

**HEMCHANDRYACHARYA NORTH
GUJARAT UNIVERSITY
PATAN**

**Third year
Bachelor of Physiotherapy
Syllabus**

T.Y.B. PHYSIOTHERAPY

SUBJECT	TEACHING HOURS		
	THEORY	PRACTICAL	TOTAL
GENERAL MEDICINE	70	-	70
ENT + OPHTHALMOLOGY	10+5	-	15
RADIOLOGY	20	-	20
PEDIATRICS	20	-	20
DERMATOLOGY	10	-	10
NEUROLOGY	60	-	60
GYNEC & OBS	30	-	30
GENERAL SURGERY	75	-	75
C.T. SURGERY	60	-	60
ORTHO - TRAUMATIC	60	-	60
ORTHO NON-TRAUMATIC	60	-	60
PHYSICAL&FUNCTIONAL DIAGNOSIS	100	100	200
CLINICS	-	-	650
TOTAL HRS			1330

EXAMINATION:

PAPER NO.	SUBJECT	MARKS				TOTAL
		THEORY		PRACTICAL + VIVA		
		EXTERNAL	INTERNAL	EXTERNAL	INTERNAL	
1.	MEDICINE (GEN MED, PEDIATRICS) + DERMATOLOGY	80 (56+24)	20 (14+06)	-	-	100
2.	NEUROLOGY + GYNEC & OBS	80 (56+24)	20 (14+06)	-	-	100
3.	GENERAL SURGERY + CT. SURGERY	80 (40+40)	20 (10+10)	-	-	100
4.	ORTHOPEDECS TRAUMATIC NONTRAUMATIC	80 (40+40)	20 (10+10)	-	-	100
5.	PHYSICAL & FUNCTIONAL DIAGNOSIS	80	20	80 (40 + 40)	20	200

STRUCTURE OF QUESTION PAPERS

Subject: General Surgery + CT surgery, Orthopedics traumatic + nontraumatic and Physical & Functional Diagnosis.

Duration: 3 Hours

SECTION – I (40 Marks)

Q – 1	Full Question		10 Marks
		OR	
Q – 1	Full Question		10 Marks
Q – 2	Write Short Notes (4 out of 5) (5 Marks each)		20 Marks
Q – 3	Write Short Notes (5 out of 6) (2 Marks each)		10 Marks

SECTION – II (40 Marks)

Q – 4	Full Question		10 Marks
		OR	
Q – 4	Full Question		10 Marks
Q – 5	Write Short Notes (4 out of 5) (5 Marks each)		20 Marks
Q – 6	Write Short Notes (5 out of 6) (2 Marks each)		10 Marks

Subject: Medicine + dermatology, Neurology + gynecology & obstetrics

Duration: 3 Hours

SECTION – I (56 Marks)

Q-1	Full Question		12 Marks
		OR	
Q-1	Full Question		12 Marks
Q-2	Full Question		12 Marks
		OR	
Q-2	Full Question		12 Marks
Q-3	Write short notes on: (5 out of 6) (4 Marks each)		20 Marks
Q-4	Write short notes on: (6 out of 7) (2 Marks each)		12 Marks

SECTION – II (24 Marks)

Q-5	Full Question		10 Marks
		OR	
Q-5	Full Question		10 Marks
Q-6	Write short notes on: (2 out of 3) (4 Marks each)		08 Marks
Q-7	Write short notes on: (3 out of 4) (2 Marks each)		06 Marks

MEDICINE

OBJECTIVES:

At the end of the course the candidate will be able to

1. Describe the etiology, patho-physiology, signs and symptoms and management in brief about the the various Endocrinal, Metabolic, Geriatric & Nutrition Deficiency conditions rheumatological conditions, diseases of GIT and urinary tract, drug abuse-intoxication.
2. Describe the etiology, patho-physiology, signs and symptoms, clinical evaluation and management of the various cardiovascular and respiratory conditions
3. Acquire skill of clinical examination of Pulmonary, Cardiovascular conditions with interpretation of chest X-ray, blood gas analysis, PFT findings, Blood studies done for Rheumatological conditions
4. Describe the principles of management at the medical ICU
5. Be able to acquire the skills of Basic Life Support.

DETAILED SYLLABUS:

1. **Endocrinal and metabolic Disorders:**
Thyrotoxicosis, Myxoedema, Cushing's syndrome, Obesity, Diabetes Mellitus
2. **Deficiency Diseases:**
Kwashiorkor, Marasmus, Rickets, Scurvy, Osteomalacia, Osteoporosis, Anemia
3. **Infectious Diseases:**
Tuberculosis, Malaria, Typhoid, Viral Hepatitis, Tetanus, HIV
4. **GI Disorders:**
Peptic Ulcers, Pancreatitis, Diarrhea, Inflammatory Bowel Diseases, Jaundice, Cirrhosis of liver
5. **Rheumatological conditions:**
Rheumatoid Arthritis, Ankylosing Spondylitis, Gout, Osteoarthritis, Polyarteritis Nodosa
6. **Geriatrics:**
Biology of ageing, physiological changes due to ageing, common problems in geriatric like delirium, dizziness
7. **Drug Abuse, Alcohol, smoking, cocaine dependence, Toxic gases & Asphyxia, toxicity and poisoning**
8. **Kidney and urinary tract disease:**
Structure and function of kidneys including physiology of micturition, urinary incontinence, Acute and chronic renal failure, Glomerular Nephritis, urinary tract infection
9. **Cardiovascular System:**
 - a. Clinical Examination of the Cardiovascular System
 - b. Investigations : Basics of E.C.G. [Normal & Abnormal (Ischaemia, Infarction & Arrhythmias)], Observation of conduction of stress test on patient, 2D Echo (Ejection Fraction & Wall motion Abnormality)
 - c. Clinical manifestations of Cardiovascular disease

- d. Definition, Etiology, Clinical features, signs and symptoms, complications and brief management of following diseases and disorders of the heart :
 - i. Cardiac Failure
 - ii. Valvular heart diseases
 - iii. Congenital Heart Diseases
 - iv. Ischemic Heart Disease
 - v. Hypertension
 - vi. Vascular Diseases – Atherosclerosis, Raynaud’s Disease, TAO, and brief description of DVT, Pulmonary Embolism and Aneurysm
 - vii. Infective Endocarditis, Cardiomyopathies, Myocarditis

10. Respiratory System:

- a. Clinical examination of the respiratory system
- b. Investigation- X ray chest, Arterial Blood gas analysis, P.F.T.
- c. Clinical manifestations of respiratory disorders
- d. Definition, Etiology, Clinical features, signs and symptoms, complications, and management of following lung diseases :
 - i. Chronic Bronchitis and Emphysema
 - ii. Bronchial Asthma, cystic fibrosis
 - iii. Pneumonia Tuberculosis
 - iv. Lung Abscess and Bronchiectasis
 - v. Pleural Disorders – Pleural effusion, Empyema, Pneumothorax, Hydropeumothorax
 - vi. Occupational Lung Diseases
 - vii. Lung tumor

11. Intensive and Emergency Care:

- a. Intensive Care Unit- Infrastructure, Instrumentation, Mechanical Ventilation (settings & monitoring)
- b. Brief description of special procedures in ICU: Airway care bronchoscopy, Thoracocentesis, tracheostomy, intubation, chest tubes (nasogastric tubes and tracheal intubation),
- c. Basic Life Support :Introduction & Demonstration

TEXT BOOKS:

1. Principles and practice of medicine by – Davidson, 22th Edition, Churchill Livingston Publication.
2. Medicine for students Golwalla’s , 24th edition, National
3. Textbook of medicine by Hussain & Gupta, 3rd Edition, AITBS Publication.

REFERENCE BOOKS:

1. Harrison’s Internal Medicine.
2. Practical medicine by – P J Mehta, 20th Edition.
3. Medicine prep manual for undergraduates: K. George Mathew, Elsevier

E.N.T.:

(NOT FOR UNIVERSITY EXAMINATION)

At the end of syllabus students will able to

1. Describe anatomy and physiology of ear and hearing
2. Describe etiology, clinical features and management of ENT conditions
3. Describe ENT surgery, postoperative complication and management

DETAILED SYLLABUS:

1. Anatomy and physiology of hearing and the use of audiometry in assessment of hearing-outline only
2. General introduction to diseases of E.N.T., emphasis on otitis media, Bell's palsy, sinusitis and rhinitis
3. Mastoid surgery
4. Larynx and associated function paralysis with tracheostomy and care of tracheostomy
5. Causes of hearing loss, conservative and surgical intervention including types and availability of hearing aids

OPHTHALMOLOGY:

(NOT FOR UNIVERSITY EXAMINATION)

At the end of syllabus students will able to

1. Describe etiology, clinical features and management of ophthalmic conditions

DETAILED SYLLABUS:

1. Common eye disease including Refractory errors, conjunctivitis and trachoma, Cataract and Glaucoma, Squint and Ptosis
2. Eye Lesions in leprosy, including causes, treatment and complications of lagophthalmos
3. Causes, clinical features and treatment of disorders of ocular movement occurring in diseases such as myasthenia gravis, progressive supranuclear palsy and LMN Diseases
4. Causes, clinical features and treatment and prognosis of inflammatory diseases, vit-A deficiency, emphasis on preventable causes and prophylactic measures
5. Definition of blindness and visual disability evaluation
6. Investigative procedures used for testing visual failures

RADIOLOGY:

(NOT FOR UNIVERSITY EXAMINATION)

OBJECTIVES:

At the end of syllabus students will able to,

1. To become aware of and understand the nature of all currently available imaging procedures.
2. To begin to realize how inculcation of clinical facts can lead to more efficient and directed imaging studies.
3. To train the student in the basic skills of Radiology interpretation of plain radiographs as well as of Cross Sectional imaging studies, such as CT, MR and Ultrasound.

DETAILED SYLLABUS:

1. Introduction
2. X-rays
3. C.T. scan
4. M.R.I
5. angiography
6. USG

PAEDIATRICS

OBJECTIVES:

At the end of the course, the candidate will be able to

1. Describe normal development & growth of a child, importance of Immunization, breast-feeding & psychological aspect of development.
2. Be able to describe an etiology, Pathophysiology, signs & Symptoms & Management of the various Pediatric conditions.
3. Be able to describe neuromuscular, musculoskeletal, cardio-vascular & respiratory conditions related to immunological conditions, nutritional deficiencies, infectious diseases, & genetically transmitted conditions.
4. Acquire knowledge of various drugs used for each medical condition to understand its effects and its use during therapy.

DETAILED SYLLBUS:

1. Growth and Development:

Normal growth and development of a child from birth to 12 years, including physical, social, adaptive development

2. Community program:

- a. International (WHO), national and local for prevention of poliomyelitis, deafness, blindness, mental retardation and hypothyroidism,
- b. Prevention of Neonatal and postnatal infections, metabolic problems
- c. Immunization schedule for children and Significances of breast feeding

3. Normal diet of new born and child:

List dietary, calorie, fat, protein, mineral and vitamin requirement in a normal child and a child with malnutrition, etiology, finding and treatment of Rickets, Vit-D deficiency and resistant Rickets

4. Definition, Etiology, Clinical features, signs and symptoms, complications, examination and brief management of following diseases:

- a. Cerebral Palsy
- b. Mental retardation
- c. Blindness, hearing and Speech impairment, squint and convulsions
- d. Muscular Dystrophy
- e. Spina Bifida, Meningomyelocele, hydrocephalus, microcephaly
- f. Arnold-chiari malformation, Basilar impression, Klippel-Feil syndrome, Achondroplasia, Cerebral malformations,
- g. Acute (bacterial and viral) CNS Infections
- h. Autism, Dandy walker syndrome and Down's syndrome
- i. Still's Disease
- j. Juvenile RA & other Immunological conditions of Musculoskeletal system.

TEXT BOOKS:

1. Essentials of Paediatrics – O.P. Ghai-Inter Print publications
2. Clinical Paediatrics - Meherban Singh
3. D.K. Series in Paeds.

DERMATOLOGY:

OBJECTIVES:

At the end of the course the student will be able to

1. Describe the Pathophysiology, Signs & Symptoms, Clinical Features, Examination & Management of Common Skin Conditions like Leprosy, Psoriasis, Bacterial & Fungal Infections of the skin, connective tissue disorder, hand eczema, drug reaction, cutaneous manifestation of HIV, & Sexually Transmitted Diseases

DETAILED SYLLABUS:

1. Structure and function of normal skin, primary and secondary skin lesions
2. Scabies and Pediculosis, Fungal infections of skin:
 - a. Dermatophytosis
 - b. Pitriasis
 - c. Versicolor
 - d. Candidiasis
3. Bacterial infections of skin: Impetigo/boil Viral Infections of skin: Herpes Zoster
4. Eczema/ Dermatitis/ Allergies
5. Psoriasis/ Acne/ Alopecia/ Vitiligo and Leukoderma
6. Leprosy/ Lepra reactions
7. Skin Diseases related to Rheumatology and Tropical skin diseases, SLE and scleroderma
8. Sexually Transmitted Diseases:
 - a. Syphilis: Primary and Secondary
 - b. Gonnorrhoea
 - c. Chancroid
 - d. AIDS/HIV

TEXT BOOK:

1. Textbook of dermatology – Dr. Khopkar

NEUROLOGY

OBJECTIVES:

At the end of the course the candidate will be able to describe

1. The etiology, pathophysiology, signs and symptoms and management in brief about the neurological conditions with special emphasis on movement, pain and ADLs.
2. The etiology, pathophysiology, signs and symptoms, clinical evaluation and management of the various neurological conditions with interpretation of hematological investigations, chest X-ray, C.T. and MRI scans done for neurological conditions with NCV/EMG findings.

DETAILED SYLLABUS:

1. Basis Neuroanatomy Neurophysiology:
 - a. Basic anatomy of brain and spinal cord, Blood supply of brain and spinal cord, Anatomy of the visual pathway, Connections of the cerebellum and extra pyramidal system, Relationship of spinal nerve to the spinal cord segments, Tract of the spinal cord, Brachial, lumbar and sacral plexuses, Cranial nerves.
 - b. Neurophysiologic basis of tone, disorder of tone, posture, bladder control, muscle contraction, movement, and pain.
2. Principles of clinical examinations, diagnosis, differential diagnosis and management of common neurological disorders
3. classification, clinical features, investigations, management of following neurological conditions:
 - a. Deafness, vertigo, and imbalance: disorders of hearing, tests of vestibular function, vertigo, peripheral vestibular disorders, central vestibular vertigo.
 - b. Lower cranial nerve paralysis: lesions in trigeminal nerve, trigeminal neuralgia, trigeminal sensory neuropathy, lesions in facial nerve, facial palsy, bell's palsy, hemi facial spasm, Glossopharyngeal neuralgia, lesions of Vagus nerve, lesions of spinal accessory nerve, lesions of hypoglossal nerve.
 - c. Cerebro-vascular diseases: Define stroke, TIA, RIA, stroke in evolution, multi infarct dementia and Lacunar infarct. Classification of stroke – Ischemic, hemorrhagic, venous infarcts.
 - d. Head injury
 - e. Higher cortical, neuro psychological and neurobehavioral disorders: Causes of blackouts, Epilepsy,
 - f. Dyssomnias, Parasomnias, Dementia, Obsessive-compulsive disorders, Alzheimer's disease, sleep disorders
 - g. Coma, Brain death.
 - h. Perceptual disorders and Speech disorders.
 - i. Movement disorders: Parkinson's disease, Dystonia, Chorea, Ballism, Athedosis, Tics, Myoclonus and Wilson's disease
 - j. Cerebellar and coordination disorders: Congenital ataxia, Friedreich's ataxia, Ataxia telangiectasia, Metabolic ataxia, Hereditary cerebellar ataxia, Tabes dorsalis and Syphilis.

- k. Spinal cord disorders: Spinal cord injury, Spinal epidural abscess, Transverse myelitis, Viral myelitis, Syringomyelia, Spina bifida, Sub acute combined degeneration of the cord, Hereditary spastic paraplegia, Radiation myelopathy, Progressive encephalomyelitis, Conus medullaris syndrome, Bladder & bowel dysfunction, and Sarcoidosis.
- l. Brain tumors, spinal tumors and Nerve tumors
- m. Infections of brain and spinal cord: Meningitis, Encephalitis, Poliomyelitis and Postpolio syndrome, Septic encephalopathy, Brucellosis
- n. Motor neuron diseases: - Amyotrophic lateral sclerosis, Spinal muscular atrophy, Hereditary bulbar palsy, Neuromyotonia and Post-irradiation lumbosacral polyradiculopathy
- o. Multiple sclerosis
- p. Disorders of neuromuscular junction: Myasthenia gravis, Eaton-Lambert syndrome, and Botulism.
- q. Muscle diseases: Muscular dystrophy, Myotonic dystrophy, myopathy, Non-dystrophic myotonia
- r. Polyneuropathy – Classification of Polyneuropathies, Hereditary motor sensory neuropathy, Hereditary sensory and Autonomic neuropathies, Amyloid neuropathy, Acute idiopathic Polyneuropathies. Guillain-Barre syndrome, Chronic Idiopathic Polyneuropathies, diagnosis of polyneuropathy, nerve biopsy

TEXTBOOKS:

1. Clinical neurophysiology – Mishra-3rd Edition
2. Davidson’s principles and practice of Medicine-22nd Edition
3. Golwala’s Medicine- Golwala-24th Edition
4. P.J Mehta’s Practical Medicine-20th Edition
5. Essential orthopaedic and Trauma- David J Dandy -4th Edition
6. Medicine: Prep Manual for under graduates- K. George Mathews

OBSTETRICS AND GYNAECOLOGY:

OBJECTIVES:

At the end of the course the candidate will be able to:

1. Describe the normal and abnormal physiological events during the puberty, labor, puerperium, post – natal stage and menopause.
2. Discuss the various complications during pregnancy, labour, puerperium and post – natal stage, pre and post-menopausal stage and various aspects of urogenital dysfunction and their management in brief.
3. Acquire the skill of clinical examination of pregnant woman

DETAILED SYLLABUS:

1. **Basic anatomy and physiology of the female reproductive system:**
 - a. Anatomy and physiology of the female reproductive organs
 - b. Puberty dynamics
 - c. Physiology of menstrual cycle – ovulation cycle, uterine cycle, cervical cycle, duration, amount
 - d. Hormonal regulation of menstruation
2. **Pregnancy:**
 - a. Fertilization, Development of Fetus
 - b. Diagnosis of pregnancy
 - c. Abortion
 - d. Physiological changes during pregnancy
 - e. High risk pregnancy
 - f. Prenatal common complications like pregnancy induced hypertension, Eclampsia, Diabetes, Hepatitis, German Measles, TORCH Infection – investigation and management
 - g. Musculoskeletal disorders during pregnancy
 - h. Importance of antenatal care exercise
 - i. Multiple child birth
3. **Labour:**
 - a. Normal Labour - Complication and its Management.
 - b. Caesarian Section.
 - c. Child birth complications, investigation and management
4. **Post-natal conditions:**
 - a. Normal puerperium
 - b. Lactation
 - c. Importance of post natal exercises
5. **Family planning:**
 - a. Methods of Family planning.
 - b. Medical termination of pregnancy
6. **Menopause:**

Menopause: Its effect on emotions and musculoskeletal system
7. **Gynaecological disorders:**
 - a. Infection of female genital tract including sexually transmitted diseases
 - b. Pelvic Inflammatory disease

8. **Urogenital Dysfunction in Pre and post natal condition**
9. **Prolapse- Uterus and vagina**
10. **Sterility:**
 - a. Pathophysiology
 - b. Investigations
 - c. Management
11. **Carcinoma of female reproductive organs – surgical management in brief**
12. **Principles of common gynecological operations**
 - a. Hysterectomy
 - b. D&C and D&E
 - c. Pap smear

TEXTBOOKS:

1. Text book of Gynaecology – Datta
2. Text book of Obstetrics --Datta

GENERAL SURGERY

OBJECTIVES:

At the end of the course the candidate will be able to

1. Describe the effects of surgical trauma and anesthesia
2. Classify, clinically evaluate & describe the surgical management in brief in Wounds & Ulcers, Burns, Head Injury
3. Describe preoperative evaluation, surgical indications, surgical approaches & post-operative management in various abdominal conditions /ENT conditions / Plastic Surgery conditions
4. Recall the surgical approaches in the form of lined diagram and will be able to describe the components of soft tissues, cut to reach the target tissue and the possible post-operative complication in movement.
5. Describe the management of head injury, spinal surgeries, intracranial tumors, PNI and pain

DETAILED SYLLABUS:

1. General Surgery:

- a. Anaesthesia types, Effect, indications and contraindications and common postoperative complications
- b. Water & Electrolyte imbalance, Haemorrhage and Shock, classification, description and treatment, Inflammation – acute & chronic-signs, symptoms, complications & management, Cellulitis-sites, lymphangitis, abscess, carbuncle, keloid, hospital infection, cross infection with modes of spread and prevention
- c. Wound:
 - i. General survey of trauma, pathology, clinical features of wound, wound repair-primary, secondary and tertiary wound repair, Clean and contaminated wounds and infectious wound, principles of treatment, survey of factors affecting wound healing
 - ii. Ulcers and gangrene
- d. Malignancy – spread and its behavior
- e. Breast surgery
- f. Abdominal surgeries:
 - i. Various abdominal incisions;
 - ii. Overview of abdominal drainage tubes, catheters and nasogastric tubes;
 - iii. Surgeries: appendisectomy, cholecystectomy, partial colostomy, ileostomy, hernia, prostratomy, nephrectomy;
 - iv. Post-operative complications of abdominal surgery (specifically chest, wound infection & edema)
 - v. Common diseases of Esophagus and related conditions causing dysphagia
 - vi. Surgery of portal hypertension

2. Plastic Surgery:

- a. Burns:
 - i. Definition, classification, early and late complications, Prevention, management and reconstructive surgery – skin as an example of plastic procedure, cosmetic surgery
- b. Skin Grafting:
 - i. Types of skin grafting – methods of skin grafting – healing of a graft, post-operative care of plastic surgery with specific role of physiotherapy.
 - ii. Flaps – Types and uses of Flaps.
- c. Tendon transfer:
 - i. Principles of cineplasty, tendon transplant, types of graft, surgery of hands with emphasis on a management of traumatic and leprosy hand

3. Neuro Surgery:

- a. Outline of surgical disorders of brain – head injuries
- b. Trauma – broad localization, First aid and management of sequelae of head injury and spinal cord injury
- c. Preoperative assessment , indications and contraindications Complications of following Neuro surgeries: Craniotomy, Cranioplasty, Stereotactic surgery, Deep brain stimulation, Burr-hole, Shunting, Laminectomy, Hemilaminectomy, Rhizotomy, Microvascular decompression surgery, Endarterectomy, Embolization, Pituitary surgery, Ablative surgery - Thalamotomy and Pallidotomy, Coiling of aneurysm, Clipping of aneurysm, and Neural implantation

TEXTBOOKS:

- 1. Textbook of surgery S.Das
- 2. Bailey & love's Short Practice of Surgery
- 3. Cash's textbook of general medical and surgical conditions for physiotherapists. 2nd edition by Patricia A. Downie

REFERANCE BOOKS:

- 1. Clinical manual of Surgery S.Das
- 2. Clinical manual of Surgery S. Devaji Rao

CARDIOTHORACIC SURGERY:

OBJECTIVES:

At the end of the course the candidate will be able to

1. Describe the types of incisions, pre and post-operative assessment, management and complications of cardiothoracic surgery
2. Clinically evaluate post-operative cardiovascular and pulmonary functional status
3. Read and interpret investigations including findings of X-ray, C.T. and M.R.I.
4. Describe preoperative evaluation, surgical indications, various surgical approaches & post-operative management in thoracic and peripheral vascular conditions

DETAILED SYLLABUS:

1. Basic anatomy of chest wall, trachea and bronchial tree, lungs and Broncho-pulmonary segments, pleura and mediastinum
2. Physiology and mechanics of breathing, use of mechanical breathing – ventilators in brief
3. Chest injury: Causes, clinical presentation, Diagnosis and treatment
4. Investigation of lung diseases including endoscopies
5. Diseases of the lung:
 - a. Common diseases of the lungs: Bronchiectasis and Lung abscess
 - b. Bronchogenic Carcinoma
 - c. Surgery of pulmonary T.B.
6. Common surgeries of Lungs: Thoracotomy, Pneumonectomy, Lobectomy, segmentectomy, Thoracoplasty, Pleurectomy, Pleurodesis and Decortication of the Lung.
7. Basic anatomy of heart and great vessels, Surgery of heart and great vessels
8. Investigation of patients undergoing cardiac surgery
9. Types of cardiac surgery- extra cardiac, close heart and open heart surgery (heart lung by-pass in brief)
10. Common diseases of heart requiring surgery - both congenital and acquired heart diseases
11. Common drugs used in cardiac surgery its uses and side effects
12. Common vascular surgeries – Embolectomy, vascular deconstructive surgery, (thrombosis, embolism, atherosclerotic and occlusive vascular diseases) including coronary artery by-pass

TEXTBOOKS:

1. Textbook of surgery S.Das
2. Bailey & love's Short Practice of Surgery
3. Cash's textbook of chest, heart and vascular disorders for physiotherapists. 4nd edition by Patricia A. Downie

REFERENCE BOOKS:

1. Clinical manual of Surgery S.Das
2. Clinical manual of Surgery S. Devaji Rao

ORTHOPEDICS

OBJECTIVES:

At the end of the course the candidate will be able to

1. Discuss the pathophysiology, clinical manifestations and conservative/ surgical management of various traumatic and non-traumatic and old cases of musculoskeletal conditions
2. Gain the skill of clinical examination and interpretation of the preoperative old cases and all the postoperative cases.
3. Read and interpret: Salient features of the x-ray of the spine and extremities. Pathological / biochemical studies pertaining to orthopedic conditions
4. Correlate the radiological findings with clinical findings

DETAILED SYLLABUS:

1. **General Orthopedics –**
 - a. Introduction to orthopedics, Assessment
 - b. Clinical examination in an orthopedic patient, investigations, radiological and imaging techniques
 - c. Inflammation and repair, Soft tissue and bone healing.
 - d. Traction procedures – materials

TRAUMATOLOGY

1. **Sprains, fractures and dislocations**
Causes, Types, Mechanisms and displacements, General symptoms, Principles of management - Conservative and surgical approaches. Reduction (open/closed, immobilization etc). Complications - malunion, delayed union, nonunion, myositis ossificans, VIC, fat embolism, Sudeck's osteodystrophy, compartment syndrome.
2. **Injuries to the hand:** Types (open, closed), Principles of treatment, Injuries to the phalanges, Sprains, dislocations of MP and IP joints, Fractures of the phalanges, MCPs, Bennett's fracture, Mallet finger, tendon injuries (flexors and extensors)
3. **Wrist and forearm injuries:** Wrist dislocation, Colles' fracture, displaced epiphysis, Smith fracture, Barton fracture, Injuries to carpal, scaphoid and sprains, Fracture of forearm bones-Greenstick fracture, infraction injury, both radius and ulna bone fracture, Gallaezi, Monteggia fracture
4. **Injuries to the elbow:** Traumatic synovitis, sprain, Posterior dislocation of elbow – mechanism of injury, clinical features, complications & management, Supracondylar fracture, intercondylar fracture, fracture of medial epicondyle and lateral epicondyle, fracture of head of radius and olecranon, coronoid, Side swipe injury of elbow

5. **Injuries of shoulder and arm:** Fracture of proximal end - greater tuberosity and neck of humerus, shaft of humerus, Fractures of clavicle and scapula, Acromioclavicular and sternoclavicular dislocations, Anterior dislocation of shoulder – mechanism of injury, clinical feature, complications, conservative management (Kocher’s and Hippocrates maneuver), surgical management (putti plat, bankart’s) etc., Recurrent dislocation of shoulder. Posterior dislocation of shoulder – mechanism of injury, clinical features and management.
6. **Injuries of spine and pelvis:** Injuries to the cervical spine (upper and lower), atlantoaxial injuries - Fracture odontoid, Fracture of atlas, Hangman’s fracture, Clay shoveler’s fracture. Dorsolumbar spine: classification, mechanism and types of injuries, stable fracture without paraplegia, fracture dislocation with paraplegia; management of fracture and paraplegia, bedsores, bladder and bowel Pelvic injuries: fractures, its mechanism, classification and management; fractures of acetabulum, sacrum and coccyx. Fracture of Rib Cage - Mechanism of injury, clinical features, management for Fracture Ribs, Fracture of sternum. Management- immobilization (collar, cast, brace, traction); Management for stabilization, management of complication (bladder and bowel, quadriplegia).
7. **Injuries of the lower limb:** Dislocations of hip joint- Anterior dislocation of hip. Posterior dislocation of hip. Central dislocation of hip. Dislocation of patella. Recurrent dislocation of patella. Intracapsular and trochanteric fractures of femur, fractures of the neck of femur, shaft of femur and fracture femur in children, supracondylar fractures. Fracture of femoral and tibial condyles and patella, injuries to extensor mechanism, contusion, Hemarthrosis, knee joint dislocation and traumatic dislocation of patella . Fracture of both bones-tibia and fibula. Fracture and fracture dislocation of ankle, epiphyseal injury, lower end of tibia
8. **Foot:** Fracture of talus, calcaneum, MTs - stress fractures jone’s fracture and phalanges, Dupuytren’s fracture Maisonneuve’s fracture. Pott’s fracture, Bimalleolar fracture and Trimalleolar fracture
9. **Soft tissue injuries:** Define terms such as sprains, strains, contusion, tendinitis, rupture, tenosynovitis, tendinosis, bursitis. Mechanism of injury of each, clinical features, managements- conservative and surgical of the following soft tissue injuries: Meniscal injuries of knee. Cruciate injuries of knee. Medial and lateral collateral injuries of knee. Lateral ligament of ankle. Wrist sprains. Strains- quadriceps, hamstrings, calf, biceps, triceps etc. Contusions- quadriceps, gluteal, calf, deltoid etc. Tendon ruptures-Achilles, rotator cuff muscles, biceps, pectorals etc.
10. **Hand Injuries:** Mechanism of injury, clinical features, and management of the Crush injuries

11. **Amputations:** Types, ideal stump, complications, general principles of treatment, Upper and lower extremity amputations, Prosthesis
12. **Orthopedic splints** and appliances for injuries to muscles and tendons
13. **Orthopedic Surgeries:** Principles of operative management and indications and contraindications for Arthroplasty - total and partial joint replacements, Osteotomy, Arthrodesis, Spinal stabilization surgeries (Harrington's, Luque's, Steffi plating) etc, Tendon operations, Arthroscopy, Limb reattachments, Internal and external fixation

NON-TRAUMATOLOGY

1. **Congenital disorders:**
SCM tumor, congenital wry neck, spina bifida, meningomyelocele, congenital genu recurvatum.
2. **Deformities:** Clinical features, complications, medical and surgical management of the following Congenital and Acquired deformities:
 - a. Congenital Deformities –
 - i. CTEV, CDH, Torticollis, Scoliosis – primary and secondary, Flat foot, Vertical talus, Sprengel's shoulder, Madelung's deformity
 - ii. Hand anomalies- syndactyly, polydactyly and ectrodactyly. Arthrogryposis multiplex congenita (amyoplasia congenita).
 - iii. Limb deficiencies- Amelia and Phocomelia. Klippel feil syndrome. Osteogenesis imperfecta (fragile ossium).
 - iv. Cervical rib.
 - b. Acquired Deformities –
Acquired Torticollis, Scoliosis, Kyphosis, Lordosis, Genu varum, Genu valgum, Genu recurvatum, Coxa vara, Pes cavus, Hallux rigidus, Hallux valgus, Hammer toe, Metatarsalgia.
3. **Infections of bone and joints** – Osteomyelitis: acute and chronic, Brody's abscess, Skeletal T.B. - principles of treatment, T.B. of shoulder, elbow and wrist, hip, knee, ankle and foot, Dactylitis, Caries rib, Acute pyogenic arthritis, Septic arthritis of infancy, Syphilitic infection of joint
4. **Inflammatory and Degenerative Conditions:** Causes, clinical feature, complications, deformities, radiological features, management- conservative and surgical for the following conditions :Osteoarthritis, Rheumatoid arthritis, Ankylosing spondylitis , Gouty arthritis, Psoriatic arthritis, Hemophilic arthritis, Still's disease (juvenile rheumatoid arthritis), Charcot's joints, Connective Tissue Disorders- Systemic Lupus Erythematosus, Scleroderma, Dermatomyositis, Poliomyelitis, Mixed connective tissue Disease (MCTD)
5. **Bone Tumors** – Classification, true bone tumors; osteosarcoma, giant cell tumor, Ewing's sarcoma, multiple myeloma, Chondroblastoma, chondrosarcoma,

fibrosarcoma, lymphoma of bone, plasmacytoma. Bone metastasis: synovial sarcoma, hemangioma of bone, adamantinoma of long bones and chondroma
Tumor like lesions: osteoma, benign osteoblastoma, nonosteogenic fibroma, osteochondroma, osteoid osteoma and enchondroma

6. Neurological and muscular disorders –

- a. Poliomyelitis: recovering and late stages, rehabilitation and recovery phase, tenodesis, tendon transplants, stabilization problems, short limb and equalization and tendon lengthening Cerebral Palsy: types, treatment including orthopedic surgeries
- b. Leprosy: classification, multi drug therapy, foot drop, trophic ulcer, deformities in the hand – claw hand and rehabilitation
- c. Muscular dystrophy: types and treatment
- d. Injuries to plexuses and nerves: brachial and lumbosacral plexus, radial, ulnar, median, sciatic and lateral popliteal

7. Regional conditions of spine and lower limb –

- a. Cervical and thoracic - Cervico brachial syndrome, Thoracic outlet syndrome, Vertebro- basilar syndrome, Scalenus syndrome, Costoclavicular syndrome, Levator scapulae syndrome.
- b. Backache: Spondylolisthesis, lumbosacral strain, PIVD, fibromyalgia, lumbar canal stenosis, sacroiliac strain, spondylosis, spondylolysis, Piriformis syndrome, Hemivertebra, Coccydynia.
- c. Hip: Slipped upper femoral epiphysis, idiopathic chondrolysis of hip, avascular necrosis of hip, IT Band Syndrome, Trochanteric Bursitis.
- d. Knee: Tibia vara, quadriceps fibrosis, bursa around the knee, loose bodies in the knee, CMP, Osteochondritis dissecans, patellar and popliteal tendonitis, plica syndrome, fat pad syndrome, Osgood schlatter disease
- e. Foot: Painful heel, plantar fasciitis, posterior heel pain, flat foot, foot strain, pain in forefoot, halux valgus, anterior metatarsalgia, Tarsal Tunnel Syndrome. Achilles Tendinitis, Morton's Neuroma.

8. Regional conditions of neck and upper limb –

- a. Neck: Cervical spondylosis, PIVD, brachialgia
- b. Shoulder: supraspinatus tendonitis, calcification, rupture of rotator cuff, adhesive capsulitis, deltoid fibrosis, Subarachnoid bursitis, bicipital tendonitis, Infraspinatus Tendinitis
- c. Elbow: tennis elbow, golfer's elbow, recurrent slipping of ulnar nerve, cubitus varus and valgus, Olecranon Bursitis (student's elbow), Triceps Tendinitis.
- d. Wrist and hand: ganglion, D.Q., trigger finger and thumb, carpal tunnel syndrome, dupuytren's contracture

9. Metabolic Bone Diseases:

Rickets, Osteomalacia, Osteopenia, Osteoporosis, Scurvy.

- 10. Miscellaneous –**
Parathyroid osteodystrophy, tenosynovitis, Perthes disease.

TEXTBOOKS:

1. Maheshwari J, Mhaskar VA. Essential Orthopedics. 5th Edition.
2. Ebnezar J. Essentials of Orthopedics for Physiotherapists. 2nd Edition.
3. Dandy DJ, Edwards DJ. Essential Orthopedics and trauma. 1st Edition.
4. Hamblen DL, Simpson AHRW. Adam's outline of fractures. 12th Edition.
5. Solomon L, Warwick D, Nayagam S. Apley's system of Orthopedics and fractures. 9th Edition.

PHYSICAL AND FUNCTIONAL DIAGNOSIS

OBJECTIVES:

At the end of the course the candidate will be able to

1. Physical and Functional Diagnosis focuses on the basic assessment skills for physical and Functional diagnosis i.e. Musculoskeletal, Neurological and Cardiovascular-Respiratory in order to study the various impairments and their impact on activity and participation of the individual
2. Understand the use of appropriate tools or instruments of assessment for diagnosis in various diseases and disorders including musculoskeletal, neurological and cardio-vascular pulmonary conditions
3. Understand the use of diagnosis for physiotherapy practice.
4. To learn the applied aspect of the subject for physiotherapy practice.

DETAILED SYLLABUS:

1. **Subjective examination including:**
Name, age, sex, height, weight, BMI, address, occupation, chief complain, present history, past history, personal history, history of hospitalization, medical and surgical history, family history, occupational history etc.
2. **Assessment of Pain :** with techniques and clinical reasoning.
 - a. Types of pain: Somatic, referred, Neurogenic, Visceral, etc. Location, duration, progressive or non-progressive, localize or generalize, distribution, quality, diurnal variations, Modifying factors, Severity, nature of pain, tissue irritability.
 - b. Measurement and Documentation: Visual Analogue Scale (VAS), Numerical Rating Scale (N.R.S.) McGill's modified questionnaire. (including Body charts)
3. **Objective examination:**
 - a. Vitals parameter - PR, RR, BP, Temperature
 - b. Level of consciousness, Glasgow Coma Scale (GCS), Higher mental function. Communication, memory, cognitive, Cranial Nerves Examination.
 - c. Body built, Posture, wasting, perspiration, breathing pattern, deformity, asymmetry, trophic changes, and symmetry of structure.
 - d. Lines and tube attached with the patients including external appliance, assistive devices, footwear.
 - e. Tenderness, swelling / oedema, temperature, asymmetry, spasm, Surface contour, tautness, Trigger point.
4. **Assessment of Musculoskeletal System;**
 - a. Soft tissue flexibility, Joint mobility, Muscle strength & Endurance, Trick movements, Sensations, Limb length, Abnormal posture, End-feel ,Gait deviations due to musculoskeletal dysfunction. Pelvic inclination.
 - b. Physical examination of joints in normal and patho – mechanical conditions.
 - c. **Assessment of Joints with special tests:** Cervical Spine, Shoulder, Elbow, Forearm, Wrist & Hand, Lumbar Spine, Sacro Iliac joint, Hip, Knee, Ankle & Foot

- d. Assessment of pelvic floor muscle strength and function
 - i. Digital evaluation of vagina
 - ii. Perineometer
 - iii. Pad test
 - e. Disability Evaluation –percentage of disability (temporary and permanent)
 - f. Functional analysis as per I.C.I.D.H-II norms.
- 5. Assessment of Neuro-muscular dysfunction:**
- a. General neurological examination, Higher functions, Cranial nerves, Altered muscle strength, Power, Balance, Endurance, Tone, Spasticity, Inco-ordination, Abnormal deep & superficial reflexes, Myotomes, Dermatomes, Voluntary control testing, Abnormal movements, Neural control of bladder, Nerve entrapments, Gait and Functional evaluation as per ICIDH-II norms.
 - b. Assessment of Hand : Pinches, Grips, Routine sensory motor evaluation.
 - c. Posture and alignment: Biomechanical and neural factors.
 - d. Functional diagnosis: ICIDH-II, FIM, STREAM, BBS, Barthel Index and HRQoL – SF36.
 - e. Scales: Glasgow Coma Scale, Mini Mental Scale, APGAR, Modified Ashworth scale, A.S.I.A, Dynamic gait index.
- 6. Electro diagnosis:**
- a. Physiology of resting membrane potential, action potential, Propagation of Action Potential, Physiology of muscle contraction, Motor unit & Recruitment pattern of motor unit – Size principle.
 - b. Therapeutic current –as a tool for electro diagnosis
 - i. Electrophysiology of muscle & nerve.
 - ii. Faradic Galvanic Test, Strength Duration Curve-tests should be carried out on relevant patients.
 - iii. Test for Sensory & Pain Threshold/ Pain Tolerance – technique.
 - iv. Biofeedback unit for assessment of muscle function.
 - c. Electro-Myography
 - i. Definition ,Instrumentation – Basic components like C.R.O., Filter, Amplifier & Preamplifier, Panel diagram and Types of Electrodes.
 - ii. Normal & Abnormal E.M.G. pattern. At rest, on minimal contraction, on maximal contraction.
 - iii. Electro-physiological principles of assessment of Myoneural junction, Principles of nerve conduction. Late responses: F-wave, H-reflex.
 - iv. Biofeedback: Introduction, Principles of biofeedback, Therapeutic effects, Indications, Contraindications and Techniques of treatment.
- 7. Assessment of cardio-pulmonary dysfunction**
- a. Chest expansion, Abnormal breath sounds, Auscultation.
 - b. Principles of exercise tolerance test, Quality of life questionnaires, Borg scale, Assessment of vital parameters in simple functional test, 6 minutes walk test, 12 minute walk test, Shuttle walk test, Canadian step test, Treadmill test, Symptom limited test, Breath holding test, Spirometry, Peak-flowmetry.
 - c. Theoretical bases of Bruce’s protocol, Astrand Protocol & Step test.

- 8. Interpretation of various investigations.**
 - a. Radiological (X-rays, CT scan, MRI).
 - b. Routine Biochemical investigations (ABG, blood, CSF, etc).
 - c. Electro-diagnostic (EMG, NCV, SDC etc) findings.
 - d. PFT analysis
 - e. ECG.
- 9. Assessment of Physical fitness.**
 - a. Flexibility, Strength, Endurance, Agility, speed, reaction time, power, coordination, balance, Exercise Tolerance Testing – with Techniques with clinical reasoning, Energy Systems and Exercise Physiology.

TEXT BOOKS:

1. Orthopedic Physical Examination –Magee
2. Clinical Electro Therapy – Nelson – Currier --- Appleton & Lange publication
3. Clinical Electromyography – Mishra
4. Therapeutic Exercises - Colby & Kisner
5. Physical Rehabilitation, Assessment and treatment - Susan B O's Sullivan
6. Neurological Examination - John Patten
7. Clinical Electromyography – Kimura
8. Training in the Community for the people with disability – Hallender Padmini Mendes Hand
9. Exercise Physiology – William D Mc'Ardle
10. Physiotherapy for Respiratory and Cardiac Problems. Adults and Paediatrics. 3rd ed. PryorJA, Webber BA. London: Churchill Livingstone, 2002.