HIMALAYAN UNIVERSITY, ARUNACHAL PRADESH

BACHELOR PHYSIOTHERAPY (BPT)

1st YEAR

1st Semester

S. NO.	SUB. CODE	SUBJECT NAME	MARKS			
			INTERNAL	THEORY	TOTAL	PASS
1	101	Physiology	30	70	100	40
2	102	Clinical Biochemistry	30	70	100	40
3	103	Introduction to Physiotherapy	30	70	100	40
4	104	Exercise Therapy - I	30	70	100	40

2nd Semester

S. NO.	SUB. CODE	SUBJECT NAME	MARKS			
			INTERNAL	THEORY	TOTAL	PASS
1	201	Pharmacology	30	70	100	40
2	202	Electro Therapy - I	30	70	100	40
3	203	Basic Nursing & First Aid	30	70	100	40
4	204	Supervised Clinical Practice	30	70	100	40

2nd YEAR

3rd Semester

S. NO.	SUB. CODE	SUBJECT NAME	MARKS			
			INTERNAL	THEORY	TOTAL	PASS
1	301	Exercise Therapy – II	30	70	100	40
2	302	Orthopaedic	30	70	100	40
3	303	Kinesio Therapeutics	30	70	100	40
4	304	Obstetrics and Gynecology	30	70	100	40

4th Semester

S. NO.	SUB. CODE	SUBJECT NAME	MARKS			
			INTERNAL	THEORY	TOTAL	PASS
1	401	General Surgery	30	70	100	40
2	402	Anatomy	30	70	100	40
3	403	Dermatology	30	70	100	40
4	404	Supervised Rotatory Clinical Training – I	30	70	100	40

3rd YEAR

5th Semester

S. NO.	SUB. CODE	SUBJECT NAME	MARKS			
			INTERNAL	THEORY	TOTAL	PASS
1	501	Paediatrics	30	70	100	40
2	502	Electro Therapy – II	30	70	100	40
3	503	Medical Microbiology	30	70	100	40
4	504	Research Methodology & Biostatistics	30	70	100	40

6th Semester

S. NO.	SUB. CODE	SUBJECT NAME	MARKS			
			INTERNAL	THEORY	TOTAL	PASS
1	601	Psychiatry	30	70	100	40
2	602	Physical Diagnosis & Therapeutic skills	30	70	100	40
3	603	Cardio-Respiratory & General Physiotherapy	30	70	100	40
4	604	Supervised Rotatory Clinical Training - II	30	70	100	40

4th YEAR

7th Semester

S. NO.	SUB. CODE	SUBJECT NAME	MARKS			
			INTERNAL	THEORY	TOTAL	PASS
1	701	Community Medicine	30	70	100	40
2	702	General Medicine, Rheumatology & Gerontology	30	70	100	40
3	703	Cardio-vascular & Pulmonary Medicine	30	70	100	40
4	704	Physiotherapy in Orthopedic Conditions	30	70	100	40

8th Semester

S. NO.	SUB. CODE	SUBJECT NAME	MARKS			
			INTERNAL	THEORY	TOTAL	PASS
1	801	Rehabilitation on Medicine	30	70	100	40
2	802	Neurology & Neurosurgery	30	70	100	40
3	803	Physiotherapy in Sports	30	70	100	40
4	804	Project Work	30	70	100	40

HIMALAYAN UNIVERSITY, ARUNACHAL PRADESH

BACHELOR PHYSIOTHERAPY (BPT)

1st YEAR

1st Semester

Physiology (101)

1. General Physiology

Cell: morphology, Structure and function of cell organelles Structure of cell membrane Transport across cell membrane Intercellular communication Homeostasis

2. Blood

Introduction-composition & function of blood W.B.C., R.B.C., Platelets formation & functions, Immunity

Plasma: composition, formation & functions, Plasma Proteins:-types & functions Blood Groups- types, significance, determination Hemoglobin Homeostasis Lymph-composition, formation, circulation &functions

3. Cardiovascular system

Conducting system-components, impulse conduction Heart valves Cardiac cycle- definition, phases of cardiac cycle Cardiac output- definition, normal value, determinants. Stroke volume and its regulation Heart rate and its regulation Arterial pulse, Blood pressure-definition, normal values, factors affecting blood pressure Shock-definition, classification, causes and features Basic idea of ECG Cardiovascular changes during exercise

4. Respiratory System

Mechanics of respiration Lung volumes and capacities Pulmonary circulation, transport of respiratory gases Factors affecting respiration Regulation of respiration-neural regulation, voluntary control and chemical regulation Hypoxia, Hypercapnoea, Hypocapnoea Artificial respiration Disorders of respiration- dyspnoea, orthopnoea, hyperpnoea, hyperventilation, apnoea, tachypnoea Respiratory changes during exercise.

5. Nerve Muscle Physiology

Muscles- classification, structure, properties, Excitation contraction coupling Motor unit, EMG, factors affecting muscle tension, Muscle tone, fatigue, exercise Nerve –structure and function of neurons, classification, properties Resting membrane potential & Action potential their ionic basis All or None phenomenon Neuromuscular transmission Ionic basis of nerve conduction Concept of nerve injury & Wallisian degeneration Synapses Electrical events in postsynaptic neurons Inhibition & facilitation at synapses Chemical transmission of synaptic activity Principal neurotransmitters.

6. Nervous system

Introduction, central and peripheral nervous system, functions of nervous system Reflexes-monosynaptic, polysynaptic, superficial, deep &withdrawal reflex Sense organ, receptors, electrical & chemical events in receptors Sensory pathways for touch, temperature, pain, proprioception & others Control of tone & posture: Integration at spinal, brain stem, cerebella, basal ganglion levels, along with their functions Motor mechanism: motor cortex, motor pathway: the descending tracts pyramidal & extra pyramidal tracts-origin, course, termination & functions. Upper motor neuron and lower motor neuron paralysis Spinal cord lesions- complete transaction & hemi section of the spinal cord Autonomic nervous system: features and actions of parasympathetic & sympathetic nervous system Hypothalamus Higher functions of nervous system Special senses- eye, ear, nose, mouth

7. Renal System

Physiology of kidney and urine formation Glomerular filtration rate, clearance, Tubular function Water excretion, concentration of urine-regulation of Na+, Cl-, K+ excretion Physiology of urinary bladder

8. Digestive System

Digestion & absorption of nutrients gastrointestinal secretions & their regulation Functions of Liver & Stomach

10. Endocrinology

Physiology of the endocrine glands – Pituitary, Pineal Body, Thyroid, Parathyroid, Adrenal, Gonads, Thymus, Pancreas Hormones secreted by these glands, their classifications and functions

11. Male & female reproductive system

Male - Functions of testes, pubertal changes in males, testosterone - action & regulations of secretion.

Female - Functions of ovaries and uterus, pubertal changes, menstrual cycle, estrogens and progestron - action and regulation

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Clinical Biochemistry (102)

1. Nutrition: RDA, BMR, SDA, caloric requirement and balanced diet.

2. Carbohydrates: Definition, classification and general functions. Carbohydrate Metabolism - Glycol sis, T.C.A cycle

3. Lipids: Definition, classifications and general functions. Essential fatty acids and their importance, Cholesterol, Lipoproteins Metabolism-β□Oxidation of fatty acids, fatty liver and ketosis

4. Amino Acids: Definition, classification, essential and non essential amino acids.

5. Proteins: Definition, classification, and Bio-medical Importance. Metabolism: Formation and fate of ammonia, Urea cycle and its significance

6. Study of hemoglobin and myoglobin with their functions.

7. Enzymes: Definition, classification with examples, Factors affecting enzyme action, is enzyme and co-enzyme, Clinical importance of enzymes.

8. Biochemistry of connective tissue - Introduction, various connective tissue proteins : Collagen, elastic- structure and associated disorders.

9. Vitamins: Definition, classification and functions, dietary source, daily requirement And deficiency disorders

10. Diabetes mellitus - definition, types & causes.

Introduction to Physiotherapy (103)

I Patterns of Health Care Delivery:

a. National Trends and resources
b. Local trends and resources
c. Overview of Health Science Professions+

II Components of Physiotherapy Profession:

a. History of Medical Therapeutics
b. History of Physiotherapy
c. Overview of Health Science Professions

III Role of Physiotherapy in meeting Health Care Needs in India

a. Needs versus Demands
b. Physiotherapist as 'Educator'
c. Typical Job settings
d. Common problems and solutions

Exercise Therapy – I (104)

1. Introduction to exercise therapy

2. Mechanical principle applied in human body – gravity, centre of gravity, line of Gravity, base of support, equilibrium, axis and planes

3. Disability models – ICIDH model of disability, Nagi model of disability, ICF model

4. Exercise physiology – effect of exercise in various systems – musculoskeletal, Neuromuscular, cardiovascular, respiratory system

5. Movements

6. Passive movements – definition, classification, indications, contra indications, Advantages, limitations, techniques - emphasize PROM to upper, lower, neck and Trunk muscles

7. Active movements - definition, classification, indications, contra indications, Advantages, limitations, techniques - emphasize active movements to upper, lower, And neck and trunk muscles

8. Starting positions – muscle work, effect and uses and derived positions

9. Relaxation – definition, types of relaxation, relaxation techniques

10. Suspension – definition, types, uses and therapeutic applications

11. Balance – static and dynamic balance, mechanism of balance control, balancing Exercises

12. Neuromuscular coordination – causes of in coordination, exercises to improve Coordination – Frenkle exercise

13. Joint range measurement – Goniometry, types and techniques of measuring joint ROM

14. Measurement of limb length, girth

15. Manual muscle testing – grading system, techniques- emphasize on skill to grade upper, lower, neck and trunk muscles.

16. Mobility aids – crutches, canes, walker

2nd Semester

Pharmacology (201)

1. General Pharmacology:

- Introduction, Definitions, Classification of drugs, Sources of drugs, Routes of drug administration,

- Distribution of drugs, Metabolism and Excretion of drugs, Pharmacokinetics, Pharmacodynamics

- Factors modifying drug response.

- Elementary knowledge of drug toxicity, drug allergy, drug resistance, drug potency, efficacy & drug antagonism.

2. Autonomic Nervous system

- General considerations – The Sympathetic and Parasympathetic Systems, Receptors, Somatic Nervous System

- Cholinergic and Anti-Cholinergic drugs, Adrenergic and Adrenergic blocking drugs, Peripheral muscle relaxants.

3. Cardiovascular Pharmacology (in brief)

- Drugs Used in the Treatment of Heart Failure: Digitalis, Diuretics, Vasodilators, ACE inhibitors

- Antihypertensive Drugs: Diuretics, Beta Blockers, Calcium Channel Blockers, ACE Inhibitors, Central Acting Alpha Agonists, Peripheral Alpha Antagonists, Direct acting Vasodilators

- Ant arrhythmic Drugs

- Drugs Used in the Treatment of Vascular Disease and Tissue Ischemia: Vascular Disease, Homeostasis Lipid-Lowering agents, Antithrombotic, Anticoagulants and Thrombolytic

- Ischemic Heart Disease – Nitrates, Beta-Blockers, Calcium Channel Blockers

- Cerebral Ischemia

- Peripheral Vascular Disease

4. Neuropharmacology (in brief)

- Sedative-Hypnotic Drugs: Barbiturates, Benzodiazepines

- Ant anxiety Drugs: Benzodiazepines, Other Anxiolytics

- Drugs Used in Treatment of Mood Disorders: Monoamine Oxidase Inhibitors, Tricyclic Antidepressants, Atypical Antidepressants, Lithium

- Antipsychotic drugs

5. Disorders of Movement (in brief)

- Drugs used in Treatment of Parkinson's disease

- Antiepileptic Drugs

- Spasticity and Skeletal Muscle Relaxants

6. Inflammatory/Immune Diseases-

- Non-narcotic Analgesics and No steroidal Anti-Inflammatory Drugs: Acetaminophen, NSAIDs, Aspirin, No aspirin NSAIDs, drug Interactions with NSAIDs

- Glucocorticoids: Pharmacological Uses of Glucocorticoids, adverse effects, Physiologic Use of Glucocorticoids

- Drugs Used in Treatment of Arthritic Diseases: Rheumatoid Arthritis, Osteoarthritis, Gout

- Drugs Used in the Treatment of Neuromuscular Immune/Inflammatory Diseases: Myasthenia gravis, Idiopathic Inflammatory Myopathies, systemic lupus Erythmatosus, Scleroderma, Demyelinating Disease

7. Respiratory Pharmacology (in brief) : Obstructive Airway Diseases, Drugs used in Treatment of Obstructive airway Diseases, Allergic Rhinitis

8. Digestion and Metabolism (in brief)

- Gastrointestinal Pharmacology: Peptic Ulcer Disease, Constipation, Diarrhea

- Drugs Used in Treatment of Diabetes Mellitus: Insulin, Oral Hypoglycemic

9. Geriatrics:

- Pharmacology and the geriatric Population: Adverse effects of special concern in the Elderly, Dementia, Postural hypotension, urinary incontinence.

Electro Therapy – I (202)

1. Basic components of electric current – electrons, protons, neutrons, ions, matter, molecules

2. Current electricity – static electricity, electric charge, conductors, conduction of electricity, resistance, factors effecting resistance with example in human body, insulation, unit of electric current – ampere, coulomb, volt, ohms law

3. Magnetism, theories of magnetism, properties of magnet.

4. Electromagnetic induction, electromagnetic radiation, laws governing radiations – Grout's law, cosine law, inverse square law, law of reflection, rarefaction.

5. Electrical components – transformer, capacitor, diode, valves

6. Types of electric current, wave forms, current modulation – continuous, burst, beat, surge. Electric circuit in parallel and series

7. Safety issues while using electrical equipments – for patients and therapist

8. Muscle and nerve response to electrical stimulation – polarization, depolarization and propagation of impulse.

9. Pain – types of pain, pain pathway, theories of pain, Gate control theory of pain, pain modulation at various levels.

10. Low frequency currents:

a. Neuromuscular electrical stimulation – physiological effects, therapeutic uses of electrical stimulation techniques – electrodes type, electrode size, electrode placement, stimulating points, methods of reducing skin electrode resistance, contraindications and precautions.
b. High voltage pulsed stimulation.

c. Russian stimulation.

d. Trans cutaneous Electrical Nerve stimulation (TENS) – therapeutic uses of TENS, types, electrode placement in TENS, contraindications and precautions

e. Iontophoresis – mechanism, biophysical effect, medication dosage, and medicated ions used techniques of application.

11. Electro diagnostic test – FG test, strength duration curve, chronaxie, reobase

12. Interferential therapy (IFT) – physiological effects, therapeutic indications, methods of application, sweep, base, contraindication and precautions.

Basic Nursing & First Aid (203)

NURSING

1. What is nursing? Nursing principles Inter-Personnel relationships Bandaging: Basic turns; Bandaging extremities; Triangular Bandages and their application

2. Nursing Position: Environment safety; Bed making, prone, lateral, dorsal, dorsal recumbent, Flower's positions, comfort measures, Aids and rest and sleep.

3. Lifting and Transporting Patients: Lifting Patients up in the bed. Transferring from bed to wheel chair "Transferring from bed to stretcher"

4. Bed side Management: Giving and taking Bed pan, Urinal: Observation of stools, urine. Observation of sputum, Understand use and care of catheters, enema giving

5. Methods of Giving Nourishment: Feeding, Tube feeding, drips, transfusion

6. Care of Rubber Goods: Observation, Reporting and Recording Temperature, Respiration and Pulse, Simple aseptic Technique, Sterilization and Disinfection.

7. Surgical Dressing: Observation of dressing procedures

First Aid

1. Importance of First Aid in Physiotherapy.

2. Examination of Vital Signs

3. First Aid in cardiac arrest.

4. First Aid in Respiratory failure.

5. First Aid in Burns.

6. First Aid in Electric shock.

7. First Aid in Drowning.

8. First Aid in Spinal cord injuries.

9. First Aid in Hypovolemic Shock.

10. First Aid in Poisoning

11. Instrumentation used in First Aid (First Aid kit).

Supervised Clinical Practice (204)

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2nd YEAR

3rd Semester

Exercise Therapy – II (301)

1. Joint mobilization:

Definition – Mobilization, Manipulation, indications, limitations, contraindications and precautions, applications of Mobilization technique to various joints. Principles of Maitland, Mulligan and Mocks joint Manipulation techniques

2. Stretching:

Definition, properties of soft tissue, mechanical and neurophysiologic properties of connective tissue, mechanical properties of non contractile tissue Determinants, type and effect of stretching, precautions, general applications of stretching technique

3. Resisted exercise:

Definition – strength, power, endurance. Guiding principle of resisted exercise,

Determinants, types Manual and Mechanical Resistance Exercise, Isometric Exercise, Dynamic Exercise - Concentric and Eccentric, Dynamic Exercise -

Constant and Variable Resistance, Is kinetic Exercise, Open-Chain and Closed-

Chain Exercise, precautions, contraindications Progressive Resistance Exercise - de Lories, Oxford, Macqueen, Circuit Weight Training, Polymeric Training—Stretch-Shortening Drills, Is kinetic Regimens

4. Proprioceptive Neuromuscular Facilitation –

Principles, Diagonal patterns of movements, Basic procedures, Upper Extremity Diagonal patterns, Lower Extremity Diagonal Patterns Technique in PNF – Rhythmic Initiation, Repeated Contractions, Reversal of Antagonists, Alternating Isometrics, Rhythmic Stabilization

5. Aerobic Exercises –

Definitions, Physiological response to Aerobic Exercise, Evaluation of aerobic capacity – exercise testing, Determinant of Aerobic Exercise, Physiological Changes with Aerobic Training, Aerobic Exercise Program, Applications of Aerobic Program in patients with chronic illness.

6. Hydrotherapy:

Definitions, Goals and Indications, Precautions and Contraindications, Properties of water, Therapeutic Exercises in Hydrotherapy, Special equipments used

7. Balance training:

Definition and Key terms, Balance control, Components of balance, Balance Impairment, Examination of Impaired Balance, Balance training Exercises

8. Posture:

Normal Postural Control, Postural Alignment, Postural Stability, Postural Impairment and Mal-Alignment, Postural Training

9. Breathing Exercises:

Aims and Goals of Breathing Exercises, Procedures of Diaphragmatic Breathing, Segmental Breathing, Pursed-Lip Breathing, Preventing and Relieving Episodes of Dispend, Positive Expiratory Pressure Breathing, Respiratory Resistance Training, Gloss pharyngeal Breathing. Exercises to mobilize the chest, Postural Drainage, Manual Technique used in Postural Drainage, Postural Drainage Positions, Modified Postural Drainage

10. Gait Training:

Definition, Different methods of Gait Training, Gait Training in Parallel Bars, Walking Aids: Types: Crutches, Canes, Frames; Principles and training with walking aids**.**

11. Soft Tissue Injury:

General Description of Inflammation and repair, Acute, Sub Acute, and Chronic Stage, General Treatment Guidelines

12. Yoga: History, Introduction, Classification, Various Asana

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Orthopedic (302)

1. Introduction to Orthopedics:

An Orthopaedic patient, history taking, clinical features, clinical examination, and Investigation (X- ray, CT scans, MRI scan, Bone scan)

2. Injuries of muscle & tendons: etiology & management.

3. Bony & Soft tissue injuries:

Injury & repair, Clinical presentation, evaluation & general principles of Rehabilitation management, Tenosynovitis, Bursitis etc

4. Fractures -

a. Types, Healing, complications, general principles of treatment.

b. Fracture of Spine, pelvis, hip joint, femur, patella, knee joint, cartilage and Ligaments, tibia, fibula, ankle, calcaneum, metatarsals, calvicle, scapula, ribs, Hummers, elbow joint, radius, ulna, saphead, metacarpals & phalanges.

c. Fracture separation of epiphysis.

5. Inflammation of bones & joints (Clinical features, evaluation, conservative & Surgical management) -
a) Bones - Osteomyelitis- osteomyelitis - pyogenic & tubercular, osteoarthritis.

b) Joints - Rheumatoid arthritis, Juvenile Arthritis, Reiter's disease, Polymyalgia Rheumatica, Gout, Ankylosing spondylitis, Neuropathic- joints, haemophilic Arthropathy, Avascular necrosis

6. Nutritional & metabolic diseases of bones: Rickets, Osteomalacia & Osteoporosis

7. Spine deformities:

Clinical features, diagnosis, management of Scoliosis, Kyphosis, Lordosis,

Spondylosis, prolapsed of intervertebral disc, cord compression, sacralization and Traumatic deformities (paraplegia & quadriplegia)

8. Infections of Musculoskeletal system -

a. Bacterial infections

b. Tubercular infections, Leprosy, Pot's paraplegia

9. Congenital malformations (in brief description with outline of treatment):

a. Congenital Hip Dysplasia, Congenital Talipes Equinovarus / Calcaniovalgus, Arthrogryposis Multiplex Congenita, Congenital Torticolis, Acromelia, Phocomelia, Amelia,

b. Spina Bifida: all types, clinical presentation, sequel & management

10. Developmental diseases of skeleton:

Ontogenesis imperfecta, heterotopic ossification, Osteochondritis, Perthes' disease

11. Neuromuscular diseases:

a) Volkmann's Ischemic contracture, obstetrical paralysis, and personal muscular atrophy

b) Poliomyelitis – orthopedic aspects and treatment of deformities.

12. Upper Limbs:

Clinical presentation, evaluation, conservative & surgical management of rotator

Cuff injuries, adhesive capsulate, bursitis, biceps tendonitis, shoulder dislocation,

Snapping & winged scapula, tennis and golfer elbow, olecranon bursitis, soft tissue Injuries, sprains and strains, Arthritic conditions, tenosynovitis, Carpal tunnel Syndrome, wrist drop, claw hand, mallet finger, Duputyren's contracture, reflex Sympathetic dystrophy, common fractures and dislocations

13. Lower Limb:

Clinical presentation, evaluation, conservative & surgical management of Arthritic

Conditions, soft tissue injuries, sprains and strains, Achilles tendonitis, bursitis,

Plantar fasciitis, deformities, reflex sympathetic dystrophy, neuropathic Joints,

Common fractures and dislocations, prescavus, pesavaglus, hallus valgus Foot strains, metatarasalgia, hallus rigidus, ingrowing toe nail.

14. Neuron-vascular Diseases:

Orthopaedic aspects and treatment of - Nerve injuries (major nerves), Plexus injuries

15. Amputations:

Justification, outline of surgical approaches, incisions, procedures, indications, Contraindications, complications & management

16. Bone tumors: benign & malignant (in brief)

17. Operations:

Reconstructive arthoplasty, arthodesis, bone grafting, osteotomy, tenden Transplantation & transfer, nerve- neurolysis, suture, graft and decompression

18. Orthopedic splints and appliances.

19. Tractions: Skin, skeleton (in brief).

20. Foot arches & their complications.

21. Rehabilitation of patients.

Kinesio Therapeutics (303)

1. Mechanics - Definition of mechanics and Biomechanics

2. Motion: definition, types of motion, plane and axis of motion, factor determining the kind and modification of motion.

3. Force - Definition, diagrammatic representation of force, point of application, classification of forces, concurrent, coplanar and co-linear forces, composition and resolution of forces, angle of pulls of muscle

4. Friction

5. Gravity - Definition, line of gravity, Centre of gravity

6. Equilibrium - Supporting base, types, and equilibrium in static and dynamic state

7. Levers - Definition, function, classification and application of levers in physiotherapy & order of levers with example of lever in human body

8. Pulleys - system of pulleys, types and application

9. Elasticity - Definition, stress, strain, HOOKE'S Law

10. Springs - properties of springs, springs in series and parallel, elastic materials in use

11. Muscular system

12. Definition, properties of muscle, muscular contraction, structural classification, action of muscle in moving bone, direction of pull, angle of pull, functional classification, coordination of muscular system.

13. Joint structures and functions:

i. Joint design, Structure of Connective Tissue, Properties of Connective Tissue, joint function, changes with disease, injury, immobilization, exercise, over use

ii. Structure and functions of upper extremity joints – shoulder complex, elbow complex, wrist and hand complex

iii. Structure and functions of lower extremity joints – hip joint, knee joint, ankle and foot complex

iv. Structure and functions of axial skeletal joints – vertebral column – craniocervical, thorax, lumbar, lumbo pelvic region

v. Structure and functions of tempromandibular joint

14. Posture – dynamic and static posture, kinetic and kinematics of posture, analysis of posture, effect of age, pregnancy, occupation on posture.

15. Gait – kinematics and kinetics of gait, gait in running and stair climbing.

Obstetrics and Gynecology (304)

1] Physiology of Puberty & Menstruation, Abnormalities & common problems of Menstruation

2] Pregnancy—Fertilization, Development of the foetus, Normal gestations, Abnormal/Multiple gestations, Common Complications during pregnancy like P I H, Eclampsia, Diabetes, Hepatitis, German Measels, TORCH infection.

3] Labor

i) Normal-Events of Ist, IInd & IIIrd Stages of labor

ii) Complications during labor & management

iii) Caesarian section

4] Post Natal –Puerperium, lactation, Overview of Contraception, Overview of Complications of repeated child bearing with small gaps

5] Overview of Sterility-management

6] Overview of family planning

7] Uro-genital dysfunction

i) Uterine prolapsed-classification &management (Conservative /Surgical)

ii) Cystocoele, Rectocoele, Enterocoele

8] Neoplasm of Female reproductive organs-surgical management

9] Pre, Peri & Post Menopause-Physiology, Complications & management

10] Pelvic Inflammatory Diseases with special emphasis to backache due to Gynaec / Obs Conditions

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4th Semester

General Surgery (401)

1. Fluid, Electrolyte and Acid-Base disturbances –

Diagnosis and management; Nutrition in the surgical patient Shock – Clinical Feature, pathology & management

2. Transfusion therapy in surgery – blood components, complications of transfusion.

3. Wounds:

a) Classification, acute wounds, chronic wounds.

b) Wound healing – Basic process involved in wound repair, basic phases in the healing process, clinical management of wounds, factors affecting wound healing, scars - type and treatment.

c) Wound Infections, - physiology & manifestation, types of infections, treatment, and principle of antimicrobial treatment.

4. Pre & postoperative complications of surgery and their management.

5. Homeostasis – Components, haemostatic disorders, factors affecting bleeding during surgery.

6. Types of anesthesia and its effects on the patient, pain relief.

7. Types of Incisions; Clips Ligatures and Sutures; General Thoracic Procedures, Radiologic Diagnostic procedures, Endoscopy–types, Biopsy – uses and types. Overview and Drainage systems and tubes used in Surgery.

8. Burn:

Definition, Classification, Causes, Prevention, Pathological changes, Complications, Clinical Features and Management

9. Skin Grafts:

Types, Grafting Procedures, Survival of Skin Graft; Flaps – Types and uses of Flaps

10. Infections and injuries of Hand

Hand infection, supportive infection, other infection, hand injuries, dupuytrens contracture.

11. Surgical Oncology – Cancer –

Definition, types, clinical manifestations of cancer, Staging of Cancer, surgical procedures involved in the management of cancer

12. Disorders of muscles, tendons and ligaments, sports related injuries. Periarticular inflammations acte muscle injury, chronic muscles injury, Tendon disorders, tendon sheath disorder, fascia, Ganglia, Bursae, Repeatative strain injury

13. Neurological disorder affecting to muscle-skeletal system. , Motor dysfunction and treatment, cerebral palsy, acquired abnormalities, and inherited disorder, neuromuscular disorder, sensory disorder.

14. The cranium: The scalp, the skull, head injuries.

15. Thoracic and cardiac surgery:
Thoracotomy, lobotomy, pneumonectomy, thoracoplasty, mitral valvotomy, open heart surgery

16. Various surgical heart diseases with respect to clinical presentation, complications and management - Alular heart disease, congenital heart disease –e.g., ASD, VSD, PDA, Ischemic heart disease. Outline of postoperative complications in cardiac surgery and their management.

17. Diseases of the Arteries and Veins: Definition, Etiology, Clinical features, signs and symptoms, complications, management and treatment of following diseases : Arteriosclerosis, Atherosclerosis, Aneurysm, Buerger's disease, Reynaud's Disease, Thrombophlebitis, Deep Vein Thrombosis, Pulmonary Embolism, Varicose Veins.

18. Definition, Indication, Incision, Physiological changes and Complications following Common operations like Cholecystectomy, Colostomy, Ileostomy, Mastectomy, Hernias, Appendicectomy Mastectomy, Nephrectomy, Prostectomy.

19. Obstetrics & Gynecology:
Surgical procedures involving child birth Incontinence – Types, Causes, Assessment and Management, Common gynecology disorders - salpingitis, parameteritis, retroverted uterus prolapsed of uterus, pelvic inflammation , Definition & indications of– Hysterosalphingography, Dilatation and Curettage, Laparoscopy, Colposopy, & Hysterectomy,

20. ENT:

Common problems of ear, otitis media, Otosclerosis, functional aphonia and deafness, facial palsy - classification, medical and surgical management of lower motor neuron type of facial palsy.

21. Ophthalmology:
Common inflammation and other infections of eye, ptosis, defects of the external rectus, cataract, refractions, peptic exercises, physiologic defects of vision

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Anatomy (402)

1. General Anatomy:

Introduction to Anatomy, terms and terminology Regions of Body, Cavities and systems Surface anatomy – muscular-skeletal, vascular, cardiopulmonary system General Embryology Applied anatomy

2. Musculoskeletal system.

Connective tissue & its modification, tendons, membranes, special connective tissue Bone structure, blood supply, growth, ossification, and classification Muscle classification, structure and functional aspect. Joints – classification, structures of joints, movements, range, limiting factors, stability blood supply, nerve supply, dislocations and applied anatomy.

2(a). Upper extremity:

Bony architecture Joints – structure, range of movement Muscles – origin, insertion, actions, nerve supply Major nerves – course, branches and implications of nerve injuries Development of limb bones, muscles and anomalies Radiographic identification of bone and joints Applied anatomy

2(b). Lower Extremity:

Bony architecture Joints – structure, range of movement Muscles – origin, insertion, actions, nerve supply Major nerves – course, branches and implications of nerve injuries Development of limb bones, muscles and anomalies Radiographic identification of bone and joints Applied anatomy

2(c). Spine and thorax

Back muscles - Superficial layer, Deep muscles of back, their origin, insertion, action and nerve supply Vertebral column – Structure & Development, Structure & Joints of vertebra Thoracic cage Radiographic identification of bone and joints Applied anatomy

2(d). Head and neck:

Cranium Facial Muscles – origin, insertion, actions, nerve supply Tempura mandible Joints – structure, types of movement

3. Nervous system

Classification of nervous system Nerve – structure, classification, microscopy with examples Neurons, classification with examples Simple reflex arc Parts of a typical spinal nurve/Dermatome Central nervous system – disposition, parts and functions Cerebrum Cerebellum Midbrain & brain stem Blood supply & anatomy of brain Spinal cord- anatomy, blood supply, nerve pathways Pyramidal, extra pyramidal system Thalamus, hypothalamus Structure and features of meningies Ventricles of brain, CSF circulation Development of nervous system & defects Cranial nerves – (course, distribution, functions and palsy) Sympathetic nervous system, its parts and components Parasympathetic nervous system Applied anatomy

4. Sensory system

Structure and function of Visual system auditory system gustatory system olfactory system Soma to sensory system

5. Cardiovascular system

Circulatory system – major arteries and veins of the body, structure of blood
Vessels Heart structure, positions, chambers, valves, internal & external features Blood supply to heart Conductive system of heart

6. Lymphatic system

Circulation, structure & functions Lymph nodes

7. Respiratory system

Structure of upper and lower respiratory tract Thorax: Pleural cavities & pleura Lungs and respiratory tree Heart and great vessels Diaphragm

8. Digestive system

Parts of digestive system abdominal cavity – divisions Muscles of abdominal wall Liver Pancreas Spleen Alimentary canal Gall bladder Intestine (small & large)

9. Urinary and Reproductive system

Urinary system Pelvic floor, innervations Kidney, Urethra, bladder, urethra Genital system – male and female Reproductive system of male Reproductive system of female

10. Endocrine system
Pituitary gland Thyroid Parathyroid

Dermatology (403)

1] Introduction to Dermatology, basic skin lesions & History taking

2] Skin infections (Part I) – Scabies / Pediculosis / Bacterial infections

3] Skin infections (Part II) – viral / Fungal / Coetaneous T.B.

4] Psoriasis / Sebaceous Dermatitis / Atopic Dermatitis / Hand eczemas (Psoriasis & Eczema)

5] Pigmentary Disorders (Vitiligo, Melasma) & Drug Reactions (Urticaria, Fixed Drug Eruption, Maculo Papular Drug Rash, Erythema Multiform minor, Steven Johnson Syndrome, Toxic Epidermal Necrolysis)

6] Leprosy & Deformity

7] Autoimmune Disorders (Scleroderma, Systemic Lupus Erythematosus, Dermatomyositis)

8] Acne & treatment of Acne (Including cosmetic & Dermatosurgical procedures) (Chemical peels, MDA etc.)

9] Disorders of Scalp (Dandruff, Chronic Hair loss, Alopecia)

10] Sexually Transmitted Diseases

11] HIV & Coetaneous manifestations

12] Topical therapy in Dermatology.

Supervised Rotatory Clinical Training – I (404)

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3rd YEAR

5th Semester

Pediatrics (501)

1] Normal intra-uterine development of fetus

2] Normal development & growth

3] Immunization, Handling of the child, Significance of breast-feeding

4] Common causes for Developmental disorders like Sepsis, Prematurity, Asphyxia & Hyperbilirubinemia

5] Brain damage-Cerebral Palsy-types & Medical Management

6] Spinal Cord Disorders like Poliomyelitis, Spinal Dysraphism, Spina Bifida, Meningocele, Myelomeningocele

7] Common infections of C.N.S. & peripheral nervous system (2 hrs)

8] Epilepsy

9] Mental Retardation

10] Genetically transmitted neuron-muscular condition

11] Malnutrition related conditions

12] Juvenile R A & other Immunological conditions of Musculoskeletal system

13] Common diseases of the respiratory system like Asthma, Bronchitis, T.B., Pneumonia & bronchiectasis

14] Rheumatic & Congenital heart disease

Electro Therapy – II (502)

1. Introduction to high frequency current, Electro Magnetic Spectrum

2. SWD: Define short wave, Frequency & Wavelength of SWD, Principle of Production of SWD, Circuit diagram & Production of SWD, Methods of Heat Production by SWD

treatment, Types of SWD Electrode, Placement & Spacing of Electrodes, Tuning, Testing of SWD Apparatus, Physiological & Therapeutic effects, Indications & Contraindications, Dangers, Dosage parameters. Pulsed Electro Magnetic Energy

3. Micro Wave Diathermy: Define Microwave, Wave length & Frequency, Production of MW, Applicators, Dosage Parameters, Physiological & Therapeutic effects, Indications & Contraindications, Dangers of MWD

4. Ultrasound: Define Ultrasound, Frequency, Piezo Electric effects: Direct, Reverse, Production of US, Treatment Dosage parameters: Continous & Pulsed mode, Intensity, US Fields: Near field, Far field, Half value distance, Attenuation, Coupling Media, Thermal effects, No thermal effects, Principles & Application of US: Direct contact, Water bag, Water bath, Solid sterile gel pack method for wound. Uses of US, Indications & Contraindications, Dangers of Ultrasound Phonophoresis: Define Phonophoresis, Methods of application, commonly used drugs, Uses. Dosages of US.

5. IRR: Define IRR, wavelength & parameters, Types of IR generators, Production of IR, Physiological & Therapeutic effects, Duration & frequency of treatment, Indication & Contraindication.

6. UVR: Define UVR, Types of UVR, and UVR generators: High pressure mercury vapour lamp, Water cooled mercury vapor lamp, Kormaed lamp, Fluorescent tube, Theraktin tunnel PUVA apparatus. Physiological & Therapeutic effects Sensitizers & Filters Test dosage calculation. Calculation of E1, E2, E3, E4 doses Indications, contraindications Dangers Dosages for different therapeutic effects, Distance in UVR lamp.

7. LASER: Define LASER. Types of LASER Principles of Production of

LASER by various methods of application of LASER Dosage of

LASER. Physiological &Therapeutic effects of LASER. Safety precautions of

LASER. Classifications of LASER Energy density & power density

8. Wax Therapy: Principle of Wax Therapy application – latent Heat, Composition of Wax Bath Therapy unit, Methods of application of Wax, Physiological & Therapeutic effects, Indications & Contraindication, Dangers

9. Contrast Bath: Methods of application, Therapeutic uses, Indications & Contraindications.

10. Moist Heat Therapy: Hydro collator packs – in brief, Methods of applications, Therapeutic uses, Indications & Contraindications.

11. Fluid therapy: Construction, Method of application, Therapeutic uses, Indications & Contraindications.

12. Cry therapy: Define- Cry therapy, Principle- Latent heat of fusion, Physiological & Therapeutics effects, Techniques of Applications, Indications & Contraindications, Dangers, and Methods of application with dosage

13. EMG and Nerve Conduction Velocity test, Biomed back

Medical Microbiology (503)

1. Introduction & History of Microbiology

2. Classification of microorganism: Bacterial Morphology, cells structure, difference Between prokaryotes & eukaryotes, capsule, flagella, fimbrae, pillar, cell wall, Plasma membrane, cytoplasm, ribosomes etc

3. Bacteriology - Classification of Bacteria, Morphological characteristics of different Bacteria

4. Bacterial growth/Reproduction: Growth curve

5. Sterilization & disinfection:

a) Physical Methods

b) Chemical Methods

c) Mechanism of Sterilizations

d) Difference between sterilization and disinfection.

6. Modes of transmission of diseases

a) Various routes of spread of infection.

b) Hospital acquired infection.

c) Bacteria's responsible for nosocomial infectious

7. Bacterial diseases (in brief):

Mycobacterium diseases: Tuberculosis, Leprosy and Syphilis.

Bacterial disease: Phylogenic, Diphtheria, Gram negative infection, Bacillary Dysentery

8. Viral diseases (in brief) : Poliomyelitis, Herpes, Rabies, Measles, Rickttsia, Chlamydia infection, HIV infection

9. Fungal diseases and opportunistic infections (in brief).

10. Food sanitation

a) Hygiene in restaurants & kitchens.

b) Health of food handlers & hygiene.

c) Disease caused by infected food & water.

11. Immunity

a) Active, passive

b) Natural, acquired

c) Antigen

d) Antibody, type of antibodies

e) Antigen antibody reactions.

f) Mechanism of immunity

g) Immunization.

12. AIDS - Etiology, modes of transmission, diagnostic procedure

13. Handling of infected material

RESEARCH METHODOLOGY

1. Introduction to Research methodology:
Meaning of research, objectives of research, Motivation in research, Types of research & research approaches, Research methods vs. methodology, Criteria for good research.
2. Research problem: Statement of research problem, Statement of purpose and objectives of research Problem, Necessity of defining the problem

3. Research design: Meaning of research design, Need for research design, Features for good design, Different research designs, Basic principles of research design.

4. Measurement & scaling techniques: Measurement in research- Measurement scales, sources of error in measurement, Technique of developing measurement tools, Meaning of scaling, its classification, important scaling techniques.

5. Methods of data collection: collection of primary data, collection data through questionnaires & schedules, Difference between questionnaires & schedules.

6. Computer technology: Introduction to Computers, computer application in research computers & researcher

BIOSTATISTICS

1. Introduction: Meaning, definition, characteristics of statistics. Importance of the study of statistics, Branches of statistics, Statistics and health science , Parameters and Estimates, Variables and their types, Measurement scales.

2. Tabulation of Data: Basic principles of graphical representation, Types of diagrams – histograms, frequency polygons, smooth frequency polygon, cumulative frequency curve, Normal probability curve.

3. Measures of Central Tendency: Need for measures of central Tendency, Definition and calculation of **Mean** – ungrouped and grouped, interpretation and calculation of Median- ungrouped and grouped, Meaning and calculation of Mode, Geometric mean & Hormonic mean, Guidelines for the use of various measures of central tendency.

4. Measures of Dispersion: Range, mean deviation, standard deviation & variance.

5. Probability and Standard Distributions: Meaning of probability of standard distribution, the binominal distribution, the normal distribution, Divergence from normality – scenes, kurtosis.

6. Correlation & regression: Significance, correlation coefficient, linear regression & regression equation

7. **Testing of Hypotheses, Level of significance, Degrees of freedom.**

8. Chi-square test, test of Goodness of fit & student t-test.

9. Analysis of variance & covariance: Analysis of variance (ANOVA), what is ANOVA? Basic principle of ANOVA, ANOVA technique, Analysis of Co variance (ANACOVA)

10. Sampling: Definition, Types- simple, random, stratified, cluster and double Sampling. Need for sampling - Criteria for good samples, Application of sampling In community, Procedures of sampling and sampling designs errors

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6th Semester

Psychiatry (601)

1. Modalities of psychiatric treatment

2. Psychiatric illness and physical therapy link

3. Brief description of Etio-pathogenesis, manifestations, and management of psychiatric illnesses -

a. Anxiety neurosis

b. Depression

c. Obsessive compulsive neurosis

d. Psychosis- Definition & types

e. Maniac-depressive psychosis

f. Post-traumatic stress disorder

g. Psychosomatic reactions: Stress and Health, theories of Stress – Illness Link

4. Brief description of Etio-pathogenesis, manifestations, and management of psychiatric illness

a. Drug dependence and alcoholism

b. Somatoform and Dissociate Disorders – conversion reactions, Somatization, Dissociate Amnesia, and Dissociate Fugue

c. Personality disorders

5. Child psychiatry: Brief descriptions of manifestations, and management of childhood disorders - attention deficit syndrome, and behavioral disorders

6. Geriatric Psychiatry (in brief)

Physical Diagnosis & Therapeutic skills (602)

1] General principles & course of Human development & maturation

a] aspects

i) Physical

ii) Motor

iii) Sensory

iv) Cognitive

v) Emotional

vi) Cultural

vii) Social

b] Factors influencing human development & growth)

i_Biological

ii) Environmental

iii) Inherited

c] Principles of maturation –

i] in general

ii] in anatomical directional pattern- Cephalo-caudal proximo-distal centero-lateral mass to specific pattern gross to fine motor development reflex maturation tests iii] development I specific fields oromotor development sensory development neurodevelopment of hand function

2] Electro diagnosis

a) Physiology of resting membrane potential & action potential, Propagation of Action Potential, Volume conduction

b) Physiology of muscle contraction

c) Motor unit & Recruitment pattern of motor unit – Size principle

d) Therapeutic current-as a tool for electro diagnosis.

i) Physiological principles

ii) Faradic Galvanic Test, Strength Duration Curve, Test for Sensory & Pain Threshold, Test for Pain Tolerance

e) Electro-typography

i) Principles

ii) Instrumentation –Basic components like CRO, Filter, Amplifier & Preamplifier,Types of Electrodes

iii) Normal & Abnormal EMG pattern

i) Inspectional activity/at rest

ii) on minimal contraction

iii) on maximal contraction

f) Nerve Conduction Studies

i) Principles & Technique

ii) F wave

iii) H reflex and Blink reflex

3] Basics in Manual Therapy & Applications with Clinical reasoning

a] Examination of joint integrity

i) Contractile tissues

ii) Non contractile tissues

b] Mobility -assessment of accessory movement & End feel

c] Assessment of particular & extra-particular soft tissue status

i) Myofascial assessment

ii) Acute & Chronic muscle hold

iii) Tightness

iv) Pain-original & referred

d] Basic principles, Indications & Contra-Indications of mobilization skills for joints & soft tissues

i) Maitland

ii) Kaltenborn

iii) Mulligan

iv) McKenzie

iv) Muscle Energy Technique

v) Myofascial release

vi) Cyrix

vii) Neuro Dynamic Testing

4] Basics in Neuro Therapeutics Skills & Applications with Clinical reasoning

i) Principles of Neuro Developmental Technique, Rood's Technique, PNF, Brainstorm

ii) Technique

iii) Indications for Application

5] Assessment of Movement Dysfunction

i) Higher functions

ii) Cranial nerves

iii) Sensations & sensory organization

iv) Joint mobility

v) Body image

vi) Tone

vii) Reflexes- Superficial & Deep

viii) Voluntary control

ix) Muscle Strength

x) Co -ordination

xi) Balance

xii) Endurance

xiii) Trick movements

xiv) Limb Length

xv) Posture

xvi) Gait

xvii) Scales-Berg's Balance, Ashworth, Glasgow Coma, DGI, Barthel's Index, STREAM format

xviii) Functional Diagnosis using ICIDH-2

xix) Interpretation of Electro diagnostic findings, routine Biochemical investigations

6] Assessment of Cardio Vascular & Pulmonary Dysfunction

i) Vital parameters

ii) Chest expansion

iii) Symmetry of chest movement

iv) Breath Holding Test

v) Breath Sounds

vi) Rate of Perceived Exertion (RPE)

vii) Quality of life questionnaire

viii) Exercise Tolerance – six minutes walk test, Theoretical bases of Bruce's protocol

ix) Peak Flow Meter

x) ABG, PFT, ECG- (Normal & Variations due to Ischaemia & Infarction)

xi) X-ray Chest

xii) Ankle Brachial Index

xiii) Tests for Peripheral Arterial & Venous circulation

xiv) Functional Diagnosis using ICIDH-2

7] Assessment of Musculoskeletal Dysfunction

i) Tightness

ii) Joint Mobility

iii) Muscle strength

iv) Limb Length

v) Trick Movement

vi) Posture

vii) Gait

viii) Special Tests

ix) Functional Diagnosis using ICIDH-2

x) X-ray of extremities & spine, routine bio-chemical investigations

8] Assessment of Hand

i) Sensations

ii) Mobility of Joints

iii) Strength

iv) Special Tests like Froment's Sign, Bunnel – Littler's Test, Phalen's Test, Tinel's Sign, Wattenberg's Sign

9] Assessment of pain

i) Intensity & quality

ii) Objective assessment & documentation – VAS, Mc Gill's modified

Questionnaire, Numerical Rating Scale

10] Assessment of Obesity

i) Path physiology

ii) Assessment – BMI, Waist – Hip Ratio, Skin fold Caliper, Girth measurements

11] Introduction to Quality Of Life Questionnaire CLINICALS

1] Practice of Manual Therapy in Kaltenborn, Maitland, Mulligan & Cyriax on extremities only & only on models

2] Electro-diagnostic assessment – S D Curve, Faradic Galvanic Test, Test for Sensory & Pain Threshold, Test for Pain Tolerance to be carried out on relevant patients

3] Identification of abnormal breath sounds, measurement of chest expansion, pattern of breathing, Vital parameters, Grades of Dyspnoea, Rate of Perceived exertion, Ankle Brachial Index to be carried out on relevant patients

4] Exercise tolerance testing –6 minutes walk test & Bruce's protocol on models only

5] Practice of Neuro Therapeutic Skills of NDT, PNF, Rood's Technique & Brunnstrom on models only

6] Interpretation of reports – EMG, NC Studies, ABG, PFT, X-ray of Chest, Extremities & Spine & ECG

Cardio-Respiratory & General Physiotherapy (603)

1. Anatomical and Physiological differences between the Adult and Pediatric lung

2. Bedside assessment of the patient-Adult & Pediatric

3. Investigations and tests – Exercise tolerance Testing – Cardiac & Pulmonary, Radiographs, PFT, ABG, ECG, Hematological and Biochemical Tests

4. Physiotherapy techniques to increase lung volume – controlled mobilization, positioning,

Breathing exercises, Neurophysiologic Facilitation of Respiration, Mechanical aids - Incentive Spirometry, CPAP, IPPB

5. Physiotherapy techniques to decrease the work of breathing – Measures to optimize the Balance between energy supply and demand, positioning, Breathing re-education – Breathing Control techniques, mechanical aids – IPPB, CPAP, and Biped

6. Physiotherapy techniques to clear secretions – Hydration, Humidification & Nebulisation, Mobilization and Breathing exercises, Postural Drainage, Manual techniques – Percussion, Vibration and Shaking, Rib Springing, ACBT, Autogenic Drainage, Mechanical Aids – PEP, Flutter, IPPB, Facilitation of Cough and Huff, Nasopharyngeal Suctioning

7. Drug therapy – Drugs to prevent and treat inflammation, Drugs to treat Bronchospasm, Drugs to treat Breathlessness, Drugs to help sputum clearance, Drugs to inhibit coughing, Drugs to improve ventilation, Drugs to reduce pulmonary hypertension, Drug delivery doses, Inhalers and Nebulizers.

8. Management of wound ulcers- Care of ulcers and wounds - Care of surgical scars-U.V.R and other electro therapeutics for healing of wounds, prevention of Hyper granulated Scars Colloids, Electrotherapeutics measures for relief of pain during mobilization of scars tissues.

9. Physiotherapy in dermatology -Documentation of assessment, treatment and follow up skin conditions. U.V.R therapy in various skin conditions; Vitiligo; Hair loss; Pigmentation; Infected wounds ulcers Faradic foot bath for Hyperhydrosis Massage maneuvers for Cosmetic purpose of skin; use of specific oil as medium; Care of anesthetic hand and foot; Evaluation, planning and management of leprosy-prescription, fitting and training with Prosthetic and orthotic devices

10. Neonatal and Pediatric Physiotherapy – Chest physiotherapy for children, The neonatal unit, Modifications of chest physiotherapy for specific neonatal disorders, Emergencies in the neonatal unit

11. Physiotherapy in Obstructive lung conditions

12. Physiotherapy in Restrictive lung conditions

13. Management of breathlessness
14. Pulmonary Rehabilitation

15. Physiotherapy following Lung surgeries

16. Respiratory failure – Oxygen Therapy and Mechanical Ventilation

17. Introduction to ICU : ICU monitoring –Apparatus, Airways and Tubes used in the ICU - Physiotherapy in the ICU – Common conditions in the ICU – Tetanus, Head Injury, Lung Disease, Pulmonary Oedema, Multiple Organ Failure, Neuromuscular Disease, Smoke

Inhalation, Poisoning, Aspiration, Near Drowning, ARDS, Shock; Dealing with an Emergency Situation in the ICU

18. Burns management - Role of physiotherapy in the management of burns, post grafted cases- Mobilization and Musculo-skeletal restorative exercises following burns

19. Physiotherapy management following cardiac surgeries

20. Cardiac Rehabilitation

21. Physiotherapy management following PVD

22. Abdominal Surgeries - Management of Pulmonary Restorative Dysfunction following surgical procedures on Abdomen and Thorax

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Supervised Rotatory Clinical Training – II (604)

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4th YEAR

7th Semester

Community Medicine (701)

1. Health and Disease: Definitions, Concepts, Dimensions and Indicators of Health, Concept of well-being, Spectrum and Determinants of Health, Concept and natural history of Disease, Concepts of disease control and prevention, Modes of Intervention, Population Medicine, The role of socio-economic and cultural environment in health and disease

2. Epidemiology, definition and scope. Principles of Epidemiology and Epidemiological methods: Components and Aims, Basic measurements, Methods, Uses of Epidemiology, Infectious disease epidemiology, Dynamics and modes of disease transmission, Host defenses and Immunizing agents, Hazards of Immunization, Disease prevention and control, Disinfection. Screening for Disease: Concept of screening, Aims and Objectives, Uses and types of screening.

3. Epidemiology of communicable disease: Respiratory infections, Intestinal infections, Arthropod borne infections, Zoonoses, Surface infections, Hospital acquired infections Epidemiology of chronic non-communicable diseases and conditions: Cardio vascular diseases: Coronary heart disease, Hypertension, Stroke, Rheumatic heart disease, Cancer, Diabetes, 0besity, Blindness, Accidents and Injuries.

4. Public health administration- an overview of the health administration set up at Central and state levels. The national health programme-highlighting the role of social, economic and cultural factors in the implementation of the national programmes. Health problems of vulnerable groups- pregnant and lactating women, infants and pre-school children, occupational groups

5. Health programmers in India: Vector borne disease control programmed, National leprosy Eradication programmed, National tuberculosis programmed, National AIDS control programmed, National programmed for control of blindness, Iodine deficiency disorders (IDD) programmer, Universal Immunization programmer, Reproductive and child health programmer, National cancer control programmer, National mental health programme. National diabetes control programme, National family welfare programme, National sanitation and water supply programme, Minimum needs programme

6. Demography and Family Planning: Demographic cycle, Fertility, Family planning-objectives of national family planning programmed and family planning methods, A general idea of advantage and disadvantages of the methods.

7. Preventive Medicine in Obstetrics, Pediatrics and Geriatrics: MCH problems, Antenatal, Intranasal and post natal care, Care of children, Child health problems, Rights of child and National policy for children, MCH services and indicators of MCH care, Social welfare Programmers for women and children, Preventive medicine and geriatrics

8. Nutrition and Health: Classification of foods, Nutritional profiles of principal foods, Nutritional problems in public health, Community nutrition programmed

9. Environment and Health: Components of environment, Water and air pollution and public health: Pollution control, Disposal of waste, Medical entomology.

10. Hospital waste management: Sources of hospital waste, Health hazards, Waste management

11. Disaster Management: Natural and manmade disasters, Disaster impact and response, Relief phase, Epidemiologic surveillance and disease control, Nutrition, Rehabilitation, Disaster preparedness

12. Occupational Health: Occupational environment, Occupational hazards, Occupational diseases, Prevention of occupational diseases. Social security and other measures for the protection from occupational hazard accidents and diseases Details of compensation acts

13. Mental Health: Characteristics of a mentally healthy person, Types of mental illness, Causes of mental ill health, Prevention, Mental health services, Alcohol and drug dependence. Emphasis on community aspects of mental health Role of Physiotherapist in mental health problems such as mental retardation

14. Health Education: Concepts, aims and objectives, Approaches to health education, Models of health education, Contents of health education, Principles of health education, Practice of health education

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General Medicine, Rheumatology & Gerontology (702)

1] Disorders of Endocrine system

i) Diabetes

ii) Thyroid, Pituitary & Adrenal conditions

iii) Calcium Metabolism

2] Degenerative / Rhumatological Conditions

i) Rheumatoid Arthritis

ii) Osteo Arthritis

iii) S L E

iv) S S A

v) Gout

vi) Polymyositis

3] Geriatric Conditions

i) Aging Process & Alzheimer's disease

ii) Osteoporosis

iii) General Health Care, Wellness clinic

4] Nutrition Deficiency Diseases

5] Drug Abuse / Intoxication

Cardio-vascular & Pulmonary Medicine (703)

1] Cardio-vascular diseases-

a) Hypertension-systemic

b) I.H.D -Angina & Myocardial infarction

c) Arrhythmia – classification

d) Alular Heart Disease – i) Congenital ii) Acquired

e) Rheumatic Fever

f) Congestive Heart Disease

g) Infective Endo Cordites

h) Geriatric Cardio Vascular problems & management

i) ECG – Normal & Variations due to ischemia & infarction

j) PVD

2] Diseases of the respiratory system

a) Common Infectious diseases like Tuberculosis, Pneumonia, Lung Abscess, Bronchiectasis

b) Diseases of Pleura like Pleural Effusion, Pneumothorax, Hydropneumothorax, Emphysema

c) Occupational lung diseases like Silicosis Asbestosis, Pneumoconiosis, Brucellosis, Farmer's Lung

d) Obstructive Lung Diseases like Bronchitis, Emphysema, Bronchial Asthma, Cystic Fibrosis

e) Interstitial Lung Diseases

f) Geriatric respiratory problems & management

g) Intensive Medical Unit – Infrastructure & Treatment

h) Introduction of clinical examination –Breath sounds / X ray chest / Blood gas analysis /P.F.T.

Physiotherapy in Orthopedic Conditions (704)

1. PT assessment for orthopedic conditions -

SOAP format. Subjective - history taking, informed consent, personal, past, medical and socioeconomic history, chief complaints, history of present illness. Pain assessment- intensity, character, aggravating and relieving factors, site and location Objective- on observation - body built swelling, muscle atrophy, deformities, posture and gait. On palpation- tenderness-grades, muscle spasm, swelling-methods of swelling assessment, bony prominences, soft tissue texture and integrity, warmth and vasomotor disturbances On examination – ROM – active and passive, resisted isometric tests, limb length-apparent, true and segmental, girth measurement, muscle length testing-tightness, Contracture and flexibility, manual muscle testing, peripheral neurological examination dermatomes, my tomes and reflexes, special tests and functional tests. Prescription of home program Documentation of case records, and follows up.

2. Fractures -

Types, classification, signs and symptoms, complications Fracture healing – factors affecting fracture healing. Principles of fracture management - reduction - open and closed, immobilization - sling, cast, brace, slab, traction - manual, mechanical, skin, skeletal, lumbar and Cervical traction, external fixation, functional cast bracing. PT management in complications - early and late - shock, compartmental syndrome, VIC, fat embolism, delayed and mal union, RSD, mystic ossificans, AVN, pressure sores etc. Physiotherapy assessment in fracture cases Aims of PT management in fracture cases - short and long term goals Principles of PT management in fractures - Guidelines for fracture treatment during period of immobilization and guidelines for treatment after immobilization period

3. Specific fractures and dislocations:

PT assessment and management of upper limb fractures and dislocations PT assessment and management of lower limb fractures and dislocations including pelvis PT assessment and management spinal fractures

4. Principles of various schools of thought in manual therapy –

Maitland, Mackenzie, Mulligan

5. Degenerative and inflammatory conditions:

Definition, signs and symptoms, clinical features, path physiology, radiological Features, deformities, medical, surgical management Describe the PT assessment and management and home program for the following conditions – Osteoarthritis - emphasis mainly on knee, hip and hand, Rheumatoid Arthritis, Ankylosing spondylitis, Gout, Perthes disease, Per arthritic shoulder

6. Infective conditions:
Definition, signs and symptoms, clinical features, pathophysiology, radiological Features, medical, surgical management Describe PT assessment and Management for following conditions – Osteomyelitis – acute and chronic, Septic Arthritis, Phylogenic arthritis, TB spine and major joints - knee and hip.

7. Define; review the postural abnormalities of spinal column, clinical features, Deformities, medical and surgical management Describe PT assessment and Management and home program

8. Deformities: Review in detail the causes, signs and symptoms, radiological features, medical and surgical management. Describe the PT. assessment and management of the Following conditions : Congenital : CTEV, CDH, Torticollis, pes planes, pes caves And other common deformities Acquired: scoliosis, hypnosis, coax Vera, genus varum, valgum and recurvatum

9. Poliomyelitis: Definition, etiology, types, pathophysiology, clinical features, deformities, medical and surgical management PT. assessment and management after surgical corrections and reconstructive surgeries - emphasis on tendon transfer and home program

10. Leprosy: Definition, cause, clinical features, medical and surgical management PT Assessment, aims, and management after surgical procedures such as tendon transfer both pre and post operatively.

11. Amputations: Definition, levels, indications, types, PT assessment, aims, management pre and post operatively. PT management with emphasis on stump care and bandaging Pre and post prosthetic training, checking out prosthesis, complications of Amputations and its management

12. Spinal conditions: Review the causes, signs and symptoms, investigations, radiological features, Neurological signs PT assessment, aims, and management and home program of the following conditions: Cervical spondylosis, Lumbar spondylosis, Spondylolisthesis, Spinal canal stenosis, Spondylolysis, Sacro-iliac joint Dysfunction, Socialization, Lumbarisation, Intervertebral disc prolapsed, Coccydynia, Spina bifida occulta

13. Osteoporosis: Causes, predisposing factors, investigations and treatment.

14. Orthopedic surgeries: Pre and post operative PT assessment, goals, precautions and PT management of Following surgeries such as: Arthrodesis, Osteotomy, Arthroplasty-partial and Total- Excision arthroplasty, excision arthroplasty with implant, interposition Arthroplasty and total replacement; Tendon transplant, Soft tissue releasetenotomy, Myotomy, lengthening; Arthroscopy, Spinal stabilization, Reattachment of limbs, External fixators, Synovectomy.

15. Shoulder joint: Shoulder instabilities, TOS, RSD, Impingement syndrome – conservative and Post Operative PT management Total shoulder replacement and Hemi replacement Post operative PT management. AC joint injuries - rehabilitation Rotator cuff Tears- conservative and surgical repair Subacromial decompression – Post operative PT management

16. Elbow and forearm: Excision of radial head - Post operative PT management Total elbow arthroplasty- Post operative PT management.

18. Wrist and Hand: Total wrist arthroplasty. Repair of ruptured extensor tendons. Carpal tunnel syndrome.Flexor and extensor tendon lacerations - Post operative PT management

19. Hip: Joint surgeries- hemi and total hip replacement - Post operative PT management Tendonitis and bursitis - Management

20. Knee: Lateral retinacular release, chondroplasty- Post operative management. Realignment of extensor mechanism ACL and PCL reconstruction surgeries – Post operative rehabilitation Meniscectomy and menisci repair - Post operative management Plica syndrome, patellar dysfunction and Hoffa's syndrome - conservative management. TKR-rehabilitation protocol. Patellar tendon ruptures and Patellectomy- rehabilitation

21. Ankle and foot: Ankle instability. Ligamentous tears- Post operative management.

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8th Semester

Rehabilitation on Medicine (801)

1. Introduction of Rehabilitation & History

2. Epidemiology of disability (Impairment, disability, phases of disability process, etc.).

3. Principles of Rehabilitation & concept of team approach with rolls of each individual participant.

4. Organization of Rehabilitation unit.

5. Disability prevention evaluation & principles of Rehabilitation Management.

6. Role of Physiotherapy in Rehabilitation (Preventive, treatment & restoration)

7. Brief outline of Communication disorder & its implications on Rehabilitation process.

8. Brief outline of psychosocial & vocational aspects of Rehabilitation.

9. Introduction to Occupational therapy.

10. Activities of daily living, functional assessment & training for functional independence.

11. Brief outline of basic community medicine with special reference to community based Rehabilitation, infrastructure and role of CBR

12. Assessment of disability in rural & urban setups. Health care delivery system & preventive measures with specific reference to disabling conditions. Community education program.

13. Application of Physiotherapy skills at community level with special reference to the need at rural level.

14. Role of voluntary Organizations in CBR: Charitable Organizations, Voluntary health agencies – National level and International NGO's, Multilateral and Bilateral agencies. International Health Organizations: WHO, UNICEF, UNDP, UNFPA, FAO, ILO, World bank, USAID, SIDA, DANIDA, Rockefeller, Ford foundation, CARE, RED CROSS.

15. National District Level Rehabilitation Program: Primary rehabilitation unit, Regional training center, District rehabilitation center, Primary Health center, Village rehabilitation worker, Anganwadi worker

16. Role of Physiotherapy in CBR: Screening for disabilities, prescribing exercise Program, Prescribing and devising low cost locally available assistive aids, Modifications physical and architectural barriers for disabled, Disability Prevention, Strategies to improve ADL, Rehabilitation program for various Neuro-musculoskeletal and cardiothoracic disabilities

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Neurology & Neurosurgery (802)

1. Disorders of function in the context of Pathophysiology, Anatomy in Neurology and Cortical Mapping.

2. Classification of neurological involvement depending on level of lesion.
3. Neurological assessment: Principles of clinical diagnosis, higher mental function, assessment of brain & spinal cord function, evaluation of cranial nerves and evaluation of autonomic nervous system.

4. Investigations: principles, methods, views, normal/abnormal values/features, types of

following investigative procedures- skull x-ray, CT, MRI, evoked potentials, lumbar puncture, CSF examination, EMG, NCV.

5. Neuro-ophthalmology: Assessment of visual function – acuity, field, colour vision, Pupillary reflex, accommodation reflex, abnormalities of optic disc, disorders of optic nerve, tract, radiation, occipital pole, disorders of higher visual processing, disorders of pupil, disorders of eye movements, central disorders of eye movement

6. Deafness, vertigo, and imbalance: Physiology of hearing, disorders of hearing, examination & investigations of hearing, tests of vestibular function, vertigo, peripheral vestibular disorders, central vestibular vertigo.

7. Lower cranial nerve paralysis – Etiology, clinical features, investigations, and management of following disorders - lesions in trigeminal nerve, trigeminal neuralgia, trigeminal sensory neuropathy, lesions in facial nerve, facial palsy, bell's palsy, hemi facial spasm, Glossopharangial neuralgia, lesions of Vagus nerve, lesions of spinal accessory nerve, lesions of hypoglossal nerve. Dysphagia – swallowing mechanisms, causes of dysphagia, symptoms, examination, and management of dysphagia.

8. Cerebra-vascular diseases: Define stroke, TIA, RIA, stroke in evolution, multi infarct dementia and Lacunars infarct. Classification of stroke – Ischemic, hemorrhagic, venous Infarcts Risk factors, cause of ischemic stroke, causes of hemorrhagic stroke. Classification of hemorrhagic stroke, classification of stroke based on symptoms, stroke syndrome, investigations differential diagnosis, medical and surgical management.

9. Head injury: Etiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications.

10. Higher cortical, neuro psychological and neurobehavioral disorders: Causes of blackouts, Physiological nature of Epilepsy, classification, clinical features, investigations, medical& surgical management of following disorders – Non-epileptic attacks of childhood, Epilepsy in childhood, Seizers, and Epilepsy syndromes in adult. Classification and clinical features of Dyssomnias, Parasomnias, Dementia, Obsessive-compulsive disorders. Neural basis of Consciousness, causes & investigations of Coma, criteria for diagnosis of Brain death Etiology, pathophysilogy, classification, clinical signs & symptoms, investigations, Differential diagnosis, management of Perceptual disorders and Speech disorders

11. Movement disorders: Definition, etiology, risk factors, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders – Parkinson's disease, Dystopia, Chorea, Ballast, Athedosis, Tics, Myoclonus and Wilson's disease.
12. Cerebella and coordination disorders: Etiology, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, management of congenital ataxia, Frederic's ataxia, Ataxia talengiectasia, metabolic ataxia, hereditary cerebellar ataxia,Tabes dorsal is and Syphilis.

13. Spinal cord disorders: Functions of tracts, definition, etiology, risk factors, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders – Spinal cord injury, Compression by IVD prolapse, 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 Sarcodosis.

14. Brain tumors and spinal tumors: Classification, clinical features, investigations, medical and surgical management.

15. Infections of brain and spinal cord: Etiology, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders – Meningitis, Encephalitis, Poliomyelitis and Post polio syndrome. Complications of systemic infections on nervous system – Septic
Encephalopathy, AIDS, Rheumatic fever, Brucellosis, Tetanus, and Pertussis

16. Motor neuron diseases: - Etiology, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, and complications of following disorders - Amyotrophic lateral sclerosis, Spinal muscular atrophy, Hereditary bulbar palsy, Neuromyotonia and Post-irradiation lumbosacral polyradiculopathy.

17. Multiple sclerosis - Etiology, pathophysilogy, classification, clinical signs & symptoms, Investigations, differential diagnosis, medical management, and complications

18. Disorders of neuromuscular junction – Etiology, classification, signs & symptoms, Investigations, management, of following disorders Myasthenia gravis, Eaton-Lambert Syndrome and Botulism

19. Muscle diseases: Classification, investigations, imaging methods, Muscle biopsy, Management of muscle diseases, genetic counseling Classification, etiology, signs & Symptoms of following disorders – Muscular dystrophy, Myotonic dystrophy, sympathy, Non-dystrophic myotonia

20. Polyneuropathy – Classification of Polyneuropathies, Hereditary motor sensory neuropathy, Hereditary sensory and Autonomic neuropathies, Amyloidal neuropathy, Acute idiopathic Polyneuropathies. Guillain-Barre syndrome – Causes, clinical features, management of GBS, Chronic Idiopathic Polyneuropathies, diagnosis of polyneuropathy, nerve biopsy
21. Focal peripheral neuropathy: Clinical diagnosis of focal neuropathy, neurotmesis, Axonotmesis, Neuropraxia. Etiology, risk factors, classification, neurological signs & symptoms, investigations, management, of following disorders – RSD, Nerve tumors, Brachial plexus palsy, Thoracic outlet syndrome, Lumbosacral plexus lesions, Phrenic & Intercostals nerve lesions, Median nerve palsy, Ulnar nerve palsy, Radial nerve palsy,

Musculocutaneous nerve palsy, Anterior & Posterior interosseous nerve palsy, Axillary nerve palsy, Long thoracic nerve palsy, Suprascapular nerve palsy, Sciatic nerve palsy, Tibial nerve palsy, Common peroneal nerve palsy, Femoral nerve palsy, Obdurate nerve palsy, Prudently nerve palsy.

22. Paediatric neurology: Neural development, Etiology, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders - Cerebral palsy, Hydrocephalus, Arnold-chiari malformation, Basilar impression, Klippel-Feil syndrome, Achondroplacia, Cerebral malformations, Autism, Dandy walker syndrome and Down's syndrome.

23. Toxic, metabolic and environmental disorders: Etiology, risk factors, classification, Neurological signs & symptoms, investigations, management, of following disorders – Encephalopathy, Alcohol toxicity, Recreational drug abuse, Toxic gases & Asphyxia, Therapeutic & diagnostic agent toxicity, Metal toxicity, Pesticide poisoning, Environmental & physical insults, Pant & Fungal poisoning, Animal poisons, & Complications of organ transplantation

24. Introduction, Indications and Complications of following Neuro surgeries: Craniotomy, Cranioplasty, Stereotactic surgery, Deep brain stimulation, Burr-hole, Shunting, Laminectomy, Hemilaminectomy, Rhizotomy, Microvascular decompression surgery, Endarterectomy, Remobilization, Pituitary surgery, Ablative surgery - Thalamotomy and Pallidotomy, coiling of aneurysm, Clipping of aneurysm, and neural implantation

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Physiotherapy in Sports (803)

1. Pre-exercise evaluation

2. Diet and nutrition Measurement of fitness components and sports skills - Measurement of muscular strength, Measurement of muscular endurance, Measurement of flexibility, Determination exercise endurance,

3. Physiological effects of exercise on body systems - Muscular system, Endocrine system, Cardio-respiratory system, Nervous system

4. Sports injuries - Spine – PIVD, Kissing spine, cervical whiplash injuries, facet joint syndrome, SI joint dysfunction, Hip – muscle strain, performs syndrome, ITB syndrome, osteitis pubis, Knee – menisci, cruciate, collateral, osteochondritis, Chondromalacia patellae, biceps femoris tendonitis, swimmers knee, patello-femoral pain syndrome, Leg & ankle – shin splint, achillis tendonitis & rupture, TA bursitis, ankle sprain, plantar fascitis, turf toe syndrome, Head & face – maxillofacial injuries, helmet compression syndrome.

5. Sports injuries Shoulder – instability, rotator cuff injury, biceps tendonitis and rupture, pectoralis major rupture, scapular dyskinesis and acromio-clavicular joint injuries, Elbow – tennis elbow, golfer's elbow, Wrist and hand – carpal tunnel syndrome, gamekeeper's thumb.

6. Principles of injury prevention.

7. Principles of training & Rehabilitation in sports injuries.

8. Sports in Special age groups: Female athletic triad, Younger athlete- Musculoskeletal problems, management, children with chronic illness and nutrition. Older athlete- Physiological changes with aging, benefits, risks of exercise in elderly, exercise prescription guidelines for elderly.

Project Work (804)

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