

THIRD YEAR B.P.T

Course Code :301

Course Title : General Medicine and Pediatrics: (GMP) Theory (L)

GMP 1.0. Subject Description and instruction to teacher

This subject follows the basic science subjects to provide the knowledge about relevant aspects of general medicine. The student will have a general understanding of the diseases the therapist would encounter in their practice. The objective of this course is that after lectures and discussion and clinical demonstrations the student will be able to list the etiology, pathology, clinical features and treatment methods for various medical conditions and appreciate the role of physiotherapy in overall management of patient

GMP 1.0.1. Course Outcomes: General Medicine and Pediatrics:

After completion of this course the student shall be able to

1. Describe the aetiology, pathophysiology, clinical manifestations, diagnostic measures and management of patients with disorders of Communicable and infectious diseases Cardio-vascular system (Acquired, congenital and infective) Nervous system Acquired, congenital, infective and traumatic) Respiratory system (Infective, acquired, acute and chronic) Gastro-intestinal system Genito- Urinary system Integumentary system
2. Acquire skill of history taking and clinical examination of respiratory, cardio-vascular system as a part of clinical teaching
3. Demonstrate competencies in identifying common clinical signs of various disorders
4. Interpret auscultation findings related to respiratory and cardiac system
5. Interpret Chest X-ray, Blood gas analysis, Pulmonary Function Tests& Haematological studies relevant to cardiovascular, respiratory and general medical conditions
6. Acquire knowledge for drugs used in each condition to understand its effect influence on Physiotherapy management
7. Appreciate the role of different specialist in diagnosing and managing the disorders.

General Medicine

8. Describe the etiology, pathophysiology, clinical manifestations, diagnostic measures and management of patients with disorders of
 - i. Communicable and infectious diseases
 - ii. Cardio-vascular system (Acquired, congenital and infective)
 - iii. Nervous system (Acquired, congenital, infective and traumatic)
 - iv. Respiratory system (Infective, acquired, acute and chronic)

- v. Gastro-intestinal system
 - vi. Genito- Urinary system
 - vii. Integumentary system
9. Demonstrate competencies in identifying common clinical signs of various disorders
 10. Demonstrate knowledge in common diagnostic procedures used (Blood investigations, Radiologic procedures)
 11. Appreciate the role of different specialist in diagnosing and managing the disorders.

GMP 1.0.2. Teaching learning Methods:

- i. Lecture
- ii. Tutorial
- iii. Case discussion
- iv. Clinical Observation

GMP 1.0.3. Assessment Methods:

- i. MCQs
- ii. Structured Essays
- iii. Viva-voce

Course Contents: B.P.T. GMP 301 (L)

SECTION -A

Unit 1: Infections

- GMP 1.1. Classify communicable diseases
- GMP 1.2. Discuss the importance of prevention of communicable diseases
- GMP 1.3. Discuss the physiological changes caused due to infection.
- GMP 1.4. Describe the methods of spreading the infections
- GMP 1.5. Discuss different types vaccination used in Infections
- GMP 1.6. Discuss the importance of vaccination
- GMP 1.7. Discuss the clinical features, Diagnosis, Complications and medical management of
 - 1. Food poisoning and gastroenteritis
 - 2. Sexually transmitted diseases
 - 3. Tuberculosis Leprosy
 - 4. Rheumatic fever

5. Tetanus, Typhoid, Diphtheria
6. Pneumonia
7. Influenza Herpes – simplex and zoster, Varicella, Measles, Mumps, Hepatitis B & C, HIV infections and AIDS.

Unit 2:

GMP 2.1. **Metabolic and Deficiency Diseases:** Discuss etiology, clinical features, diagnosis, complications and treatment

1. Diabetes
2. Anemia
3. Vitamin & Mineral Deficiency diseases
4. diseases of the endocrine glands

Unit 3:

GMP 3.1. **Diseases of Respiratory System:** Explain the Etiology, clinical features, diagnosis, complications and treatment of the following conditions:

1. Asthma
2. Bronchitis
3. Tuberculosis
4. Massive collapse of lungs
5. Bronchiectasis
6. Bronchial Pneumonia
7. lung abscess
8. Emphysema
9. Pleural effusion
10. Pneumothorax & vocal cords
11. chronic infection of larynx and trachea
12. Abnormalities of trachea
13. infract of lungs
14. chronic obstructive pulmonary disease
15. chest wall deformities

Unit 4:

GMP 4.1. **Diseases of Circulatory System:** Explain the Etiology, clinical features, diagnosis, complications and treatment of the following conditions

1. Atherosclerosis, Thrombosis, Embolism, Hemorrhage, various diseases of arteries,
2. Vascular diseases
3. ischemic heart disease
4. rheumatic heart disease
5. congenital heart disease
6. cardiac arrest
7. Hypertension

SECTION -B

Unit 5: Nutritional Disorders

GMP 5.1. Describe in details about Nutritional and Energy requirements

GMP 5.2. Explain detail clinical Features and treatment of Deficiency diseases (Protein, Vitamin)

GMP 5.3. Discuss Management of Obesity – diet, exercise and medications

Unit 6:

GMP 6.1. **Diseases of Digestive and renal Systems:** Discuss etiology, clinical features, diagnosis, complications and treatment of the following:

1. Reflux Esophagitis, Achalasia Cardia, Carcinoma of Esophagus, GI bleeding, Peptic Ulcer disease, Carcinoma of Stomach, Pancreatitis, Malabsorption Syndrome, Ulcerative Colitis, Peritonitis, Infections of Alimentary Tract
2. Viral Hepatitis, Wilson's disease, Alpha1-antitrypsin deficiency, Tumors of the Liver, Gall stones, Cholecystitis.
3. Renal Failure, Nephrotic Syndrome, Nephritis, Urinary tract infections, Urinary calculi.

Unit 7:

GMP 7.1. **Diseases of Skin:** Discuss the Causes, clinical features and management of the following skin conditions:

Acne, Boil, Carbuncles, Impetigo, Herpes, Urticaria, Psoriasis, Warts, Corn, Psoriasis, Fungal infections, Leprosy, Dermatitis, Eczema, Venereal diseases.

Unit 8: Pediatrics

- GMP 8.1. Enumerate the problems and management LOW Birth Weight Babies
- GMP 8.2. Describe the common congenital Abnormalities with causes and its management.
- GMP 8.3. Explain the causes, types, complications, clinical manifestations, and medical management of cerebral palsy
- GMP 8.4. Explain the causes, types, complications, clinical manifestations, and medical management of spinal malformations
- GMP 8.5. Describe the causes, types, complications, clinical manifestations, and medical management of epilepsies
- GMP 8.6. Discuss the causes, clinical manifestations, investigation procedures and medical management of autism spectrum disorders.
- GMP 8.7. Discuss the causes, clinical manifestations, investigation procedures and management of hydrocephalus (Including surgical)

Unit 9: Geriatrics

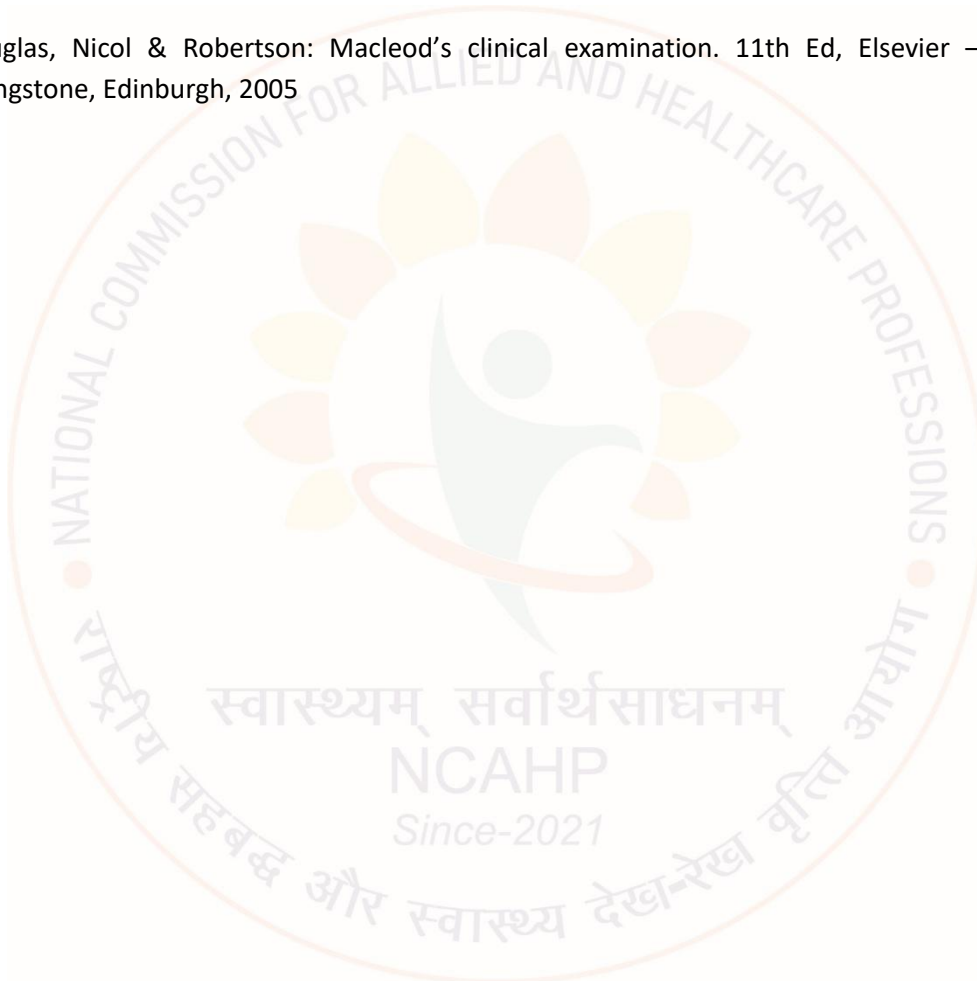
- GMP 9.1. Discuss the epidemiology, pathogenesis, clinical evolution, presentation and course of common diseases in the elderly
- GMP 9.2. Discuss the causes, signs and symptoms degenerative disorders of the aging population (Neurological and musculoskeletal)

Recommended text books for GMP

1. Davidson's principles and Practices of Medicine – Edward – Churchill Livingstone.
2. Hutchinson's Clinical Methods – Swash – Bailliere Tindall.
3. A Short Text book of Medicine – Krishna Rao – Jaypee Brothers.
4. A Short Text book of Psychiatry – Ahuja Niraj – Jaypee Brothers.
5. Shah SN: API text book of Medicine. Vol I & II, 8th Ed, The Association of Physicians of India, Mumbai, 2008.
6. Golwalla SA, Golwalla AF: Medicine for students. 21st Ed, National book depot, Mumbai, 2005.
7. Das PC: Textbook of medicine. 4th Ed, Current books international, Kolkata, 2000.
8. Mehta PJ, Joshi SR, Mehta NP: Practical Medicine. 17th Ed, National Book Depot, New Delhi, 2005.

Recommended reference books for GMP

1. Fauci, Braunwald, Kasper, Longo, Jameson, Loscalzo: Harrison's principles of internal medicine. Vol I & II, 17th Ed, McGraw Hill, New York, 2008.
2. McPhee, Papadakis, Tierney: Current medical diagnosis and treatment. 46th Ed, McGraw Hill, New York, 2007.
3. Ogilvie & Evans: Chamberlain's symptoms and signs in clinical medicine – An introduction to medical diagnosis. 12th Ed, Butterworth Heinmann, Oxford,
4. Douglas, Nicol & Robertson: Macleod's clinical examination. 11th Ed, Elsevier – Churchill Livingstone, Edinburgh, 2005



Course Title: General Surgery: (GS) Theory (L)

GS 1.0. Subject Description and instruction to teacher

This subject follows the basic science subjects to provide the knowledge about relevant aspects of general surgery. The student will have a general understanding of the surgical conditions the therapist would encounter in their practice. The objective of this course is that after lectures and discussion and clinical demonstrations the student will be able to list the indications for surgery, etiology, clinical features and surgical methods for various conditions and appreciate the role of Physiotherapy in overall management of patient undergoing these surgical procedures

GS 1.0.1. Course Outcomes: General Surgery

1. Discuss the principles of general surgery and its implications to Physiotherapy practice. (KH)
2. Explain the pathophysiology of wound healing including the factors affecting healing. (KH)
3. Discuss the effects of general anesthesia on various system and postoperative complications. (KH)
4. Describe the indications, procedures and complications and their implications in Physiotherapy clinical decision making for common surgeries (K)
5. Discuss the common procedures used in plastic surgery and skin grafting. (KH)
6. Apply the basic surgical knowledge in Physiotherapy clinical decision making. (KH)

After completion of this course the student shall be able to

1. Discuss the principles of general surgery and its implications to Physiotherapy practice
2. Explain the pathophysiology of wound healing including the factors affecting healing.
3. Discuss the effects of general anesthesia on various system and postoperative complications.
4. Describe the indications, procedures and complications and their implications in Physiotherapy clinical decision making for common surgeries of Abdomen, Thorax, Nervous system, Pelvis and Vascular system
5. Apply the basic surgical knowledge in Physiotherapy clinical decision making.
6. Interpret pathological / biochemical studies pertaining to surgical pre and post op conditions

7. Acquire the skill of clinical examination of pelvic floor
8. Acquire the skill of clinical examination of pregnant woman
9. Describe the normal and abnormal physiological events during the puberty, labor, puerperium, post – natal stage and menopause. stage and various aspects of urogenital dysfunction and their management in brief

GS 1.0.2. Teaching Learning Methods:

- i. Lecture
- ii. Tutorial
- iii. Case discussion

GS 1.0.3. Assessment Methods:

- i. MCQs
- ii. Essay
- iii. Viva-voce

SECTION -A

Unit 1: Introduction to General Surgery

- GS 1.1. Discuss the principles of surgeries
- GS 1.2. Explain the process of wound healing
- GS 1.3. Discuss the surgical management of non-healing wounds
- GS 1.4. Explain the principles of incision and suturing
- GS 1.5. Discuss the types of anesthesia
- GS 1.6. Explain the complications of general anesthesia on various systems
- GS 1.7. Discuss the Principles of Post-operative management

Unit 2: Abdominal surgeries

- GS 2.1. Explain the common abdominal incisions
- GS 2.2. Discuss the common abdominal and pelvic organ surgical procedures and its Physiotherapy implications (Herniorrhaphy, Colostomy, Ileostomy, Hysterectomy, Prostatectomy, cystectomy, Appendectomy and Cholecystectomy)

SECTION –B

Unit 3: Thoracic surgeries

GS 3.1. Explain the common thoracic incisions

GS 3.2. Discuss the common thoracic organ surgical procedures and its Physiotherapy implications (CABG, Cardiac transplantation, Valve surgeries, Thoracotomy, Pleural surgeries, Lobectomy, Lung Volume reduction surgeries, Lung transplantation)

Unit 4: Burns and Plastic Surgery

GS 4.1. Explain the types of burns

GS 4.2. Explain the assessment procedures followed in standard burn care unit

GS 4.3. Discuss the medical and surgical management of Burns

GS 4.4. Discuss the common procedures used in plastic surgery and skin grafting

GS 4.5. Discuss the role of Physiotherapy following skin grafts

Unit 5: Soft tissue surgeries

GS 5.1. Discuss the principles of tendon transfer surgeries

GS 5.2. Discuss the common tendon transfer surgery procedures in terms of indications, prognosis, postoperative care and Physiotherapy role.

Unit 6: Obstetrics and Gynaecology

COURSE OUTCOMES: At the end of the course, the student will be able to 1. Describe the normal and abnormal physiological events during the puberty, labor, puerperium, post-natal stage and menopause 2. Discuss various complications during pregnancy, labor, puerperium and postnatal stage, pre-andpost-menopausal stage and various aspects of urogenital dysfunction and the management in brief 3. Acquire knowledge in brief about intra uterine development of the fetus 4. Acquire the skill of clinical examination of the pelvic floor 5. Acquire the skill of the clinical examination of pregnant woman.

OBG 6.1. Anatomy and physiology of the female reproductive organs. Puberty dynamics.

OBG 6.2. Physiology of menstrual cycle-ovulation cycle, uterine cycle Cx. cycle, Duration. Hormonal regulation of menstruation.

OBG 6.3. Diagnosis of pregnancy.

OBG 6.4. Abortion

OBG 6.5. Physiological changes during pregnancy.

OBG 6.6. Antenatal care.

OBG 6.7. High risk pregnancy., prenatal, common complications Investigation and management

OBG 6.8. Musculoskeletal disorders during pregnancy

OBG 6.9. Normal labour. Multiple Child birth

"Curriculum Handbook of Physiotherapy (Intellectual Property of the National Commission for Allied and Healthcare Professions, Ministry of Health and Family Welfare)."

- OBG 6.10. Child birth complications, investigations and management
- OBG 6.11. Normal puerperium, lactation and postnatal.
- OBG 6.12. Family planning. Medical Termination of pregnancy (MTP).
- OBG 6.13. Infection of female genital tract including sexually transmitted diseases, low backache.
- OBG 6.14. Prolapse of uterus and vagina.
- OBG 6.15. Principles of common gynaecological operations Hysterectomy, D&C, D&E, PEP Smear
- OBG 6.16. Menopause and its effects
- OBG 6.17. Sterility- Pathophysiology, investigations, management
- OBG 6.18. Urogenital dysfunction – pre and post natal condition
- OBG 6.19. Carcinoma of female reproductive organs – surgical management in brief

Recommended text Books for GS

1. S. Das: A concise textbook of surgery. 3rd Ed, Dr. S.Das, Calcutta, 2001.
2. S. Das: A manual on clinical surgery. 6th Ed, Dr. S. Das, Calcutta, 2004.
3. Dutta DC: Text book of obstetrics / Textbook of gynecology. 5th / 6th Ed, New central book agency (P) ltd, Kolkata, 2003/2004.
4. Basak KS: Essentials of ophthalmology. 3rd Ed, Current books international, Kolkata, 2004.
5. Bhargava KB, Bhargava SK & Shah TM: A short textbook of E.N.T diseases. 7th Ed, Usha publications, Mumbai, 2005
6. Text book of Gynecology – by Dutta – New Central Book Agency
7. Dewhurst's Textbook of Obstetrics & Gynaecology
8. "Gabbie's Obstetrics " and "Clinical Obstetrics and Gynaecology "

Recommended reference books for GS

1. Russell RCG, Williams NS, Bulstrode CJK: Bailey & Love's short practice of surgery. 24th Ed, Arnold, London, 2004.
2. Mowschenson PM: Aids to undergraduate surgery. 3rd Ed, Churchill Livingstone, Edinburgh,
3. Farquharson M & Moran B: Farquharson's textbook of operative general surgery. 9th Ed, Hodder Arnold, London, 2005.
4. Lumley JSP: Hamilton Bailey's demonstrations of physical signs in clinical surgery. Butterworth Heinman, Oxford,
5. Doherty MG: Current surgical diagnosis and treatment. 12th Ed, Lange medical books, New York, 2006.

Course Title: Orthopedics: (OR) Theory (L)**OR 1.0. Subject Description and instruction to teacher**

This subject follows the basic science subjects to provide the knowledge about Orthopedic conditions the therapist would encounter in their practice. The objective of this course is that after completion of the lectures and discussion the student will be able to demonstrate an understanding of orthopedic conditions causing disability, list the etiology, clinical features and methods of investigations and management.

OR 1.0.1. Course Outcomes: Orthopedics

After completion of this course the student shall be able to

1. Describe the etiology, pathophysiology, clinical manifestations, diagnostic measures, conservative and surgical management of patients with disorders of (including trauma) Bones Joints Muscles Soft tissues
2. Demonstrate competencies in identifying common clinical signs of various musculoskeletal disorders
3. Demonstrate abilities in performing special tests to differentially diagnosing soft tissue injuries.
4. Demonstrate abilities to interpret radiological finding related to Physiotherapy practice.
5. Appreciate the role of different specialist in diagnosing and managing musculoskeletal disorders

Course Contents: Orthopedics: (OR) 303 (L)**SECTION -A****Unit 1****OR 1.1. Introduction**

1. Introduction to orthopedics.
2. Clinical examination in an orthopedic patient.
3. Common investigative procedures.
4. Radiological and Imaging techniques in Orthopedics.
5. Inflammation and repair, Soft tissue healing.

OR 1.2. Traumatology

1. Fracture: definition, types, signs and symptoms.
2. Fracture healing.
3. Complications of fractures.
4. Conservative and surgical approaches.
5. Principles of management – reduction (open/closed, immobilization etc.).
6. Subluxation/ dislocations – definition, signs and symptoms, management (conservative and operative).

OR 1.3. Fractures and Dislocations of Upper Limb

1. Fractures of Upper Limb - causes, clinical features, mechanism of injury, complications, conservative and surgical management of the following fractures:
2. Fractures of clavicle and scapula.
3. Fractures of greater tuberosity and neck of humerus.
4. Fracture shaft of humerus.
5. Supracondylar fracture of humerus.
6. Fractures of capitulum, radial head, olecranon, coronoid, and epicondyles.
7. Side swipe injury of elbow.
8. Both bone fractures of ulna and radius.
9. Fracture of forearm – Monteggia, Galeazzi fracture – dislocation.
10. Chauffeur's fracture.
11. Colle's fracture.
12. Smith's fracture.
13. Scaphoid fracture.
14. Fracture of the metacarpals.
15. Bennett's fracture.
16. Fracture of the phalanges. (Proximal and middle.)

OR 1.4. Dislocations of Upper Limb –

1. Anterior dislocation of shoulder – mechanism of injury, clinical feature, complications, conservative management (Kocher's and Hippocrates maneuver), surgical management (putti plat, Bankart's) etc.
2. Recurrent dislocation of shoulder.
3. Posterior dislocation of shoulder – mechanism of injury, clinical features and management.
4. Posterior dislocation of elbow – mechanism of injury, clinical feature, complications & management.
5. Hand Injuries - mechanism of injury, clinical features, and management of the following –
6. Crush injuries.
7. Flexor and extensor injuries.
8. Burn injuries of hand

UNIT 2

OR 2.1. Fracture of Spine

1. Fracture of Cervical Spine - Mechanism of injury, clinical feature, complications (quadriplegia); Management-immobilization (collar, cast, brace, traction); Management for stabilization, management of complication (bladder and bowel, quadriplegia).
2. Clay shoveller's fracture.
3. Hangman's fracture.
4. Fracture odontoid.
5. Fracture of atlas.

OR 2.2. Fracture of Thoracic and Lumbar Regions - Mechanism of injury, clinical features, and management— conservative and surgical of common fractures around thoracic and lumbar regions

OR 2.3. Fracture of coccyx.

OR 2.4. Fracture of Rib Cage - Mechanism of injury, clinical features, management for Fracture Ribs, Fracture of sternum.

OR 2.5. Fractures and Dislocations of Lower Limb

1. Fracture of Pelvis and Lower Limb - causes, clinical features, mechanism of injury, complications, conservative and surgical management of the following fractures:
2. Fracture of pelvis.
3. Fracture neck of femur – classification, clinical features, complications, management - conservative and surgical.
4. Fractures of trochanters.
5. Fracture shaft femur—clinical features, mechanism of injury, complications, management-conservative and surgical.
6. Supracondylar fracture of femur.
7. Fractures of the condyles of femur.
8. Fracture patella.
9. Fractures of tibial condyles.
10. Both bones fracture of tibia and fibula.
11. Dupuytren's fracture
12. Maisonneuve's fracture.
13. Pott's fracture – mechanism of injury, management.
14. Bimalleolar fracture
15. Trimalleolar fracture
16. Fracture calcaneum – mechanism of injury, complications and management.
17. Fracture of talus.
18. Fracture of metatarsals—stress fractures Jones's fracture.
19. Fracture of phalanges.

OR 2.6. Dislocations of Lower Limb - mechanism of injury, clinical features, complications, management of the following dislocations of lower limb.

1. Anterior dislocation of hip.
2. Posterior dislocation of hip.
3. Central dislocation of hip.
4. Dislocation of patella.
5. Recurrent dislocation of patella.

- OR 2.7. Soft Tissue Injuries - Define terms such as sprains, strains, contusion, tendinitis, rupture, tenosynovitis, tendinosis, bursitis.
- OR 2.8. Mechanism of injury of each, clinical features, managements- conservative and surgical of the following soft tissue injuries:
1. Meniscal injuries of knee.
 2. Cruciate injuries of knee.
 3. Medial and lateral collateral injuries of knee.
 4. Lateral ligament of ankle.
 5. Wrist sprains.
 6. Strains- quadriceps, hamstrings, calf, biceps, triceps etc.
 7. Contusions- quadriceps, gluteal, calf, deltoid etc.
 8. Tendon ruptures-Achilles, rotator cuff muscles, biceps, pectorals etc.

SECTION -B

UNIT 3

- OR 3.1. Amputations - Definition, levels of amputation of both lower and upper limbs, indications, complications.
- OR 3.2. Traumatic Spinal Cord Injuries - Clinical features, complications, medical and surgical management of Paraplegia and Quadriplegia.
- OR 3.3. Deformities - clinical features, complications, medical and surgical management of the following Congenital and Acquired deformities.
1. Congenital Deformities –
 - i. CTEV.
 - ii. CDH.
 - iii. Torticollis.
 - iv. Scoliosis.
 - v. Flat foot.
 - vi. Vertical talus.
 - vii. Hand anomalies- syndactyly, polydactyly and ectrodactyly. Arthrogryposis multiplex congenita (amyoplasia congenita).
 - viii. Limb deficiencies- Amelia and Phocomelia. Klippel feil syndrome. Osteogenesis imperfecta(fragile ossium).
 - ix. Cervical rib.

2. Acquired Deformities –

- i. Acquired Torticollis.
- ii. Scoliosis.
- iii. Kyphosis.
- iv. Lordosis.
- v. Genu varum.
- vi. Genu valgum.
- vii. Genu recurvatum
- viii. Coxa vara.
- ix. Pes cavus.
- x. Hallux rigidus.
- xi. Hallux valgus.
- xii. Hammer toe.
- xiii. Metatarsalgia.

OR 3.4. Disease of Bones and Joints: Causes, Clinical features, Complications, Management- medical and surgical of the following conditions:

1. Infective conditions: Osteomyelitis (Acute / chronic). Brodie's abscess. TB spine and major joints like shoulder, hip, knee, ankle, elbow etc.
2. Arthritic conditions: Pyogenic arthritis. Septic arthritis. Syphilitic infection of joints.
3. Bone Tumors: classification, clinical features, management - medical and surgical of the following tumors: Osteoma. Osteosarcoma, Osteochondroma. Enchondroma. Ewing's sarcoma. Giant cell tumor. Multiple myeloma. Metastatic tumors.
4. Perthes disease, Slipped Capital Femoral Epiphysis and Avascular Necrosis.
5. Metabolic Bone Diseases: Rickets. Osteomalacia, Osteopenia. Osteoporosis.
6. Inflammatory and Degenerative Conditions: causes, clinical feature, complications, deformities, radiological features, management- conservative and surgical for the following conditions:
7. Osteoarthritis. Rheumatoid arthritis. Ankylosing spondylitis Gouty arthritis. Psoriatic arthritis. Hemophilic arthritis. Still's disease (juvenile rheumatoid arthritis). Charcot's joints.
8. Connective Tissue Disorders- Systemic Lupus Erythematosus, Scleroderma, Dermatomyositis, Poliomyelitis, Mixed connective tissue Disease (MCTD)

UNIT 4

OR 4.1. Syndromes: Causes, Clinical features, complications, management- conservative and surgical of the following:

1. Cervico brachial syndrome.
2. Thoracic outlet syndrome. Vertebro- basilar syndrome.
3. Scalene syndrome.
4. Costo clavicular syndrome.
5. Levator scapulae syndrome.
6. Piriformis syndrome.

OR 4.2. Neuromuscular Disorders: Definition, causes, clinical feature, complications, management. (Multidisciplinary approach) medical and surgical of the following conditions:

1. Cerebral palsy.
2. Poliomyelitis.
3. Spinal Dysraphism.
4. Leprosy.

OR 4.3. Cervical and Lumbar Pathology: Causes, clinical feature, patho-physiology, investigations, management-Medical and surgical for the following:

1. Prolapsed intervertebral disc (PID),
2. Spinal Canal Stenosis
3. Spondylosis (cervical and lumbar)
4. Spondylolysis.
5. Spondylolisthesis.
6. Lumbago/ Lumbosacral strain.
7. Sacralisation.
8. Lumbarisation.
9. Coccydynia.
10. Hemivertebra.

OR 4.4. Orthopedic Surgeries: Indications, Classification, Types, Principles of management of the following Surgeries:

1. Arthrodesis.
2. Arthroplasty (partial and total replacement).
3. Osteotomy,
4. External fixators.
5. Spinal stabilization surgeries (Harrington's, Luque's, Steffi plating) etc ,
6. Limb re-attachments.

OR 4.5. Regional Conditions: Definition, Clinical features and management of the following regional conditions

1. Shoulder: Periarthritic shoulder (adhesive capsulitis). Rotator cuff tendinitis. Supraspinatus Tendinitis. Infraspinatus Tendinitis. Bicipital Tendinitis. Subacromial Bursitis.
2. Elbow: Tennis Elbow. Golfer's Elbow. Olecranon Bursitis (student's elbow). Triceps Tendinitis.
3. Wrist and Hand: De Quervain's Tenosynovitis. Ganglion. Trigger Finger/ Thumb. Mallet Finger, Carpal Tunnel Syndrome, Dupuytren's Contracture.
4. Pelvis and Hip: IT Band Syndrome. Piriformis Syndrome. Trochanteric Bursitis.
5. Knee: Osteochondritis Dissecans. Prepatellar and Suprapatellar Bursitis. Popliteal Tendinitis. Patellar Tendinitis. Chondromalacia Patella. Plica Syndrome. Fat Pad Syndrome (Hoffa's syndrome).
6. Ankle and Foot: Ankle Sprains. Plantar Fasciitis / Calcaneal Spur. Tarsal Tunnel Syndrome. Achilles Tendinitis. Metatarsalgia. Morton's Neuroma.

Practical / Clinical

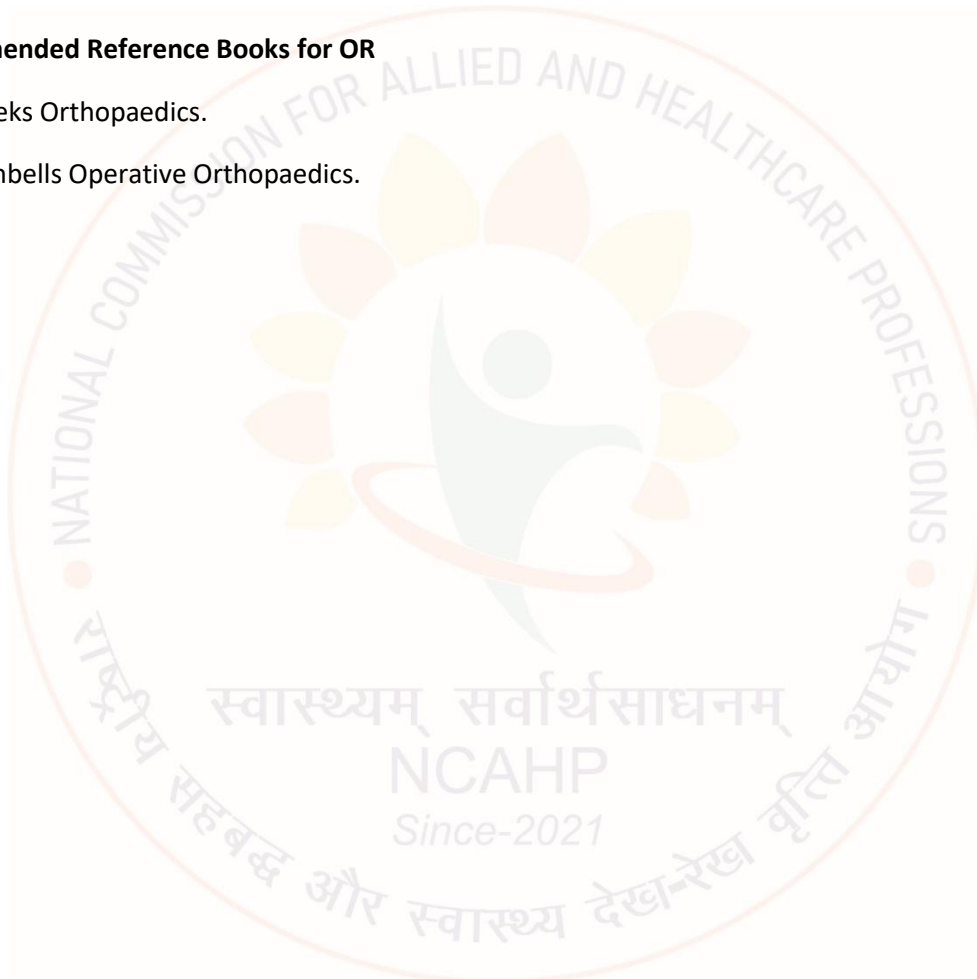
Long /short case examination of patient focusing on history taking examination observation, palpation, special tests, identification of abnormalities in radiograph diagnosis differential diagnosis, OSPE on equipments

Recommended Text Books for OR

1. Outline of Fracture-Adams
2. Outline of Orthopaedics-Adams
3. Orthopaedics and Traumatology-Natrajan
4. Apley's Orthopaedics
5. Textbook of orthopaedics- Maheshwari

Recommended Reference Books for OR

1. Tureks Orthopaedics.
2. Cambells Operative Orthopaedics.



Course Title: Physiotherapy in Adult and Paediatric General Medical and Surgical Conditions: (PTMS) Theory (L) Practical (P)**PTMS 1.0. Subject Description and instruction to teacher**

This course follows the courses in exercise therapy and electrotherapy and intends to impart the knowledge and skill in using Physiotherapy techniques for the management of common medical and surgical conditions. The course is designed to provide knowledge in assessing and planning Physiotherapy interventions for various General, Medical and Surgical conditions. The student must be able to reassess the patient as necessary, to monitor the patient in regard to treatment, to monitor the patient's vital signs, student must know emergency drugs indication and contra-indication, and to provide appropriate interventions to the patient. Besides Lecture and Bed-side demonstration, case discussion and tutorial should be preferred teaching methods. The use of virtual reality based training and simulation to facilitate skill acquisition should be encouraged

PTMS 1.0.1. Course Outcomes: Physiotherapy in Adult and Paediatric General Medical and Surgical Conditions

After completion of this course the student shall be able to

1. Demonstrate competencies in assessing and identifying impairments, activity limitations and participatory restrictions caused by Acute and chronic infections Integumentary diseases Genito-Urinary diseases Gastro-intestinal diseases
2. Demonstrate competencies in planning and implementing evidence-based Physiotherapy protocols to manage impairments, activity limitations and participatory restrictions caused by Acute and chronic infections Integumentary diseases Genito-Urinary diseases Gastro-intestinal diseases
3. Demonstrate competencies in assessing and identifying impairments, activity limitations and participatory restrictions due to common surgical procedures of Abdomen Thorax Pelvis Tendon transfer Plastic and reconstructive Organ transfer
4. Demonstrate competencies in planning and implementing evidence based Physiotherapy protocols to manage impairments, activity limitations and participatory restriction due to common surgical psrocedures of Abdomen Thorax Pelvis Tendon transfer Plastic and reconstructive Organ transfer
5. Select and use appropriate outcome measures in postoperative care
6. Demonstrate competencies in documenting Physiotherapy assessment and management protocol in managing medical and surgical clients

Course Contents: B.P.T. PTMS Theory (L)

SECTION -A

Unit 1

- PTMS 1.1. Oedema-Traumatic, Obstructive, Paralytic, oedema due to poor muscle and laxity of fascia Lymphedema
- PTMS 1.2. Role of Physiotherapy in wounds and local infections 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 Keloids, Electrotherapeutics measures for relief of pain during mobilization of scars tissues.
- PTMS 1.3. Physiotherapy in skin conditions 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;

Unit 2

- PTMS 2.1. Principles of Pre and post operative Physiotherapy in abdominal surgeries common Complication, Abdominal incisions assessment,
- PTMS 2.2. Physiotherapy in pre and post-operative stages of Operations on upper G.I.T.- oesophagus, stomach, duodenum, Operations on large and small intestine – Appendicectomy, cholecystectomy, partial colectomy, ileostomy, hernia and herniotomy, herniorrhaphy, hernioplasty.
- PTMS 2.3. Physiotherapy in burns, skin grafts, and reconstructive surgeries

SECTION -B

Unit 3

- PTMS 3.1. Vestibular Rehabilitation: Role of vestibular system in postural control Assessment of Balance and vestibular ocular reflex Benign Paroxysmal Positional Vertigo, Unilateral Vestibular Loss, Bilateral Vestibular Disorder– Assessment and management of Posterior Canal, Anterior Canal, Horizontal Cana Treatment theory, goals of management and progression Exercise Prescription in Vertigo
- PTMS 3.2. **Physiotherapy in obstetrics & gynecology** :Physiotherapy in mother and child care – ante and post-natal management, early intervention and stimulation therapy in child care (movement therapy Physiotherapy in mother and child care – ante and post-natal management, early intervention and stimulation therapy in child care (movement therapy) Complication of pregnancy Labour training Antenatal and post-natal training Abdominal and pelvic floor muscles exercise Prolapse Uterus Pelvic Inflammatory Conditions Stress Incontinence,Yoga in Obstetric and Gynecological conditions

PTMS 3.3. Physiotherapy in Oncology and palliative care Introduction and common symptoms of cancer Breast Cancer Head and neck cancer Lung Cancer Oral Cavity Bone Cancer Pre and post-surgical evaluation Lymphedema managements Palliative care Common Physiotherapy approaches

Unit 4

PTMS 4.1. **Geriatric Physiotherapy I:** Normal Ageing – Definition, the anatomical, physiological and cognitive changes related to aging. Epidemiology and socio-economic impact of aging. The examination and assessment of a geriatric patient Diet and nutritional requirement of the elderly, Falls in the elderly Dementia – types and principles of management

PTMS 4.2. Physiotherapy in metabolic disorders: Role of Physiotherapy in Hypertension Role of Physiotherapy in Diabetes

PTMS 4.3. Ear, Nose and Throat conditions: Otitis Media, Sinusitis mastoidectomy, chronic rhinitis, laryngectomy, pharyngeolaryngectomy, facial palsy. Physiotherapy in dentistry – TMJ rehabilitation

Unit 5

PTMS 5.1. Abdominal Surgeries

PTMS 5.2. Cleft lip and Cleft Palate

PTMS 5.3. Health Fitness and Promotion: Fitness Evaluation, Analysis of Body composition, Evaluation and prescription of Exercise, Factors affecting exercise Performance, Exercise Prescription for Children.

PTMS 5.4. CBR in paediatrics

PTMS 5.5. Evidence based practice (desirable to know)

PRACTICAL/ clinical –B.P.T. Physiotherapy in Adult and Paediatric General Medical and Surgical Conditions: 304 Practical : PTMS (P)

Practical shall be conducted for all the relevant topics discussed in theory in the following forms:

PTMS (P) 6.1. Bedside case presentations and case discussions

PTMS (P) 6.2. Lab sessions consisting of evaluation and assessment methods and treatment techniques on student models/ simulation.

PTMS (P) 6.3. Identification of impairment activity limitation and participation restriction and Planning and execution of management protocol for various medical and surgical conditions with respect to

1. Active exercise regimen
2. RESPIRATORY techniques
3. Passive mobilization and stretching procedures
4. Selection of electrotherapeutic modalities

5. Patient and caregiver education and training
6. Functional training programme
7. Bladder bowel training
8. Integumentary care

PTMS (P) 6.4. Prescription and training of suitable aids appliances and Orthotic devices

PTMS (P) 6.5. Ergonomic advice

Recommended text books for PTMS

1. Physiotherapy in Gynecological & Obstetrical conditions–Mantle
2. Text of Physiotherapy for obstetrics and Gynecology – G.B. Madhuri&Pruthvish
3. Physical Rehabilitation-Susan B O’Sullivan, Thomas. J. Schmitz
4. Multani and Verma – Principles of Geriatric Physiotherapy
5. Tidys Textbooks of Physiotherapy. Elsevier
6. Cash Textbook of Physiotherapy in Medical and Surgical Conditions.
7. Physical Rehabilitation, Assessment and management; Susan Sullivan
8. Physiotherapy in Obstetrics and Gynaecology, Polden

Recommended reference books for PTMS

1. Women’s Health – Sapsford
2. Geriatric Physical therapy- Andrew A. Guccione

Course Title: Physiotherapy in Adult and Paediatric Orthopedic Conditions: (PTO) Theory (L) Practical (P)**PTO 1.0. Subject Description and instruction to teacher**

This course follows the courses in exercise therapy and electrotherapy and intends to impart the knowledge and skill in using Physiotherapy techniques for the management of common medical and surgical conditions affecting musculoskeletal system. The course is designed to provide knowledge in assessing and planning Physiotherapy interventions for various conditions affecting musculoskeletal system. The student must be able to reassess the patient as necessary, to monitor the patient in regard to treatment, to monitor the patient's vital signs, student must know emergency drugs indication and contraindication, and to provide appropriate interventions to the patient. The objective of the course is that after the specified hours of lectures and demonstrations the student will be able to identify disabilities due to musculoskeletal dysfunction, plan and set treatment goals and apply the skills gained in exercise therapy and electrotherapy in these clinical situations to restore musculoskeletal function. Besides Lecture and Bed-side demonstration, case discussion and tutorial should be preferred teaching methods. The use of virtual reality based training and simulation to facilitate skill acquisition should be encouraged.

PTO 1.0.1. Course Outcomes: Physiotherapy in Adult and Paediatric Orthopedic Conditions

After completion of this course the student shall be able to

1. Demonstrate competencies in assessing and identifying Physiotherapy related problems due to (including trauma, infections and rheumatic disorders) Bones Joints Muscles Soft tissues Post-surgical conditions
2. Demonstrate competencies in differentially diagnosing various musculoskeletal disorders
3. Demonstrate competencies in developing and implementing evidence-based Physiotherapy protocol in managing (including trauma, infections and rheumatic disorders) Bones Joints Muscles Soft tissues Post-surgical conditions (Joint replacement and reconstructive surgeries)
4. Demonstrate competencies in selecting and using appropriate outcome measures in managing clients with musculoskeletal disorders)
5. Document assessment findings, clinical decision making, PT protocol and prognosis as per the prescribe format.
6. Demonstrate competencies in communicating effectively to the stakeholders including Healthcare providers.

Course Contents: Physiotherapy in Adult and Paediatric Orthopedic Conditions: (PTO) 305 Theory (L)

SECTION -A

Unit 1

- PTO 1.1. 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, myotomes and reflexes, special tests and functional tests. Prescription of home program. Documentation of case records, and follow up.
- PTO 1.2. 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, compartment syndrome, VIC, fat embolism, delayed and mal union, RSD, myositis 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.
- PTO 1.3. Principles of various schools of thought in manual therapy. (Briefly Maitland and McKenzie)
- PTO 1.4. Principles of Pre and post-operative PT assessment, goals, precautions and PT management of Orthopedic surgeries: Arthrodesis, Osteotomy, Arthroplasty-partial and total - Excision arthroplasty, excision arthroplasty with implant, interpositional arthroplasty and total replacement; Tendon transplant, Soft tissue release- tenotomy, myotomy, lengthening; Arthroscopy, Spinal stabilization, Re-attachment of limbs, External fixators, Synovectomy.
- PTO 1.5. 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, Periarthritic shoulder.

PTO 1.6. Infective conditions: Definition, signs and symptoms, clinical features, pathophysiology, radiological features, medical, surgical management. De- scribe PT assessment and management for following conditions – Osteomyelitis – acute and chronic, Septic arthritis, pyogenic arthritis, TB spine and major joints - knee and hip.

Unit 2

Conservative and/peri-operative PT management in

PTO 2.1. Traumatic conditions of upper limb shoulder arm elbow forearm wrist and hand upper limb fractures and dislocations. sprains Hand Injuries: Flexor tendon, Extensor tendon, Compartment Syndrome, Reflex sympathetic dystrophy:

PTO 2.2. Non traumatic conditions of upper limb conservative and post-operative PT management of Shoulder instabilities, TOS, RSD, Impingement syndrome - AC joint injuries - Rotator cuff tears- Subacromial decompression Carpal tunnel syndrome – deformities

PTO 2.3. pre and peri operative PT management following upper limb surgeries: Total shoulder replacement Hemi replacement Repair of ruptured extensor tendons. Total wrist arthroplasty Flexor and extensor tendon lacerations Excision of radial head -. Total elbow arthroplasty

PTO 2.4. Amputations of upper limb 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

Section-B

Unit 3

Conservative and/peri-operative PT management. in

- PTO 3.1. Traumatic conditions of lower limb: pelvis, hip knee ankle and foot fractures and dislocations
- PTO 3.2. Non-Traumatic conditions of lower limb hip knee ankle and foot Tendonitis and bursitis Plica syndrome, patellar dysfunction and Hoffa's syndrome Deformities of lower limb: CTEV, CDH, pes planus, pes cavus, coxa vara, genu varum, valgum and recurvatum
- PTO 3.3. pre and peri operative PT management following lower limb surgeries - hemi and total hip replacement - . - Lateral retinacular release, chondroplasty ACL and PCL reconstruction surgeries Management. Realignment of extensor mechanism Meniscectomy and meniscal repair TKR Patellectomy Ligamentous tears
- PTO 3.4. Amputations of lower limb 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

Unit 4

Conservative and/peri-operative PT management in

- PTO 4.1. Traumatic conditions of spine: SPINAL FRACTURES cervical thoracic lumbar Spinal CORD INJURY Intervertebral disc prolapsed (PIVD) sprain contusion
- PTO 4.2. Non traumatic condition of spine: Cervical and lumbar spinal disorders: spondylosis, spondylolisthesis, Stenosis Cervical spondylosis, Lumbar spondylosis, Spondylolisthesis, Spinal canal stenosis, Spondylolysis, Sacroiliac joint dysfunction, Sacralisation, Lumbarisation, Intervertebral disc prolapse, Coccydynia, Spina bifida occulta, Thoracic Outlet Syndrome TB SPINE, non-specific low back pain Ankylosis spondylitis Scoliosis, kyphosis, Lordosis, sway back, torticollis
- PTO 4.3. Pre and peri operative PT management following spine surgeries
- PTO 4.4. Concepts of mechanize school of spinal disorders, back school

Unit 5

PTO 5.1. Deformities – Review the Causes, Clinical Features, Complications, radiological features, Medical and Surgical Management of the Following Congenital and Acquired

1. Deformities: Congenital deformities - CTEV. CDH. Torticollis. Scoliosis. Flat foot. Vertical talus. Hand anomalies - syndactyly, polydactyly and ectrodactyly. Arthrogryposis multiplex congenital (amyoplasia congenita). Limb deficiencies- Amelia and Phocomelia. Klippel feil syndrome. Osteogenesis imperfect (fragile ossium).
2. Acquired deformities - Acquired Torticollis. Scoliosis. Kyphosis. Lordosis. Genu varum. Genu valgum. Genu recurvatum Coxa vara. Pes cavus.

PTO 5.2. Diseases of Bones and Joints – Introduction, Causes, Clinical features, Types, Complications, Investigations and Management - medical and surgical of the following conditions: 1. Infective: Osteomyelitis, TB Spine and other major joints 2. Perthes, Slipped Capital Femoral Epiphysis, Avascular Necrosis 3. Metabolic: Rickets, Osteomalacia

PTO 5.3. Soft tissue injuries in Paediatrics - Overview, Investigations and Management

PTO 5.4. Fractures and dislocations of Upper extremity, Lower extremity and Spine in Paediatrics - Introduction, Investigations and Orthopedic management

PTO 5.5. Low back pain and neck pain in Paediatrics - Introduction, Causes, Types, Investigations and Management

PTO 5.6. Paediatric sports injuries - Introduction, Types, Investigations and Management

PTO 5.7. Amputations, Ilizarov

PTO 5.8. Surgeries for cerebral palsy (Rhizotomy, Tendon lengthening, osteotomies, arthrodesis)

PRACTICAL – B.P.T Physiotherapy in Adult and Paediatric Orthopedic Conditions: 305 PTO Practical

PTO (P) 6. Practical shall be conducted for all the relevant topics discussed in theory in the following forms:

1. Bedside case presentations and case discussions
2. Lab sessions consisting of evaluation and assessment methods on student models, treatment techniques and practice sessions.
3. Student should be able to execute independently the following procedures on self / human model / patient History taking: examination observation palpation tests, investigation, diagnosis, functional diagnosis [impairment, functional restriction, activity limitation] documentation

4. Planning and execution of management protocol for various conditions of upper limb, lower limb, and spine in various clinical settings with respect to adult and Paediatric conditions
5. Active exercise regimen
6. Passive mobilization procedures Selection of electrotherapeutic modalities
7. Patient education
8. Functional training programme
9. Orthotic and prosthetic checkout and training Ergonomic advice

Recommended Text Books for PTO

1. Orthopaedic Physiotherapy, Robert A Donatelli, Churchill Livingstone.
2. Tidy's Physiotherapy, Ann Thomasons, Varghese publishing House.
3. Physical Rehabilitation Assessment and Treatment, Susan Sullivan, Japee brothers
4. Textbook of Orthopaedics, John Ebnezar, Japee Brothers.
5. Textbook of Orthopaedics and Rheumatology for Physiotherapists, Patricia A Downie.
6. Orthopedic Physical Assessment – David Magee
7. Clinical Orthopaedic Diagnosis – Surishwar Pandey
8. Orthopaedics for Physiotherapist – Jayant Joshi.
9. Therapeutic Exercise: Foundations and Techniques - Kolby & Carolyn Kisner

Recommended Reference Books for PTO

1. Apley's system of Orthopaedics and fractures -Louis Solomon, David J. Warwick Arnold Publishers, London
2. Turek's Orthopaedics: Principles and their Application, Weinstein SL and Buckwalter JA, Lippincott
3. Clinical Orthopaedic Rehabilitation, Brent Brotzman.
4. Peripheral Mobilisation – GD Maitlant, Butterworth
5. Vertebral Mobilisation – GD Maitland, Butterworth and Heinmann Publication.
6. Manual Therapy: Nags, Snags, MWMs, etc - 6th Edition Brian Mulligan
7. Neural tissue mobilization –Butler
8. Therapeutic Exercise: Moving Toward Function - Carrie M. Hall, Lori Thein Brody
9. Manual Mobilization of Extremity Joints-Kaltenborn
10. Clinical Orthopaedic rehabilitation- Broadsman

Course Title: Physical & Functional Diagnosis and Prescription: (PFDP) Theory (L) Practical (P)**PFDP 1.0. Subject Description and instruction to teacher**

the aim of this course is to impart conceptual clarity on the process of identifying the problems of patient within the scope of Physiotherapy practice and equip the students with skills to evaluate the patient afflicted with the disorders of musculoskeletal, neuromuscular, cardiovascular-pulmonary and integumentary systems using valid and reliable measures while taking into account the setting in which patients/clients receive services, The teaching method should follow DOAP [demonstrate observe assist perform] model and should ensure that before attempting to perform the tests on patients the student should demonstrate the ability to safely perform the test on healthy human model .

PFDP 1.0.1. Course Outcomes:

After completion of this course the student shall be able to

1. Explain movement dysfunction and models used to evaluate function in ICIDH, ICF approach
2. Explain choice of appropriate tools/instruments of assessment in musculoskeletal, neurological and cardio-vascular and respiratory conditions
3. Demonstrate the skills for independent performance of various tests and procedures
4. Document evaluation finding of patient based on ICF model identifying structural impairments, functional impairments, participation, contextual factors, performance and capacity measurement

Course Contents: B.P.T. Physical & Functional Diagnosis and Prescription: 306 (PFDP) Theory (L)**SECTION -A****Unit 1**

PFDP 1.1. Introduction to International Classification of Function, Disability & Health (I.C.F.) as a basis Functional Diagnosis of impairment, activity limitation and participation restriction

Assessment of Musculoskeletal Dysfunction oft tissue flexibility, Joint mobility, Muscle strength & Endurance, Trick movement, Sensations, Limb length, Abnormal posture, Gait deviations due to musculoskeletal dysfunction Special Tests Cervical Spine: Foraminal compression, Distraction, Shoulder depression, vertebral artery, Dizziness tests Shoulder: Yergason's, Speed's, Drop- Arm, Supraspinatus, Impingement, Anterior & Posterior Apprehension, Allen's, Adson's test. Elbow: Cozen's, Miller's, Tinel's sign Forearm, Wrist & Hand: Phalen's, Bunnel-Littler, Froment's sign Lumbar Spine: Schober's, SLR, Prone, Knee Bending, Slump. Sacro Iliac joint: Faber- Patrick's, Gaenslen, Gillet, March's test Hip: Nelaton's line, Bryant's triangle, Thomas, Ober's, Tripod sign, Trendlenburg sign Knee: Tests for collateral & cruciate ligaments (valgus, varus, Lachman, Drawer's, McMurray's, Fluctuation, Patellar tap, Q- angle, Clarke's test Ankle & Foot: Anterior Drawer, Talar Tilt, Homan's & Moses tes

- PFDP 1.2. **Assessment of pain** Types of pain: Somatic, Somatic referred, Neurogenic, Visceral
Subjective Assessment: Location, duration, progression, distribution, quality, diurnal variations, modifying factors, Severity, nature of pain, tissue irritability Objective Measurement & Documentation- Visual Analogue Scale (V.A.S), Numerical Rating Scale(N.R.S.), McGill"s modified questionnaire (including Body Charts)
- PFDP 1.3. Basics in Manual Therapy with Clinical Reasoning: Assessment of Articular and extra-articular soft tissue status Contractile tissues, Non contractile tissues, Examination of joint integrity, Accessory movement, End feel Examination of musculoskeletal Dysfunction: Subjective examination, Objective examination, Special tests, Functional Diagnosis using ICF
- PFDP 1.4. Neurological Assessment and Movement Dysfunction, Higher functions, Cranial nerves, Sensations, sensory organization & body image, Joint mobility, Tone, Reflexes-Superficial & Deep, Voluntary control, Muscle Strength, Co-ordination, Balance,Endurance, Trick movements, Limb Length, Posture deviations, Gait deviations due to neurological dysfunction, Functional Diagnosis using I.C.F., electro diagnosis- Faradic Galvanic Test, Strength Duration Curve-tests, Test for Sensory & Pain Threshold/Pain Tolerance
- PFDP 1.5. Electro-Myography a) Definition b) Instrumentation – Basic components like C.R.O., Filter, Amplifier & Preamplifier and Types of Electrodes Normal & Abnormal E.M.G. pattern i. at rest ii. on minimal contraction iii. on maximal contraction c) Nerve Conduction Studies i. Principles & Technique ii. F wave H reflex), routine Biochemical investigations
- PFDP 1.6. SCALES: Berg Balance, Modified Ashworth, F.I.M., Barthel Index, G.C.S., D.G.I., M.M.S., S.T.R.E.A.M. & A.S.I.A.

SECTION -B

Unit 2

- PFDP 2.1. General principles of Human development& maturation
- Aspects a) Physical b) motor c) Sensory d) Cognitive & Perceptive e) Emotional f) Social
 - Factors influencing human development & growth: a) Biological b) Environmental inherited
 - Principles of maturation in general & anatomical directional pattern – a) Cephalo – caudal b) Proximo – distal c) Centro – lateral d) Mass to specific pattern e) Gross to fine motor development f) Reflex maturation tests
 - Development in specific fields - Oromotor development, sensory development, neurodevelopment of hand function

- PFDP 2.2. **Assessment of Cardio Vascular & Pulmonary Dysfunction:** cardiorespiratory Assessment and management techniques: Vital parameters, Chest expansion, Symmetry of chest movement, Breath Holding Test, Breath Sounds, Rate of Perceived Exertion (R.P.E.), 6minute walk test, Auscultation, Breathing exercises, postural drainage, thoracic expansion, rib mobilization, Respiratory PNF
- PFDP 2.3. Evaluation of Functional Capacity using sub maximal tests (Exercise Tolerance – Six Minutes Walk test) Theoretical bases of different protocols for maximal exercise testing (e.g.: Bruce Protocol, Modified Bruce Protocol, Balke) Interpretation of reports – A.B.G., P.F.T., P.E.F.R., E.C.G.- (Normal & Variations due to Ischemia & Infarction), X-ray Chest, Biochemical Reports Ankle Brachial Index Tests for Peripheral Arterial & Venous circulation, BMI, Waist – Hip Ratio, Skin fold Caliper, Girth measurements
- PFDP 2.4. Diagnostic Imaging:
1. Radiological studies in musculoskeletal, neurological, cardiovascular and respiratory conditions.
 2. Basic principles of X-rays, instrumentation, observations related to musculoskeletal, neurological and cardiovascular and respiratory conditions
 3. Ultrasonography- Principles, instrumentation, observations in vascular disorders, gynecological conditions, recent advances in musculoskeletal ultrasonography
 4. CT scan and MRI- Principles, instrumentation and observations related to musculoskeletal, neurological and cardiovascular and respiratory conditions
 5. Interventional Radiology

PRACTICAL B.P.T. Physical & Functional Diagnosis and Prescription 306 Practical : PFDP (P)

Student shall be able to perform the Demonstration of all the test procedures mentioned in the syllabus on self / human model and provide interpretation of x ray image.

Recommended Text Books for PFDP

1. Orthopaedic Physical Examination–Magee
2. Clinical Electro Therapy – Nelson – Currier --- Appleton & Lange publication
3. Clinical Electromyography–Mishra
4. Physical Rehabilitation, Assessment and treatment - Susan BO's Sullivan
5. Neurological Examination –John Patten
6. Diagnostic and Interventional Radiology- Thomas J. Vogl, Wolfgang Reith, Ernst J. Rummeny.

7. Learning Radiology- William Herring.
8. Ruppel's Manual of Pulmonary Function Testing by Carl Mottram 10th Edition
9. Pulmonary Function Tests & Interpretation In Health & Diseases By P.S.Shankar 3rd Edition
10. World Health Organization 2001. The International Classification of Functioning, Disability and Health (ICF). Geneva: WHO. <http://www.who.int/classifications/icf/en/>

Recommended Reference Books for PFDP

1. Maitland's book on Manual therapy,
2. Mobilisation of Extremities – Kaltenborn
3. Clinical Electromyography–Kimura
4. Orthopaedic Physical therapy–Donnatelli
5. NAGS, SNAGS and MWMS – Brian Mulligan
6. Physical Dysfunction – Trombly Scoot
7. Infant Motor Development–Jan Piek
8. Neuro-developmental Therapy–Janett Howle
9. Textbook of Radiology and Imaging- David Sutton

Course Title: Research Methodology, Biostatistics and Evidence Based Practice: : (RMB) Theory (L)**RMB 1.0. Subject Description and instruction to teacher**

The objective of this course is to help the students understand the basic principles and methods of research used in health sciences so as to facilitate drawing inferences from the research findings and engage in evidence-based practice. The focus of the teaching should be to enable the student to read the research literature and draw inference. The derivation of the statistical tests and the detailed manual calculation should be avoided, rather the emphasis should be on making students aware about the uses and interpretation of the test results. The research papers and thesis reports using various designs of research should be shown to the students and small group discussion should be organized to facilitate understanding of the literature. Students should be encouraged to produce dummy research proposal.

RMB 1.0.1. Course Outcomes: Research methodology, biostatistics and evidence-based practice

1. Discuss the need for research in Physiotherapy practice
2. Explain the process of research.
3. Discuss the study designs with appropriate examples.
4. Discuss the methods of data collection in Physiotherapy research.
5. Discuss the components statistical analysis.
6. Explain the process of Evidence based Physiotherapy practice.
7. Demonstrate skills in literature search through primary and secondary database
8. Demonstrate skills in critically appraising the evidence
9. Discuss the importance of Evidence Based Practice.
10. Explain Introduction to Research methodology: which includes Meaning of research, objectives of research, Motivation in research, Types of research & research approaches, Research methods vs methodology, Criteria for good research, ethics of research
11. Describe in details about terms of Research problem, Statement of research problem., Statement of purpose and objectives of research problem, Necessity of defining the problem, hypothesis, limitations, delimitations significance of the study
12. Discuss meaning, need, features & basic principles of Research design.
13. Discuss about Sampling fundamentals, need for sampling & some fundamental definitions, important sampling distributions, Criteria for selecting sampling procedure, Implications for sample design, steps in sampling design, characteristics of good sample design, Different types of sample design

14. Discuss the aspects of Measurement & scaling techniques: Measurement in research- Measurement scales, sources of error in measurement, reliability, validity, sensitivity and specificity of a measurement tool Technique of developing measurement tools, Meaning of scaling, its classification. Important scaling techniques.
15. Enumerate the Methods of data collection: collection of primary data, collection data through questionnaires & schedules, Difference between questionnaires & schedules
16. Discuss the Processing & analysis of data: coding of data, types of data, quantitative analysis qualitative analysis
17. Describe Format of scientific documents. (Structure of protocols, formats reporting in scientific journals, systematic reviews and meta-analysis)
18. Explain the Computer technology: Introduction to Computers, computer application in research, Introduction to data analysis software's

RMB 1.0.2. Teaching Learning Methods:

1. Lecture
2. Tutorial
3. Demonstration
4. Small group discussion

RMB 1.0.3. Assessment Methods:

1. MCQs
2. Assignment
3. Seminar
4. Presentations

Course Content: B.P.T RMB 307 Theory (L)

SECTION -A

Unit 1: Introduction to Biostatistics

- RMB 1.1.** Discuss the Introduction of biostatistics, definition, characteristics of statistics. Importance of the study of statistics, Branches of statistics, Statistics and health science including physiotherapy, Parameters and Estimates, Descriptive and inferential statistics, Variables and their types, Measurement scales.
- RMB 1.2.** Explain introduction of the Tabulation of Data which includes Basic principles of tabulation and graphical representation, Types of diagrams – histograms, frequency polygons, smooth frequency polygon, cumulative frequency curve, Normal probability curve. Pie chart

- RMB 1.3. Describe the Measure of Central Tendency, need for measures of central Tendency, Definition and calculation of mean – ungrouped and grouped, Meaning, interpretation and calculation of median ungrouped and grouped., Meaning and calculation of mode, Comparison of the mean, median and mode, Guidelines for the use of various measures of central tendency.
- RMB 1.4. Discuss the Probability and Standard Distributions: Meaning of probability of standard distribution, the binominal distribution, the normal distribution, Divergence from normality – skew ness, kurtosis.
- RMB 1.5. Discuss the Sampling techniques, sample size, calculation of sample size for survey, and experimental research designs, Sampling variation and tests of significance. type I and type II errors, Power
- RMB 1.6. Discuss the Testing of hypothesis: Basic concepts concerning testing of hypothesis, Procedure of hypothesis testing, measuring the power of hypothesis test, Tests of hypothesis, parametric and non-parametric tests for difference, correlation and association
- RMB 1.7. Describe Analysis of variance & covariance: Analysis of variance (ANOVA), what is ANOVA? Basic principle of ANOVA, ANOVA technique, Analysis of Co variance (ANACOVA)
- RMB 1.8. Define EBP, Discuss the importance of EBP in Physiotherapy practice, Describe the process of EBP, Formulate clinical questions for evidence search using structured format (PICO, PICOT, SPDER, SPICE), Aetiology, Prevention, Intervention, Diagnosis, Discuss the importance of evidence search, Discuss the levels of evidence, Describe the process of literature search, Identify primary and secondary database for literature search, Demonstrate skills in searching through primary and secondary database, Explain internal and external validity of evidence
- RMB 1.9. Discuss the process of systematic review, Discuss metanalysis, Appraise the evidence using appropriate critical appraisal tools (RCT, Systematic Reviews, Cohort studies).
- RMB 1.10. Discuss the importance of Outcome measures, Identify appropriate outcome measures, Discuss sensitivity, Specificity and Minimal Clinical Significance difference
- RMB 1.11. Discuss the importance of Clinical Practice Guidelines (CPGs), Search for CPGs through common database and search engines, Appraise CPGs using appropriate tools, Discuss the challenges and Barriers in implementing EBP

SECTION -B

UNIT 2

- RMB 2.1. 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, ethics of research
- RMB 2.2. Research problem: Statement of research problem., Statement of purpose and objectives of research problem, Necessity of defining the problem, hypothesis, limitations, delimitations significance of the study
- RMB 2.3. Research design: Meaning of research design, need for research design, Features for good design, Different research designs, Basic principles of research design
- RMB 2.4. Sampling Sampling fundamentals, need for sampling & some fundamental definitions, important sampling distributions, Criteria for selecting sampling procedure, Implications for sample design, steps in sampling design, characteristics of good sample design, Different types of sample design
- RMB 2.5. Measurement & scaling techniques: Measurement in research- Measurement scales, sources of error in measurement, reliability, validity, sensitivity and specificity of a measurement tool Technique of developing measurement tools, Meaning of scaling, its classification. Important scaling techniques.
- RMB 2.6. Methods of data collection: collection of primary data, collection data through questionnaires & schedules, Difference between questionnaires & schedules.
- RMB 2.7. Format of scientific documents. (Structure of protocols, formats reporting in scientific journals, systematic reviews and meta-analysis).
- RMB 2.8. Computer technology: Introduction to Computers, computer application in research, Introduction to data analysis software's

UNIT 3

- RMB 3.1. Introduction: Meaning, definition, characteristics of statistics., Importance of the study of statistics, Branches of statistics, Statistics and health science including physiotherapy, Parameters and Estimates, Descriptive and inferential statistics, Variables and their types, Measurement scales.
- RMB 3.2. Tabulation of Data: Basic principles of tabulation and graphical representation, Types of diagrams – histograms, frequency polygons, smooth frequency polygon, cumulative frequency curve, Normal probability curve. Pie chart
- RMB 3.3. Measure of Central Tendency: Need for measures of central Tendency, Definition and calculation of mean – ungrouped and grouped, Meaning, interpretation and calculation of median ungrouped and grouped., Meaning and calculation of mode, Comparison of the mean, median and mode, Guidelines for the use of various measures of central tendency.

- RMB 3.4. Probability and Standard Distributions: Meaning of probability of standard distribution, the binominal distribution, the normal distribution, Divergence from normality – skewness, kurtosis.
- RMB 3.5. Sampling techniques: sample size, calculation of sample size for survey, and experimental research designs, Sampling variation and tests of significance. type I and type II errors, Power
- RMB 3.6. Testing of hypothesis: Basic concepts concerning testing of hypothesis, Procedure of hypothesis testing, measuring the power of hypothesis test, Tests of hypothesis, parametric and non-parametric tests for difference, correlation and association
- RMB 3.7. Analysis of variance & covariance: Analysis of variance (ANOVA), what is ANOVA? Basic principle of ANOVA, ANOVA technique, Analysis of Co variance (ANACOVA).

UNIT 4

- RMB 4.1. **Introduction to Evidence Based practice** Definition, background, importance, model of Evidence Based Physiotherapy, role of evidence-based practitioner
- RMB 4.2. Searching for the Evidence: Asking Questions, identifying different sources of evidence, Electronic Bibliographic databases and World Wide Web, Conducting a literature search. Step by-step search for evidence
- RMB 4.3. **Exploring different terminologies** Validity, reliability, Randomized Control Trial, Systemic Review, Meta-Analysis, Case Study, Diagnostic research study, Prognostic Research study, Intervention research study,
- RMB 4.4. Assessing the Evidence: Evaluating the evidence; Levels of evidence in research using quantitative methods, Levels of evidence classification system
- RMB 4.5. Using the evidence: Building evidence in practice; Critically Appraised Topics (CATs), CAT format, Using CATs, Drawbacks of CATs

UNIT 5

- RMB 5.1. Appraisal of the quality of the studies, result of the studies, technique of pull out the summary of the studies and communicate evidence about diagnostic test Diagnostic test and process in Physiotherapy,
- RMB 5.2. evidence about prognosis Concept of prognosis, research design relevant to prognostic studies, process of knowing the quality of study
- RMB 5.3. evidence about outcome measure Elements of outcome measure, method of knowing validity and reliability, take out the outline from the studies
- RMB 5.4. evidence about intervention Concept of various types of intervention in Physiotherapy, Research design related to intervention studies, know the strength and weakness of the study

- RMB 5.5. evidence about systemic reviews and other research design Overview of systematic reviews, Meta-analysis, The Cochrane collaboration stages and techniques involve in it, procedure to critically appraise it and extract the terminal results to make valid and relevant clinical decision, Introduction to case study and qualitative research, evaluating the robustness and fragility of the studies
- RMB 5.6. Practice guidelines, algorithms, and clinical pathways: Recent trends in health care, Clinical Practice Guidelines (CPG), Algorithms, Clinical path- ways, Legal implications in clinical pathways and CPG, Comparison of CPGs, Algorithms and Clinical Pathways

Recommended Text Book for RMB

1. Mahajan, B. K. (2002). *Methods in biostatistics*. Jaypee Brothers Publishers.
2. Hicks, C. *Research for Physiotherapists: project design and analysis*. Churchill
3. Livingstone.
4. Practical Evidence-Based Physiotherapy by Robert Herbert, Gro Jamtvedt, Kåre Birger Hagen, Judy Mead, Sir Iain Chalmers
5. Bajpai S.R. –Methods of Social Survey and Research, Kitab Ghar, Kanpur.
6. Mohsin S.M. – Research methods in Behavioral Sciences. Orient publications, New Delhi
7. Gupta S.P. – Statistical Methods. Sultan Chand and sons Publishers, New Delhi.

Recommended Reference Books for RMB

1. Evidence Based Physical Therapy by Linda Fettes, Julie Tilson
2. Guide to Evidence-Based Physical Therapy Practice by Dianne V. Jewell
3. Bailey N.T.J. – Statistical methods in Biology. The English University Press, London.
4. Colton – Statistics in medicine. Little Brown Company, Boston
5. Goulden C.H. – Methods of Statistical Analysis. Asia Publishing House, New Delhi.
6. Snedecor G.W. – Statistical Methods. Allied Pacific Pvt. Ltd., London

Course Code: B.P.T 308: Clinical Education (CEd)

Students will be posted in rotation in the various wards hospitals and physiotherapy OPDs attached with the college. The students will be clinically trained to provide physiotherapy care for the patients under supervision. They will be trained on bed side approach, patient assessment, performing special tests, identifying indications for treatment, ruling out contraindications, decision on treatment parameters, dosage and use relevant outcome measures under supervision. Evidence based practice will be part of training. Critique Enquiry, Case Presentation, and Case Discussion shall be essential part of posting. Each student shall maintain a case portfolio / diary to record the various activities performed during clinical posting. This diary should be presented before the final exam and the grade should be awarded by the college.

