHAR 109 - PHARMACOLOGY

1. Objectives:
   - To improve knowledge of various properties of drugs and their interactions with the living tissues
   - To give an appropriate knowledge regarding the Pharmacodynamic and pharmacokinetic properties of commonly used drugs including their common side effects and possible drug interactions.

2. Course description
   - Lecturer should be a qualified medical officer.
   - Methods of instructions are lectures, presentations and demonstrations

3. Course Outline
   - Terminology
   - Classification of drugs
   - Principles of drug administration
   - Pharmacodynamics and pharmacokinetics
   - Definitions, action, indication, contraindication, adverse reaction of the following
     - Drugs acting on peripheral nervous system
     - Drugs acting on CNS
     - Drugs acting on CVS
     - Drugs acting on RS
     - Antimicrobials
   - Endocrine pharmacology
   - Immunological agents and vaccines

Recommended references
   - Pharmacology by Rang and Dale.
   - Pharmacology by Goodman and Gillman.
PHY 008 – ETHICS & PROFESSIONAL PRACTICE IN PHYSIOTHERAPY

1. History of Physiotherapy
2. Ethical principles in Health Care
3. Ethical Principles Related to physiotherapy
4. Scope of Practice
5. Rules of Professional Conduct
   a. Physiotherapy as a profession
   b. Relationship with patients
   c. Relationship at Health care Institution i.e., Hospitals, clinics etc.
   d. Relationship with Colleagues and peers
   e. Relationship with Medical and other professionals
6. Confidentiality and Responsibility
7. Malpractice and Negligence
8. Provision of Services and Advertising
10. Legal aspects
    a. Legal responsibility of physiotherapists for their action in the professional context and understanding liability and obligations in case of medico legal action
    b. Consumer Protection Act
MICIR 101- MICROBIOLOGY

1. Objectives:

- To enhance basic knowledge of students regarding major classes of microorganisms
- To enable student to identify microorganisms responsible for common infectious diseases and relate effects of anti-microbial used in each infection
- To provide knowledge on immune mechanisms of the body
- To provide knowledge about vaccines, sera and other biological products

2. Course description

- Lecturer should be a qualified microbiologist or Medical Officer
- Methods of instruction are presentations and lectures

3. Course Outline

- Introduction and history of microbiology
- General lectures on microorganisms
  - Classification
  - Shape and arrangement
  - Special characteristics of spores, capsules, enzymes,
  - Motility and reproduction
- Disinfections and antiseptics
- Sterilization and asepsis
- Antibacterial agents
  - fundamental aspects
  - Susceptibility tests
- Infection
  - source
  - entry
  - spread of infections
- Non specific immunity
- Natural and acquired immunity
- Allergy and hypersensitivity
- Outline of common pathogenic bacteria and diseases produced by them
- Respiratory tract infection
  - Streptococci, Pneumococci, diphtherias, Klebsiella, mycobacteria
• Enteric infections
  o Salmonella, sucigella, E. coli, cholerae
• Anaerobic infections
• Meningitis
• UTI
• Leprosy and tuberculosis
• STI including AIDS
• Hospital acquired infections
  o Pseudomonas, staphylococci
• Pathogenic yeasts and fungi
• Virology: hepatitis, poliomyelitis, HIV, rabies
• Universal precaution against HIV

**Modular Practices**

• Staining
• Microscopy
• Sterilization
• Media
• Stool sample
• Applied microbiology with respect to systemic, parasitology, mycology, immunology, hypersensitivity tests

**Recommended references**

• Text book of medical microbiology by Sathish Gupta
• Text book of microbiology by Jayaram Panicker
• Microbiology by Timbury
• Microbiology by Green
BOIL 202 - PATHOLOGY

1. Objectives:
   - To enhance student’s knowledge on general and organic pathological processes in important disease conditions
   - To enable them to apply this knowledge to reverse or impede their progression using therapeutic measures in patient management

2. Course description
   - Lecturer should be a qualified Medical Officer.
   - Methods of instruction are presentations and lectures.

3. Course Outline
   - Theory
   
   A. General pathology
      - Inflammation
         - General aspects and types
      - Tissue repair
         - Wound and fracture healing
      - Cell injury
         - Degeneration
         - Physical and chemical irritants
         - Ionizing radiation
         - Cellulitis
      - Disturbance of circulation
         - Edema
         - Thrombosis
         - Embolism
      - Necrosis and gangrene
      - Growth and it's disorders
         - Atrophy and hypertrophy
      - Cellular ageing
      - Tumors
         - Definition, classification, etiology and spread
      - Infection
      - Acute, chronic including AIDS
      - Blood
• Laboratory investigations
• Hemorrhagic disorders

• Anemia

B. Systemic pathology

• Respiratory system
  • Pneumonia, bronchitis, Bronchiectasis, asthma, emphysema, tuberculosis, carcinomas of lung and occupational lung diseases

• Cardiovascular system
  • Rheumatic heart disease
  • Myocardial infarction
  • Atherosclerosis
  • Congenital heart diseases

• Alimentantary system
  • Peptic ulcer
  • Ulcerative lesions of intestines
  • Liver
  • Hepatitis
  • Cirrhosis

• Central nervous system
  • Meningitis
  • Encephalitis
  • Cerebral hemorrhages
  • Cerebral tumors

• Peripheral nervous system
  • Neuritis
  • Neuralgia
  • Guillen barre syndrome
  • Neuropathy

• Bones and joints
  • Osteomyelitis
  • Osteoarthritis
  • Septic arthritis
  • Gout
  • Osteomalacia
  • Bone tumors
  • Giant cell tumors
  • Osteosarcoma
• Muscles
  o Disorder of muscle including polio myelitis, myopathies, vokman’s ischaemic contractures
• Skin
  o Scleroderma
  o Psoriasis
  o Auto immune disorders
• Urinary system
  o Nephritis
  o Nephritic syndrome
  o Glomerulonephritis
• Endocrine
  o Thyroiditis
  o Thyroid tumours
  o Diabetes

Demonstration of slides

• Anemias
• Leukemia
• Acute and chronic inflammation
• TB of lymph nodes
• Thrombosis and embolism
• Leprosy
• Squamous cell carcinoma
• Osteogenic sarcoma
• Osteoclastoma

Recommended references
• Text book of Robin’s pathology
• Handbook Robin’s pathology
• General and systemic pathology by Church Livingston
**PHY 003 – MEDICAL ELECTRONICS**

1. Objectives
   - To enable student to understand basic aspects of electricity and medical electronics as related to its application in electrotherapy instruments.
   - To give an insight to physical and electro-physical principles that relate to mechanical and electro-physical agents in physiotherapy. Introduction to a selection of such agents, with the opportunity to experience and apply different forms of energies used by physiotherapists.

2. Course description
   - Lecturer should be a graduate in physics.
   - Methods of instructions are lectures, presentations and demonstrations.
   - This course will allow students to develop an understanding of the way in which physical principles underpin many physiotherapy modalities. Students will also be introduced to a range of electro physical agents, with particular emphasis on safety and application techniques.

3. Course Outline

   **Theory**
   - Electrical fundamentals
   - Main power supply
     - Earthing, types of plugs. Switches, safety devices for electric shock
   - AC electricity
     - Sinusoidal wave form
   - DC electricity
     - Modern concepts of electricity
     - Fundamental electric charges
     - Resistances
     - Electric field
     - Capacitor
     - Rheostat
     - Effects of electric current
     - Electric shock
• Therapeutic currents
  o Interrupted galvanic, faradic and surged faradic currents
• Magnetism
  o Magnet and its poles
  o Electromagnetism
  o Transformers
• Thermionic valves
  o Thermionic emission
  o Diode and triode valves
• Semiconductor devices
  o Intrinsic and extrinsic semiconductors
  o Light emitting diodes
  o Advantages and characteristics of diodes
• AC and DC meters
  o Functions and applications of DC current and voltage meter, ohm meter, and multimeter
• Electrotherapeutic modalities
  o Introduction to generation, circuit diagram, testing of apparatus,
    Indications and contraindications of
    ▪ Low frequency currents
    ▪ DC currents
    ▪ Medium frequency currents
    ▪ Short wave diathermy
    ▪ Microwave diathermy
    ▪ Infrared
    ▪ Ultrasonic
    ▪ Ultra violet radiation
    ▪ LASER

  Practical
  • Diode and triode valves
  • Transistor, ammeter, voltmeter, galvanometer, rheostat resistant box, transformer
  • Demonstration of electrotherapy equipments

Recommended references
• Techniques of electrotherapy by Stufford L Osborne
• Fundamentals of physics by Parvati, Sebastian and Anthoney
• Therapeutic electricity by Sydney Litch
• Claytons electrotherapy
• Medical electronics book
PHY 004 - BIOMECHANICS OF HUMAN MOTION

1. Objectives
   ▪ To enable student to understand the biomechanics and their application in physiotherapy in restoration of the physical functions

2. Course description
   ▪ Lecturer should be a graduate in physiotherapy
   ▪ Methods of instruction are lectures, presentations and demonstrations

3. Course outline

A. Mechanics and mechanical principles
   • Definition of mechanics,
   • Force
     ▪ Measurement, classification, action, of forces
     ▪ Forces acting on the human body
     ▪ Concurrent, coplanar, and parallel forces
     ▪ Composition and resolution of forces
   • Momentum, action and reaction, friction, rotation and pivot, angle of pull of muscle
     ▪ Assistance and resistance to movements
   • Gravity
     ▪ Definition, line and centre of gravity
   • Equilibrium
     ▪ Supporting base, stable and unstable equilibrium
   • Energy, work and power
   • Levers
     ▪ Action, position and orders of levers
   • Tools and other mechanical devices
     ▪ Pulleys, system of pulleys, double pulley block
   • Elasticity
     ▪ Definition, stress, strain and Hook’s law
   • Springs
     ▪ Properties of springs
     ▪ Springs in series and parallel
B. Mechanics of peripheral joints
- Mechanics of muscle
- Types of contractions
- Angle of pull
- Actions of muscle

C. Exercise therapeutic modalities
- Introduction
- Mechanics and mechanical principles
  - Mechanical principles applied in physiotherapy
  - Mechanics of position. Line, centre of gravity in human body, base equilibrium fixation and stabilization
  - Mechanics of movement areas and planes, the plane of movement and gravity
- Levers
  - Levers in human body and in physiotherapy
- Pulleys
  - Different types of pulleys and their uses in physiotherapy
- Movement analysis
  - Activities of daily living
- Elasticity
  - Elastic material used in physiotherapy like springs, rubber elastic, and sorobo rubbers
  - Hydrostatics and hydrodynamics principles in hydrotherapy

- Goniometry
  - Joint movements taken from all the joints of the human body by goniometer
- Mechanical principles of equipment in the gymnasium like parallel bars, wall bars, static cycle, and continuous passive motion, shoulder wheel, shoulder ladder, stair case, suspension apparatus, springs, pulleys, tilt bed
- Walking aids and crutches
- Gait and gait parameters
Practicals

- Goniometry
- Equilibrium board
- Shoulder wheel
- Shoulder ladder
- Bicycle ergometer
- Parts of suspension therapy
- Walking aids, crutches and stair case
- Use of parallel bars, CPM, stepper, treadmill, wallbars, tilt beds, springs, pulleys, overhead pulley system
- ADL analysis

Recommended references

- Therapeutic exercise, foundation and techniques by Kisner
- Brunnstrom clinical kinesiology
- Text book Exercise therapy by Deenagardner
- Clinical kinesiology for physical therapist
- Biomechanics by Cynthia Norkin
1. Course objectives

- To orientate the students to the clinical environment with view to organize professional and ethical behavior expected from them
- To give an insight to clinical reasoning and evidence based practice

2. Course description

- Students will develop an ability to integrate the knowledge, physical skills, principles of evidence based practice and clinical reasoning, ethical and professional behaviours that are necessary to function competently as a physiotherapist.
- Students will undergo a physiotherapy professional practice immersion and a range of learning tasks; such as: evidence based practice and clinical reasoning in standardised patients, defining the role of physiotherapy and other health care professionals in the interprofessional health-care team, as well as other physiotherapy practice related activities.
- Professional skills and reflective practice will be facilitated.
- Emphasis will be placed on developing student's knowledge and skills to function autonomously as primary contact health care practitioners in a range of contexts.
PHY006 –EXERCISE THERAPY

1. Objectives:
   - To enable student to comprehend and use the principles and effects of exercise as a therapeutic modality
   - To improve knowledge on techniques for the restoration of physical functions

2. Course description
   - Lecturer should be a qualified lecturer in physiotherapy.
   - Methods of instruction are lectures, presentations and demonstration

3. Course outline

   **Theory**
   - Therapeutic exercise and movement therapy
     - Evaluation methods-Principles - techniques – merits- demerits of following
       - Individual and group muscles
       - Mobility- goniometry and soft tissue tightness
       - Limb girth and length
       - Posture
       - Chest expansion
       - Hand function
   - Massage
     - Principles, techniques, physiological and therapeutic effects, merits, demerits, indications and contraindications of specific manipulations and specific areas of body
   - Relaxation
     - Concepts, principles, indications, and techniques
   - Locomotion
     - Gait
     - Normal Gait analysis
     - Pathological gaits
     - Gait training
     - Training with supportive aids
   - Stair case climbing
   - Transport
   - Walking aids
- Principles, selection, training, crutch walking, cane walking
- Pre-crutch training

- ADL
  - Posture
  - Physiological deviations of posture, corrective exercises, ideal sitting, standing and resting positions, preventive methods
  - Mat exercise
    - Transfer activities
    - Equilibrium
    - Balancing exercises
    - Principles, techniques, selection of mode, indications and contraindications

- Exercise for strength
  - Mobility
  - Flexibility
  - Power skill
  - Endurance
  - Function and specificity
  - Principles, effects, merits and demerits
  - Selection of exercise and techniques
  - Home exercise programmes
  - Objective methods
  - Group exercises

- Therapeutic gymnasium
- Breathing exercises
  - Principles, techniques, effects, merits and demerits
  - Various positions used in therapeutics
  - Exercise for bronchial hygiene, postural drainage, coughing and huffing exercises and home programs

- Aerobic exercises
  - Principles, techniques, effects of exercises and exercise for children

- Hydrotherapy
  - Principles, techniques, effects, indications and contraindications

- Exercise for hand functions
- Proprioceptive neuromuscular facilitation (PNF techniques)
- Co-ordination exercise
- Joint movements
  - Principles of mobilizing the joints
Managing the range of motion
Techniques of mobilization of stiff joints

Suspension therapy
- Principles, types, advantages and disadvantages, indications, and contraindications

Practical
- Demonstration
- Practice of upper limb, lower limb, cervical spine and lumbar spine movements
  - Passive exercise
  - Assisted exercise
  - Active assisted exercise
  - Active exercise
  - Resisted exercise

- Practical in massage
  - Demonstration and practice of all types of massage manipulations as follows
    - Stroking
    - Effleurage
    - Kneading-Circular, finger, thumb and palm kneading
    - Picking up, skin rolling, and clapping
    - Hacking

- Suspension therapy
  - Demonstration and practice of types of suspension therapy

- Demonstration and practice of stretching techniques
- Demonstration and practice of mobilization of all joints of upper and lower limb
- Demonstration and practice of techniques of stretching
- Demonstration and practice of all exercise techniques
- Demonstration and practice of various types of gaits and pre-crutch training
- Demonstration and practice of functional re-education techniques
- Measurement of limb length and girth
- Demonstration and practice of breathing exercises and postural drainage
- Co-ordination exercises

Recommended references
- Principles of exercise therapy by Dena Gardner
- Practicals exercise therapy Hollis Margaret
- Aids to physiotherapy by J. M. Lee
- Therapeutic exercise by Sydney Litch
- Therapeutic exercise by Basmajian
PHY 007 - ELECTROTHERAPY

1. Objectives:
   - To enable student to understand basic aspects of electricity and medical electronics as related to its application in electrotherapy instruments

2. Course description
   - Lecturer should be a qualified lecturer in physiotherapy and physics.
   - Methods of instruction are lectures presentations and demonstrations

3. Course Outline

   **Theory**
   - **Section 1**
     - Low frequency current
     - Types of currents used in therapeutics
     - DC, AC, Didynamic, medium frequency currents
     - Micro current
     - High voltage currents
     - Dipulse
     - Production of electrical impulses
     - Principles of application
       - Electrode tissue interface
       - Types of electrodes
       - Current flow of tissues
       - Arrangement of electrodes
       - Water baths
       - Unipolar and bipolar electrodes
       - Risk factors and precautions
       - Lowering the skin resistance
   - Direct currents
     - Iontophorosis
     - Cathodal and anodal galvanism
     - Electrophoresis
     - Indications and contraindications
   - Low frequency currents - Selection of currents
Nerve muscle physiology
- Resting, action, and propagation of potentials
- Motor unit
- Synapse and synaptic transmission of impulse
- Effects of negative and positive electrodes on nerves
- Accommodation

Faradic current
- Definition, characteristics of modified, faradic, and sinusoidal currents
- Parameters of faradic stimulations
- Indications, contraindications and precautions
- Physiological and therapeutical effects
- Techniques of individual and group muscle stimulation
- Faradic foot bath
- Faradism under pressure
- Pelvic floor muscle re-education

Galvanic current
- Introduction and characteristics
- Parameters of galvanic stimulation, indications, contraindications and precautions
- Physiological and therapeutic effects

Electro diagnosis
- Faradic, galvanic test (FG)
- Strength duration curve (SD)
- Electro magnetic nerve conduction graph (EMG)

Trans cutaneous electrical nerve stimulation (TENS)
- Definitions, pain gate theory, theories of pain modulation, principles and techniques of TENS treatment, indications and contraindications

Section 2
- Medium and high frequency currents and thermo therapy
  - Medium frequency currents
    - Didynamic currents,
    - Russian currents
    - Interferencial currents
    - Biofeedback
    - Safety with electrical currents
  - Electrical changes within the body
• Biofeedback for pain relief

• Thermo and action therapy
  o Electromagnetic radiation
  o Infrared radiation
    ▪ Types, therapeutic selection, indication and contraindications, physiological and therapeutic effects
  o Visible radiations
  o LASER
  o Ultra violet rays
  o Cold and hot packs
  o Contrast bath
  o Wax therapy

• Thermo therapeutic agents derived from high frequency currents
  o Techniques, indications and contraindications, therapeutic and physiological effects of following
  o Short wave diathermy
  o Micro wave diathermy
  o Ultra sound
  o Pulsed electro magnetic energy

Practical
• Demonstration and practice of all the modalities of low, medium and high frequency current as follows
  o Electrical stimulation
  o Diagnostic and therapeutical methods
  o TENS
  o Interferential therapy
  o Infra red rays
  o UV rays
  o Short wave diathermy
  o LASER
  o Cryotherapy
  o Moist heat
  o Ultra sound
  o Paraffin wax

Recommended references
• Techniques of electrotherapy by Stufford L Osborne
• Fundamentals of physics by Parvati, Sebastian and Anthoney
• Therapeutic electricity by Sydney Litch
• Claytons electrotherapy
• Medical electronics book
1. Objectives:
   • To supplement the knowledge of anatomy and enclose the student to have a better understanding of the principles of biomechanics and their application in musculoskeletal function, dysfunction design the manufacture and use of bioengineering appliances.

2. Course description
   ▪ Lecturer should be a qualified person in orthotics and prosthetics.
   ▪ Methods of instruction are lectures, presentations and demonstrations.

3. Course Outline

   Theory
   • Introduction and terminology of orthoses and prostheses.
   • Classification of orthoses and prostheses.
   • Biomechanical principle of orthotics and prosthetic applications.
   • Designing of upper, lower extremity and spinal orthoses and prostheses including indications and check out.
   • Materials used for fabrications.
   • Psychological aspects of orthotics and prosthetic application.
   • Prescription and design of foot ware and modification.
   • Wheel chairs.
   • Design and construction of adaptive devices.

   Practical
   • Students are trained to evaluate plan and check orthoses and prostheses.

Recommended references
   • Biomechanical principles by St Louis.
   • Atlas of limb prosthetic principles by St Louis.
PHY 009 - CLINICAL ORTHOPEADICS

1. Course objectives
   • To orientate student regarding various clinical manifestations in orthopedics and use of physiotherapy in related conditions

3. Course Description

   Theory

   Section 1
   • General orthopedics
     o Clinical examination
     o Common investigations
     o Radiological and imaging techniques
   • Deformities
     o Causes, and principles of management
     o Splinting
     o Traction procedures
     o Preventive orthopedics
     o Geriatric orthopedics
   • Congenital disorders
     o Congenital torticollis
     o Club foot
     o Congenital dislocation of hip
     o Scoliosis
     o Flat foot
   • Rare disorders
   • Congenital constricted bands
     o Congenital limb and bone deficiencies,
     o Uncommon disorders
   • Infection of bones and joints
     o Pyogenic acute and chronic Osteomyelitis
     o Complicated open fractures
     o TB spine, hip and other joints of upper and lower limbs
   • Arthritis
     o Acute pyogenic, septic, chronic, rheumatoid, juvenile and osteoarthritis
• Bone tumors
• Bone metastasis
• Neurological and muscular disorders
  o Anterior poliomyelitis,
  o cerebral palsy,
  o Leprosy
  o Muscular dystrophy
  o Birth injuries

Section 2
• Fracture and dislocation
  o Signs and symptoms, types
• Spinal injury, fractures and deformities
• Injuries of upper and lower limb
• Amputation
• Soft tissue injury

• Principles of operative management
  o Indication, contraindications and principles of following operations
    ▪ Orthoplasty
    ▪ Orthoscopy
    ▪ Orthodesis
    ▪ Osteotomy
    ▪ Spinal stabilization
    ▪ Tendon operation
    ▪ External fixation
    ▪ Total and partial joint replacement
    ▪ Limb re-attachments
• Regional conditions of spine and lower limb
  o Back ache
  o Lumbosacral strain
  o Intervertebral disc prolapse
  o Lumbar canal stenosis
  o Sacro ileac strain
  o lumbar spondylosis, spondylitis, and spondylolisthesis
• Neck
  o Cervical spondylosis, spondylitis, and spondylolisthesis
• Cervical rib
• Torticollis
• Brachialgia

• Shoulder
  • Rotator cuff injury
  • Periarthritis shoulder
  • Tendonitis-bicipital, supraspinatus, infraspinatus

• Elbow
  • Tennis and golfers elbow

• Dequeruain’s contractures

• Hand
  • Trigger thumb and finger
  • Carpel tunnel syndrome
  • Pointing index
  • Dupuyrtrens contracture

• Foot
  • Plantar fascitis
  • Metatarsalgia

Practicals
• Student will be exposed to a variety of clinical cases with case demonstrations and ward rounds

Recommended references
• Textbook of orthopedics and traumatology by Natarajan
• Outline of fractures by Adams
• Outline of orthopedics by Adams
• Apply’s orthopedics
• Text book of orthopedics by Maheshwari
PHY 010 PHYSIOTHERAPY IN ORTHOPAEDICS

1. Fractures
   a. Classification of fractures: Causes and Types
   b. Signs and symptoms of fractures
   c. Complications of fractures
   d. Healing time and factors affecting it
   e. First Aid of fractures
   f. General theory of treatment
      i. Healing Histology
      ii. Methods of immobilization
   g. Physiotherapy during immobilization period
   h. Physiotherapy during mobilization period

2. Specific Fractures and their management
   Upper Limb:
      I. Clavicle Humerus
      II. Supra Condylar
      III. Volkman Ischemic
      IV. Radius and ulna
      V. Colles fracture
      VI. Phalanges fracture
   Lower Limb:
      I. Neck of Femur
      II. Shaft of femur
      III. Tibia and Fibula
      IV. Potts
      V. Meta Tarsal fracture

3. Miscellaneous Ortho Cases
   1. Rheumatoid arthritis
   2. Osteoarthritis
   3. Spondylitis
   4. Spondylosis
   5. Spondylo Listhesis
   6. Herniated disc conservative and surgical treatment
   7. Torticollis
a. Acquired  
b. Congenital  
c. Spasmodic  
d. Treatment for a and b  

8. Soft Tissue injuries  
a. Strains  
b. Sprains  
c. Bursitis  
d. Synovitis  
e. Ruptures  
f. Frozen shoulder  
g. Suedestrophy at the knee, shoulder and ankle  

9. Burns  

10. Examination of shoulder  
11. Sinusitis  
12. Alopecia areata  
13. Acne  
14. Psoriasis  

For each subject the following will be covered:  
a. Etiology  
b. Pathology  
c. History  
d. Outline of medical and surgical treatment  

Physiotherapy aims of treatment and method of treatment during acute, sub acute and chronic stage.  

4. Physiotherapy in Leprosy and Reconstructive Surgery  
   1. Types of Leprosy  
   2. Incidence and Spread of Leprosy  
   3. Pathology and progression of typical cases  
   4. Medical treatment ordinary cases  
   5. Complications of medication (secondary sex changes)  
   6. Surgical management of complications  
   7. Pre and post operative physiotherapy  
   8. Non surgical management of Leprosy – physiotherapy  
   9. Social Implications  
  10. Religious and village beliefs about the Leprosy patients  

PHY 011-GENERAL MEDICINE INCLUDING CARDIAC & CHEST CONDITIONS

1. Objectives:
   - To provide knowledge on important general medical conditions

2. Course description
   - Lecturer should be a physician
   - Methods of instruction are lectures, presentations and demonstrations.

3. Course Outline
   Theory

   A. Medical conditions

   - Infections
   - Poisons and venoms
   - Nutritional deficiencies
   - Metabolic diseases
     - DM – types and management
     - others
   - Endocrine diseases
     - Obesity – related problems, management with diet medication and exercise
     - others
   - Hematological diseases
     - Anemia
     - Hemophilia
   - Diseases of the digestive system in brief
   - Rheumatic conditions
     - Rheumatic fever
     - Rheumatoid arthritis – pathology, classification, clinical manifestations, medical management
     - Polyarthritis
     - Juvenile arthritis
     - Ankylosing spondylitis
     - Psoriatic arthritis
     - Polyarthritis nodosa
     - Scleroderma
o Degenerative conditions – osteoarthritis, pseudo joint, avascular necrosis, Perthes disease
o Disorders of calcium metabolism – symptoms and management of osteomalacia, osteoporosis,

B. Cardio thoracic conditions

o Outline aetiopathogenesis, investigations, diagnosis, differential diagnosis, principles of management and complications of following disorders:

CVS
  ▪ Cardiac failure
  ▪ Rheumatic fever
  ▪ Ischemic heart disease
  ▪ Hypertension
  ▪ Infective endocarditis
  ▪ Congenital heart disease – ASD, VSD, PDA, TOF

Respiratory
  ▪ Chronic bronchitis
  ▪ Emphysema
  ▪ Bronchial asthma
  ▪ Pneumonia
  ▪ TB
  ▪ Lung abscess
  ▪ Bronchiectasis
  ▪ Respiratory failure

o Brief outline of:

CVS
  ▪ Deep vein thrombosis
  ▪ Pulmonary embolism
  ▪ Atherosclerosis
  ▪ Burgers disease
  ▪ Phlebitis
  ▪ Cardiomyopathies
  ▪ Myocarditis
  ▪ Cardiac tumors

RS
- Chest wall deformities and associated conditions
- Occupational lung disease

- Intensive and emergency care
  - Review of anatomy and physiology related to acute care – CVS, RS, NERVOUS SYSTEM, MUSCULOSKELETAL SYSTEM
  - Common emergencies
    - Trauma – Shock, hemorrhage and burns
    - Acute respiratory failure
    - Pulmonary edema
    - Pulmonary embolism
    - Acute respiratory distress syndrome
    - Cardiac failure
    - Myocardial infarction
    - Arrhythmia
    - Unconscious patient- Coma, Cerebral hypoxia, etc
    - Drug overdose, poisoning
    - Tetanus
    - Respiratory paralysis (polio, guillen barre syndrome
    - Renal failure
    - Obstetric emergencies
    - Pediatric emergencies
  - Intensive metabolic emergencies
  - Anesthetics – types, indications, merits, demerits and effects on cardiopulmonary functions
  - Special procedures in intensive care – CPR, airway care, bronchoscopy, thoracocentesis, tracheostomy, intubation, chest tubes, NG tube insertion, skeletal and skin traction
  - Bioelectrical instrumentation and interpretation of – ECG, Cardiopulmonary monitoring, radiological evaluation, fluid and electrolyte balance, hematological studies
  - Therapeutics – mechanical ventilators, medical gas therapy, IPPB
  - Psychological aspects of critical care

- Psychiatric disorders
  - Mental health
  - Psychosis
  - Affective disorder
- Dissociative disorders
- Somatoform disorders
- Treatment of psychiatric disorders

- Pediatric conditions
  - Meningitis and other central nervous system infections
  - Birth trauma
  - Cerebral palsy
  - Learning disorders
  - Mental retardation
  - Problems in emotional development
  - Childhood obesity
  - Downs syndrome
  - Congenital neuromuscular disorders including spinal dysraphism
  - Peripheral neuromuscular disorders — polio, SMA, muscular dystrophy, myopathies
  - Malnutrition and vitamin deficiency
  - Respiratory conditions — asthma, TB, Bronchiectasis, and neuromuscular conditions
  - Acute pediatric respiratory distress syndrome
  - Intensive neonatological and pediatric surgical care
  - Congenital cardiovascular problems
  - Cardio respiratory rehabilitation in children

- Dermatological conditions
  - Leprosy
  - Vasomotor disorders
  - Trophic ulcers
  - Infections — bacterial, fungal, parasitic and viral
  - Skin diseases related to rheumatology
  - Tropical skin diseases and leprosy
Practical

- Student will be exposed to a variety of clinical cases with case demonstrations and ward rounds

Recommended references

- Textbook of general and surgical conditions for physiotherapist by Patricia A Downie
- Davidson’s principles and practice of medicine
- Tidy’s physiotherapy
- Harrisons internal medicine
- Braunwald textbook of cardiology
- Hurst textbook of cardiology
PHY012- GENERAL SURGERY
& CARDIOTHORACIC CONDITIONS

1. Objectives:
   - To provide knowledge on important general surgical conditions by following basic science subjects

2. Course description
   - Lecturer should be a qualified medical officer
   - Methods of instruction are lectures, presentations and demonstrations.

3. Course Outline
   **A. Medicine**
   - Hemorrhage, shock, water and electrolyte balance
   - Burns – classification, early and late complications, management and reconstructive surgery
   - Skin grafts and flaps – classification, criteria for selection, indications for cosmetic surgery
   - Common problems of the ear-otitis media Otosclerosis, functional echonia and deafness
   - Wounds, sinuses and ulcers, incisions, building, and principles of treatment
   - Abdominal surgery – cholecystitis, peptic and duodenal ulcer
   - Management, classification – facial palsy
   - Surgery of genitourinary system – prostatectomy, nephrectomy, rectal prolapse, reconstructive surgery in paralytic conditions
   - Surgical management of Ophthalmological conditions – refractive errors, conjunctivitis, glaucoma, corneal ulcers, iritis, cataract, retinitis, retinal detachment, ptosis, extraocular muscle paralysis
   - Types and management of hernia

   **B. Cardiothoracic surgery**
   - Outline indications, contraindications, site of incision, complications, pre and post operative management of following
     - Valvotomy and valve replacement
     - Open heart surgery, cardiac by pass surgery,
- Surgery on pericardium
- Operation of congenital disorders, heart transplantation, pace maker implantation,
- Coronary angioplasty
- Balloon angioplasty and vascular surgery
- Lobectomy, pneumonectomy, segmentectomy, pleuropneumonectomy, thoracoplasty, decortication, tracheostomy

- Outline clinical features and management of
  - Fractures of the rib, flail chest, stove chest, pneumothorax, lung contusion, laceration and injury to vessels and branches
  - Lung carcinoma

- Describe in detail following procedures
  - Management of endotracheal tubes, tracheal suction, weaning the patient from the ventilator, extubation, post-extubation care

- Describe the principles of cardiopulmonary resuscitation, cardiac massage, artificial respiration, defibrillators and their use

- Brief outline of pharmacology related to cardio respiratory disease
- ICU care

**Practical**
- Student will be exposed to a variety of clinical cases with case demonstrations, presentations, and ward rounds

**Recommended references**
- Kirk Williamson’s general surgical operations
- Surgery by Nan
- Short practice of surgery by Baily and Love
- Chest disease by Corofion and Douglas
PHY13- COMMUNITY PHYSIOTHERAPY

1. Course Objectives:
   - To provide knowledge on epidemiology, health education, communicable disease, health care delivery systems, and national health programs

2. Course Description:
   - Lecturer should be a qualified medical officer
   - Methods of instruction are lectures, presentations and field visits

3. Course Outline
   - General concepts of health and disease – natural history, pre pathology stage, role of social, cultural and environmental factors
   - Epidemiology and scope
   - Public health administration – overall view of the health administration setup, health care delivery programs in urban and rural areas, health and population statistics
   - The national health programmes and the role of social, cultural and environmental factors on them
   - Health problems of vulnerable groups – pregnant and lactating women, infants and preschool children, occupational groups, elderly, people in refuge camps
   - Occupational health – definition, scope, diseases and hazards
   - Social security and other measures for the protection from occupational hazards, accidents, violence, diseases
   - Family planning – objectives of national family planning programs, family planning methods, advantages and disadvantages of each method
   - Mental health – community aspects of mental health, role of physiotherapist in mental health problems e.g. mental retardation
   - Communicable diseases – classification according to mode of transmission, role of vectors
   - International health agencies
   - Principles and process of health communication
   - Concepts of health education, methods, tools, principles, objectives, the role of
different members of the health team and their co-ordination and co-operation

- Planning a health education program

**Recommended references**

- Community medicine by Parker and Parker
PHY 013 - PHYSIOTHERAPY IN NEUROLOGY & NEUROSURGERY

1. Course Objectives:
Following the basic science and clinical science course, this course introduces the student to the neurological conditions which commonly cause disability.

2. Course Description:
- Lecturer should be a qualified physiotherapist
- Methods of instructions are lectures, presentations and demonstrations

3. Course Outline
Both Neurology and Neurosurgery will be covered in this module.

A. Neurology

1. Basic Neurophysiology:
   a. Motor (Pyramidal, Extrapyramidal and cerebellar)
   b. Sensory
   c. Reflexes, Bladder and Bowel control.

2. Principles of clinical Examinations Diagnosis, Differential diagnosis and Management of common Neurological disorders

3. Salient Clinical features and management of common Neurological Disorders
   a. Cerebral palsy with Mental retardation
   b. Cerebro Vascular Accidents (Hemiplegia) monoplegia
   c. Neuro-Infections
      i. Meningitis
      ii. Encephalitis
      iii. Poliomyelitis
      iv. Neurosyphilis
   d. Movement Disorders (Parkinsonism, Dystonia, Chorea and Tremors and Writer’s Cramps). Cerebellar ataxia, Friedreich’s Ataxia etc
   e. Motor Neurone Disease
   f. Dementia
   g. Disease of spinal cord.
      i. Compressive (Spondylotic, Tumors)
II. Non-compressive, paraplegia, quadriplegia

h. Peripheral Neuropathies:
   I. GB Syndrome
   II. Diabetic
   III. Entrapment neuropathies

i. Muscle Disorders:
   I. Dysrrophies
   II. Polymyositis
   III. Myaesthenia Gravies

Neurological disease and Tropical conditions

j. Neurogenic bladder

B. Neurosurgery

A. Neuropysiology

Review in brief the neurophysiological basis of Tone and Disorders of Tone and posture. Bladder control Muscle contradiction, Movement and pain.

I. Congenital and Childhood disorders
   I. Hydrocephalus
   II. Spinabifida

2. Trauma - Broad localization, first Aid and Management of sequelae of Head injury and spinal cord injury

3. Disease of the spinal cord:
   I. Craniovertebral junction anomalies
   II. Syringomyelia
   III. Cervical and lumbar disc disease
   IV. Tumors
   V. Spinal arachnoiditis

4. Peripheral Nerve Disorders:
   I. Peripheral nerve injuries: Localisation and Management
   II. Entrapment neuropathies

5. Intracranial tumors: Broad classification signs and symptoms.
6. Pre-operative assessment and indications and contraindications for Neurosurgery.

7. Management of pain, Electrical Stimulation on brain and spinal cord

8. Neurological conditions


   II. Tumors of neurological system Management

   III. Spinal cord lesion management.

   IV. Paraplegia, hemiplegia, quadriplegia management

   V. Neurogenic bladder - classification - management.

   VI. Paediatric conditions - meningcele, meningomcele, meningomylocele, spinal tumours, Poliomyelitis

   VII. Peripheral nerve lesions, management

   VIII. Surgical Management of brain diseases and Cerebro Vascular Accidents

**Practical**

Clinical assessment of Neurological function to be taught through bedside or demonstration in clinics of the following:

1. Basic history taking to determine whether the brain, spinalcord or peripheral nerve in involved.
2. Assessment of higher mental function such as orientation, Memory, Attention, Speech and language
3. Assessment of Cranial Nerves.
4. Assessment of Motor function.
5. Assessment of sensory Function, Touch, Pain and position
6. Assessment of Tone - Spasticity, Rigidity and Hypotonia
7. Assessment of Cerebral function
8. Assessment of Gait abnormalities
PHY 15 - PEDIATRIC PHYSIOTHERAPY

1. Course Objectives:
This course follows the basic science subjects to provide the knowledge about relevant aspects of Pediatric conditions.

2. Course Description:
   - Lecturer should be a medical officer
   - Methods of instruction are lectures, presentations and demonstrations.

3. Course Outline
   1. CNS Involvement in children -- Tubercular meningitis & other infective conditions.
   2. Birth trauma / intrauterine and early infancy conditions Cerebral palsy-types-methods of evaluation - management.
   3. Learning disorders - perceptual disorders.
   5. Problems in emotional development - nail biting; bed wetting behavioral problems; thumb sucking; aggressive & harmful behavior, relationship of child - parent - teacher.
   6. Childhood obesity and its complications.
   8. Congenital neuromuscular disorders including spinal dysraphism.
   9. Peripheral neuromuscular disorders including polio, spinal muscular atrophies, muscular dystrophies; myopathy
   10. Malnutrition and vitamin deficiency - associated systemic conditions - Rickets, skin conditions; deficiency neuromuscular conditions.
   11. Respiratory conditions; Asthma, T.B Bronchiectesis and neuromuscular conditions.
   13. Intensive neonatological and pediatric surgical care
PHY 16 - PHYSIOTHERAPY IN GYNECOLOGY & OBSTETRICS

1. Course Objectives:
This course will enable students to understand basic aspects of gynecological and obstetrics related medical conditions.

2. Course Description:
- Lecturer should be a qualified lecturer in physiotherapy and medical officer.
- Methods of instruction are lectures presentations and demonstrations

3. Course Outline
   a. Theory
      1. Anatomy and Physiology Revision
      2. Anatomy of Pelvis – bones joints-ligaments, muscle, pelvic organs reproductive organs, Genitalia
      3. Physiology of Reproduction – Lactation
      4. Normal gestation, Labour and puerperium (Growth and viability of fetus and changes in pregnancy)
      6. Complications of Pregnancy – Minor
      7. Complications – major
      9. Gynecological condition for which physio may be used. Disorders of menstrual cycle, displacement of uterus, incontinence, pelvic inflammatory diseases. Pre and post operative care- brief description of most common operations, D and C Hysterectomy.

10. Ante natal;
    a. Psychology- fear, pain tension cycle
    b. Instructions to patients
    c. Relaxation
    d. Breathing Exercises
    e. Labour
    f. Posture

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11. Labour
   Relaxation and breathing exercises related to the THREE Stages.
   Repeat from above.

12. Post Natal; Exercise and advice to the patient

13. Gynecology Operations;
   Caesarean section: Post Operative Care

14. Electrotherapy in O.G: Infra red Faradic and short wave diathermy

   c. **Clinical**
      1. Witness 2-3 births plus labour – preferably own patients:
         a. Pre Natal Class and single –OPD
         b. Series of 4 classes- 1 hour/week – patient must come to class 1
         c. First week of each month: any time after 4th month of pregnancy
         d. After attending series of four classes, may repeat any class
         e. Post operative Caesarean Section and Gynecology conditions.

      2. Pre –natal classes: 1-4 patients on floor
         a. Simple anatomy and physiology – description of onset of
            Labour
         b. Labour and puerperium (Lactation)
         c. Teach breathing exercise and relaxation and exercise posture
         d. Breathing exercises and relaxation and some exercise posture
         e. Breathing exercises, exercises, bearing down, posture and visit
            to ward
PHY021 -CLINICAL ORIENTATION 02

1. Course Description

Students will develop an ability to integrate the knowledge, physical skills, principles of evidence based practice and clinical reasoning, ethical and professional behaviours that are necessary to function competently as a physiotherapist. Students will undergo physiotherapy professional practice immersions and a range of learning tasks; such as: evidence based practice and clinical reasoning in complex cases and chronic disease management, defining the role of physiotherapists and other health care practitioners in the multi professional health-care team, as well as other physiotherapy practice related activities. Professional skills and reflective practice will be facilitated in order to prepare the student for challenges in health care service and delivery. Emphasis will be placed on developing student's knowledge and skills to function autonomously as primary contact health care practitioners in a range of contexts (e.g. hospital, community, ambulatory, and primary health care settings).

2. Course Introduction

This course will further develop physiotherapy competencies in a range of contexts/settings, with students managing clients across the lifespan. This will consist of introductory coursework and two (2) fulltime physiotherapy practice immersions of five (5) weeks duration. Coursework will involve an introduction to the role of other health care professionals with an express aim of inculcating within the student's conceptual framework the holistic management of clients/patients in contemporary health care settings. Reflection will be facilitated by the completion of tasks in the physiotherapy professional practice portfolio which will also be used to record experiences. The course seeks to integrate foundation biomedical and behavioural knowledge, physical and technical skills, and the applied skills of evidence based practice to allow the development of entry-level physiotherapy competency.
HM 101 - HEALTH MANAGEMENT

1. Course objectives

1. To introduce the candidate for basics of management
2. To expose the Candidate to the basics of health and unit management
3. to upgrade the personality of the all personnel in the programme

2. Course Outline

1. Hospital management
   - All about hospitals
   - Problem Solving
   - Quality & exceeding expectations
   - Quality assurance
   - Motivation
   - The process analysis
   - Human Resource Management
   - Performance management
   - Superior Supervision
   - Team Building
   - Leadership
   - Delegation
   - Training & TNA
   - Medical Ethics
   - Risk Management
   - Financial Management
   - Medical regulations
   - Customer care
   - Public relations
   - Supplies management
   - Equipments
   - Service standards
   - Hospital information system
   - Conducting meetings
   - Financial management
2. Personality development
   • Grooming & Deportment
   • Communication
   • Presentation skills
   • Writing skills

Recommended references
   • Principles of hospital administration and planning by B.B. Sakharkar
1. Introduction

2. Role in research Physiotherapy

3. Principles of Conducting Research
   a. Defining a problem
   b. Review of Literature
   c. Formation of Hypothesis
   d. Testing hypothesis
   e. Analysis and Report writing

4. Different methods of research

5. Concepts of measurements
   a. Types of Data
   b. Tabulation of Data
   c. Graphic representation of Data
   d. Measures of central tendency: Mean, Median, Mode and Range
   e. Measures of Dispersion: standard Error and standard Deviation
   f. Sampling and Sampling Techniques.
PHY 023 COMMUNITY BASED REHABILITATION

1. Objectives:
   - To introduce student to the concept of community based rehabilitation, it’s importance and the involved personnel, agencies, and methods
   - To improve awareness of the student regarding the role of the physiotherapist in community based rehabilitation

2. Course description
   - Lecturer should be a qualified medical officer, social worker and physiotherapist
   - Methods of instruction are lectures, presentations, field visits

3. Course Outline
   - Introduction to community base rehabilitation
   - Definitions – impairment, disability, rehabilitation
   - Disability surveys – epidemiological aspects, screening for disabilities and developmental disorders, disability evaluation
   - Disability presentation and rehabilitation
   - Present rehabilitation services
   - Home exercise programs in various physiotherapy conditions and family education programs
   - Screening for pediatric disorders including mental retardation
   - Vocational evaluation and goals for the disabled
   - Contribution of social worker in rehabilitation,
   - Rural rehabilitation incorporated with primary health centers
   - Extension services and mobile units
   - Community awareness and participation in preventive aspects and demands on physiotherapy services

Field visits
   - Visit to different rehabilitation centers
   - Visit to different health institutions
**Recommended references**

- O’ Young physical medicine and rehabilitation secrets
- Amputation and prosthesis:
- Physical diagnostic secrets
PHY023 - CLINICAL ORIENTATION 03

1. Course description

Students will develop an ability to integrate the knowledge, physical skills, principles of evidence-based practice and clinical reasoning, ethical and professional behaviours that are necessary to function competently as a physiotherapist. Students will undergo physiotherapy professional practice immersions and a range of learning tasks; such as: evidence-based practice and clinical reasoning in complex cases and chronic disease management, defining the role of physiotherapists and other health care practitioners in the multiprofessional health-care team, as well as other physiotherapy practice related activities. Professional skills and reflective practice will be facilitated in order to prepare the student for challenges in health care service and delivery. Emphasis will be placed on developing student's knowledge and skills to function autonomously as primary contact health care practitioners in a range of contexts (e.g. hospital, community, ambulatory, and primary health care settings).

2. Course Introduction

This course will further develop physiotherapy competencies in a range of contexts/settings, with students managing clients across the lifespan. This will consist of either 2 fulltime physiotherapy practice immersion, of 5 weeks duration, or 1 fulltime immersion and other coursework. Post-placement activities will involve discussion of a complex case treated by the student and promote reflection on immersion experiences in order to develop reasoning skills required to effectively manage clients across a range of contexts/ settings. Reflection will be facilitated by recording experiences gained during the immersion. The course seeks to integrate foundation biomedical and
behavioural knowledge, physical and technical skills, and the applied skills of evidence based practice to allow the development of entry-level physiotherapy competencies