PHYSIOTHERAPY

GOVT. OF BIHAR
Health (M. E. & I. S. M.) Deptt.
SYLLABUS FOR DIPLOMA IN PHYSIOTHERAPY COURSE
DURATION : 3 YEARS + 6 MONTHS INTERNSHIP

First Year

THEORY				
Sl. No.	Subject		Full Marks	Pass Marks
1	ANATOMY		100	50
2	PHYSIOLOGY		100	50
3	PATHOLOGY		100	50
4	BIO-CHEMISTRY		100	50
5	BIO-MECHANICS		100	50
	Total Theory Marks		**500**	**250**
7	PRACTICAL			
	A.	Anatomy	100	50
	B.	Viva/Voce	40	20
	C.	Physiology	100	50
	D.	Viva/Voce	40	20
	Total Practical Marks		**280**	**140**

Second Year

THEORY				
Sl. No.	Subject		Full Marks	Pass Marks
1	PSYCHOLOGY		100	50
2	EXERCISE THERAPY		100	50
3	ELECTRO THEARAPY		100	50
4	MEDICINE		100	50
5	SURGERY		100	50
6	PHARMACOLOGY		100	50
	Total Theory Marks		**600**	**300**
7	PRACTICAL			
	A.	Exercise Therapy	100	50
	B.	Viva/Voce	40	20
	C.	Electro Thearapy	100	50
	D.	Viva/Voce	40	20
	Total Practical Marks		**880**	**440**

Third Year

THEORY				
Sl. No.	Subject		Full Marks	Pass Marks
1	PHYSIOTHERAPY IN MEDICINE (P.M.T.)		100	50
2	PHYSIOTHERAPY IN SURGERY (P.M.S.)		100	50
3	PHYSICAL MEDICINE & REHABILITATION (P.M.R.)		100	50
4	PHYCHIATRY		100	50
5	APPLIED MATH. & STATISTICS		100	50
	Total Theory Marks		**500**	**250**
6	PRACTICAL			
	A.	P.T.M.	100	50
	B.	Viva/Voce	40	20
	C.	P.T.S.	100	50
	D.	Viva/Voce	40	20
	E.	P.M.R.	100	50
	F.	Viva/Voce	40	20
	Total Practical Marks		**420**	**210**

Note: -

1. A candidate who fails in any paper of a subject may appear again at any subsequent examination in that paper. No candidate shall be declared to have passed in his Third (Final) Year Examination unless unless he/she has passed in the Part - I Exam & Part II.
2. In order to pass the First, Second and Third (Final) Year examination candidate must obtain at least 50% marks in theory and practical examination separately.
3. After finishing three years of Diploma in Physiotherapy, Six months of Intership is Compulsory. The course will not be complited unless Intership is completed.

SYLLABUS / COURSE OF STUDY

FISRT YEAR

ANATOMY :-

SECTION – I

1. **HISTOLOGY** – cell, Tissues of the body, Epithelium, Connective tissue, Cartilaage, Bone, Lymph, Muscle, Nerve.

2. **OSTEOLOGY** – Formation, Function, Growth & repair of bones.

3. **EMBRYOLOGY** – Ovum, Spermatozoas fertilisation, Differentiation, devlopment of various systems.

4. **BLOOD VASCULAR SYSTEM** – Arteries, Capillaries, Veins, Heart, Lymphatic system.

5. **RESPIRATORY SYSTEM** – Anatomy of larynx, Trachea and Bronchi, pleura and lungs.

6. **DIGESTIVE SYSTEM.**

7. **UROGENITAL SYSTEM.**

8. **SURFACE ANATOMY.**

SECTION – II

Anatomy –

1 Peripheral Nerves.
2 Neuromuscular Junction.
3 Sensory End Organs.
4 Spinal Cord, Ascending & Desending Tract.
5 Brain stem.
6 Cerebellum.
7 Inferier Colliculi.
8 Superior Colliculi.
9 Diencephalon.
10 Hypothalamus.
11 Epithalamus.
12 Thalamus.
13 Cerebrum.
14 Corpus striatum.
15 Rhinencephalon.
16 Lateral Ventricles.
17 Meninges.
18 Blood Supply of the brain.
19 Internal Capsule.
20 Visual radiation.
21 Auditory radiation.
22 Extra Pyramidal system.
23 Pyramidal system.
24 Intra Cortical Integration.

SECTION – III

1. **The Fascie And Muscles Of** – Head, Neck & Face.
2. **Trunk.**
3. **Upper Limb.**
4. **Lower Limb.**
5. **Classification of Joints.**
6. **Movements of Joints.**
7. **Joints of head & neck.**
8. **Joints of trunk.**
9. **Joints of upper limb.**
10. **Joints of lower limb.**

ANATOMY PRACTICAL :-

1. To study the surface land marks on human body.
2. To study the muscles of trunk, lower and upper extremities and face on a dissected human body.
3. To study the bones of human body with special emphasis on origin and insertion and land – marks of muscles.
4. To study the anatomy of joints of upper and lower extremities and cerebrum column on a dissected human body.
5. To study the anatomy of C.N.S. and P.N.S. on a dissected human body.
6. To study the anatomy of respiratory, digestive, urinary and genital system on a dissected human body.

PHYSIOLOGY :-

SECTION - 1

1. **Function of Cell.**
2. **Cell membrane, Digestion, control of food & water intake and secretion & absorption, Movements of the alimentary canal.**
3. **Circulation** – Cardio vascular system, Mechanical and electro – physiological activity of the heart, Regulation of heart and coronary circulation, Haemodynamics, Circulation through brain, Skin and skeletal muscle.
4. **Blood & Lymph** – Cell renewal system, Haemoglobin, Erythrocyte, granulocyte, Lymphocyte, Coagulation, Regulation of hydrgen within the Cell.

BIOCHEMISTRY:-

1. Chemistry of Carbohydrate
2. Chemistry of Protein
3. Chemistry of Lipid
4. Radiosotopes & Their use in Biochemistry
5. Principles of Electrophoresis
6. Liver Function Test

7. Renal Function Test.
8. Thyroid Function Test.
9. Body Fluid
10. Quality Control
11. Standardization
12. Ultraviolet and Visible Light Spectroscopy
13. Elisa
14. Radioimmunoassay
15. Spectrometry
16. Point of Care Testing
17. Introduction of Electrolyte & Water Balance
18. Clinical Approach of Electrolyte & Water Balance
19. Enzymes
20. Water Soluble Vitamins & Fat Solubel Vitamins.

EXERCISE THERAPY : -

1. Mechanical anatomy of motion and posture.
2. Exercise of the shoulderand hip and evaluation.
3. Exercise of the hand and foot and evaluation.
4. Exercise of the knee and Elbow and Evaluation.
5. Various Motion/assessment.
6. Joint Motion assessment.
7. Manual Muscle Examination.
8. The therapeutic gymnasium.
9. Exercise in water.
10. Resisted exercise.
11. Brief isometric exercise.
12. Exercise based on neurophysiological principles.
13. Crutch and cane exercises.
14. Gait training.
15. Principles of therapeutic exercise.
16. Posture.
17. Exercises for healthy persons.
18. Exercies for spine.
19. Activities of daily living.
20. Massage.
21. Suspension therapy.
22. Neuro Muscular Co – ordination.
23. Starting Positions.
24. Cryotherapy.
25. Traction – Cervical and lumbar.

EXERCISE THERAPY [PRACTICAL] : -

1. Study of muscle work, joint positions, stability of fundamental and derived positions.
2. To palpate and visualise muscle contractions /Muscle work and its types.

3. To study and practice Mobilization of joints – region – wise with free Exercises, Assisted Exercises, Assisted – Resisted Exercise and Resisted Exercises.
4. To study and practice progressive Strengthing Exercises of Muscles region wise, using R.M. Method, De – lorme and watkin's method, macqueen's and Oxford techniques.
5. to study and practice Relaxation, General and local by active, passive method and in Suspension.
6. To study and practice Suspension, Therapy – the sturcture and dimension of qutherie – Smiths suspension apparatus.
7. Types of Suspension and its application to various parts of body regionwise.
8. To study walking Aids and gait – the structures and dimensions of various walking aids.
9. Gymnasium – To study the structure and function along with application of shoulder wheel, shoulder ladder, pronator – supinator exercisor, wrist Rotator, Static Cycle, Rowing Machine, Ankle exercisor, flat feet board, springs, weights and pulleys.
10. To Study and practice Mat exercises with push up blocks and Mat Crutches.
11. To study and practice Co-ordination Frankel's Exercises.
12. Posture – To study a normal posture and correction of posture.
13. Hydrotherapy – To study the sturcture and function of whirlpool bath and Hubbard Tank and its application.
14. Traction – To study and practice Machanical and Electronic Cervical and lumbar traction – its application and effects.
15. Goniometry – To measure R.O.M. of joints with a Goniometer.
16. To study and practice Manual Muscle testing of various muscle groups region wise. To measure contractures, shortening and deformity.
17. Massage – To study and practice application of all types regionwise.

ELECRO THERAPY & ACTINO THERAPY : -

SECTION - I : -

1. Electrical Fundamentals.
2. Elcectron Tubes.
3. Power Supplies.
4. Amplifiers.
5. Oscillators.
6. Cathode ray tubes.
7. Transistors.
8. Recorders.
9. Transducers.
10. Radiation.
11. Principles of designs and circuits of infra – red and ultra violet generators, short – wave diathermy, Microvaves ultra – sonics and Electrical stimulators.
12. Signal processes.
13. Displaydevices and indicators.
14. Magnetic tape – recorders.
15. Data transmission and processing.

SECTION – II : -

1. Physics of heat.
2. Thermometry.
3. Biophysics of daithermy.
4. Physiology of heat and cold.
5. Thermal radiation, pain and diathermy injury.
6. Genral principles of thermotherapy.
7. Conduction heating.
8. Luminous and infra – red heating.
9. High frequency instrumentation.
10. Short wave diathermy.
11. Microwaves.
12. Ultrasound therapy.
13. Insrumentation of Electrotherapy.
14. Theraputic electrostimulation.
15. Ionotophoresis.
16. Electrosleep therapy and Anaesthesia.
17. Instrumentation for ultra violet therapy.
18. Physiological effects of Ultra – Violet Radiation.
19. Low frequency currents.
20. T.N.S. interferential therapy.
21. Wax therapy.

SECTION - III : -

ELECTROPHYSIOLOGY

1. Bio – electricity.
2. Electric potentials generated by cell.
3. Electrogenic membrane response.
4. Chemoresponsive electrogenic system.
5. Propagation of nerve impulse.
6. Neuromuscular junction.
7. Synaspe.
8. Muscle electrogenic.
9. Electrophysiology of C.N.S.
10. Chronaxie.
11. Strength duration curves.
12. Electrical Skin resistance.
13. Electromyography.
14. Nerve conduction studies.
15. Microneurography.
16. Reflex physiology monosynaptic and polysynaptic reflexes, Microreflexes.
17. Spinograms.
18. Cerebral evoked potentials.

ELECTRO THERAPY & ACTINO THERAPY [PRACTICAL] : -

1. To Experience sensory and motor stimulation of nerves and muscles by various types of low frequency currents on self.
2. To locate and stimulate differnt motor points regionwise.
3. Therapeutic application of different low frequency currents, Faradic foot bath, faradism under pressure, stimulation of pelvic floor muscles, lonotophoresis, Anodal and Cathodal Galvanism.
4. To study the reaction of degeneration of nerves. To plot strength duration curves. To find chronaxie and rheobase.
5. To study a hydrocollator unit, its operation and therapeutic application of hot packs – regionwise.
6. To study a short wave diathermy unit, its operation and different methods of application region wise.
7. To study a Micro wave Diathermy Unit, its operation and methods of application regionwise.
8. To study a Paraffin Wax Bath unit, its operation and different methods of application region wise.
9. To study a Ultra – sonic therapy Unit, its operation and different methods of application region wise.
10. To study a different types of Ultra Violet therapy Unit, its operation, assessement of test doses and application of U.V.R. region wise.
11. To study a high frequency apparatus, its operation and application regionwise.
12. To study a electro vibrator, its operation and application of cold pack – region wise.
13. To study a Cryotherapy unit, its operation and application of cold pack – region wise.
14. To study a Trans Cutaneous Stimulator, its operation and application region wise.

ENGLISH : -

1. **Grammar**:- Students will be expected to use the following grammatical features correctly in context:-
   a. Verb:- The following forms, simple present, simple past, simple future, present continuous, past continuous, future continuous, present perfect, present perfect continuous, past perfect, future perfect.
   b. Adverb:- Their fomation, the position of certain types.
   c. Preposition:- The most common uses of simple prepositions, selected verb preposition or verb advervial particles.
   d. Articles, Conjunction, Subject – verb agreement, Direct and reported speech, transformation of sentences, including Active and Passive voice.

RECOMMENDED BOOKS : -

1. Bhaskaran and Horsburgh, Strentgthen your English [O.U.P., 1973].
2. S. Pit corder. Intermediate English Practice Book.
3. Standard Allen, Living English P Structure [Longman, 1974].
4. F.T. Wood, A. Remedial English Grammer for Foreign Students [Machmillan, 195].
5. C.D. Sidhu, An Intensive cours in English A Remedial Workbook [Orient Longman, 1978].
6. Comprehension:- Students will be expected to answer questions on language and content of the prescribed book. Questions will be related to the text, and will aim at testing stuendts compreshension of standard English. Questions will be framed in such a way as to discourage cramming.

Prescribed Books:- A choice of short stories, Ed. by Shaki Batra and P.S. Sidhu Oxford University Press.

7. Vocabulary:- Students will be expected to expand their vocabulary through prescribed and general reading.
   i. G. A. Pitman Activating Vocabulary.
   ii. Longman's Simplified English series by late Nineteenth Century twentieth – Century writers.
   iii. Mienael West Series.
8. Composition:- Students will be expected to produce guided compositions, totalling about 200 words, on a variety of subjects within their experience.

SECOND YEAR

PSYCHOLOGY : -

1. Defination and scope of Psychology in relation to Occupational therapy, Physical Therapy.
2. Methods of studies in Psychology.
3. Psychological development of human individual from conception to birth and birth to old age.
4. Special need, characteristics and problems of the various groups of handicapped.
5. Learning factors affection learning, learning disability techniques to deal with. Implications of various handicaps in the learning process. Principles of learning for various handicapped groups. Techniques of motivating the handicapped children.
6. Adjustment, criteria of mental health, adjustment problems faced by handicapped children, counselling and guidance with special reference to the Physically and mentally handicapped.
7. Interaction with the family, community and peer groups. Communication patterns. Specific problems faced by handicapped, development of social skills and sensitivity training.
8. Role of Psychologist in Rehabilitation of the Handicapped.

MEDICINE :-

General Medicine including respiratory diseases:-

1. Infection and antibacterial agents.
2. Infectious diseases.
3. Chemical and physical agents carrying disease.
4. Diseases of Metabolism.
5. Dificiency diseases.
6. Diseases of endorcine glands.
7. Diseases of the digestive system.
8. Diseases of the Lymphatic system.
9. Diseases of the Blood.
10. Diseases of the Cardio vascular system, circulatory failure ischaemic heart disease, hypertension, pulmonary heart disease, congenital heart disease, peripheral vascular diseases, embolism and thrombosis.
11. Collagen disease.
12. Diseases of the Respiratory system, the trachea, the bronchi, the lungs, the diaphragm and the pleura.
13. Diseases of the Kidney.
14. Diseases of the Skin-sensory disorders, pigmentary anomalies, Vaso motor disorder, dermatitis, focal in fections, fungal infections, cutaneous cerculosis, viral infections, parasitic infections, erythmatous conditions, scleroderma and allied conditions, Atrophy and Hypertrophy, diseases of the Head, Tropical Skin Diseases.
15. Psychiatry
    a. Definition and introduction to Psychiatry in relation to O.T. and P.T.
    b. Concept of normal and abnormal.
    c. Behaviour disorders. Causes and management:-
        i. Psychoneurotic disorders.
        ii. Psychotic disorders.
        iii. Phychosomatic disorders.
    d. Techniques of Therapy:-

i. Psychotherapy:-
- Group Therapy.
- Psychoderma.
- Behaviour Modification.
- Family Therapy
- Play Therapy

ii. Drug Therapy

iii. E. C. T.

e. The role of Psychiatrist in dealing with the problems of mental health.

16. Paediatrics
17. Geriatric
18. Nursing and Bandaging

SURGERY :-

1. Surgical wounds – haemorrhage, Shock – water and electrolyte balance, burns.
2. Surgery of head and neck, elementary system and genitourinary system.
3. Neurosurgery.
4. Cardio – vascular and thoracic surgery.
5. Gynaecology and obstetrics.
6. E. N. T.

ORTHOPAEDICS :-

1. Postural defects – anteroposterior and lateral curves of the Spine, the feet, genu valgum, genu varum.
2. Back pain.
3. The spine, the intervertlbral disc, Osteoporosis, ankylosing spondylitis, Spina bifida,Torticollis, Tuberculosis of the spine and sacroliiac joints, Osteomyelitis, Tumours.
4. The Hip-congenital dislocation, Coxa vara, Tuberculosis, bursistis.
5. The knee-injuries to medical ligament, lateral ligament, Semilunar cartilages, cruciate ligament, chronic strain, chondromalacia, patella, Rheumatoid arthritis, Osteorthritis, synovitis, clicking knees, tuberculosis, strain.
6. The foot and ankle-painful feet, peseavus, hallux, gout, painful heel, the ligaments of the ankle, tuberculosis, strain fractures.
7. The shoulder girdle – pain in the shoulder, cervical spondylosis, carpal tunnel syndrome, cervico-brachial junction, recurrent dislocation of the shoulder, tuberculosis.
8. The Elbow-tennis elbow, myositis-ossifians, ulnar palsy, tuberculosis.
9. The wrist and hand-tenosynovitis, tuberculosis, ganglion, rupture of tendons, contractures
10. Pyogenic infection.
11. Tuberculosis
12. Chronic arthritis, Rheumatoid and Osteoarthritis.
13. Diseases of Nervous system, poliomyelitis, Cerebral palsy.
14. Common fractures of spine and extremities.
15. Radiology.

PHYSICAL THERAPY IN MEDICINE :-

Part – I

PHYSICAL THERAPY IN NEUROLOGICAL CONDITIONS

1. Examination of Neurological disorders and Principles of Treatments.
2. Hemiplegia, Cerebral palsy, Tabes dorsalis, Cerebellar ataxia, extra Pyramidal lesions [In Detail].
3. Disseminated sclerosis, peroneal muscullar Atrophy, Amyotrophic lateral sclorosis, progressive muscular Atrophy, Syringomyelia, Sub-acute combined degeneration of cord.
4. Peripheral Nerve Lesions [In Details].
5. Neuritis and Neuralgia-Brachial, Sciatica and facial palsy[In Detail].
6. Infections-Poliomyelitis, Meningitis, Encephalitis, Polyneuritis.
7. Myopathies.
8. Paediatrics and Geriatrics:-
   a. Special Problems of elderly and children related to special conditions which they are prone to.
   b. Treatment as modified to the particular needs of each age group.

PHYSICAL THERAPY IN SURGERY :-

Part – I

1. Orthopaedics and Fractures:
   - i. Fractures and dislocations.
   - ii. Types of displacement.
   - iii. Classifications.
   - iv. Immediate and late signs and symptoms.
   - v. Changes at fracture site and its surrounding tissues
   - vi. Reasons for Union, Non-union, delayed union.
   - vii. Methods of reduction and fixation.
   - viii. Healing of fractures and factors influencing it.
   - ix. Common fractures of Upper and Lower extremeties and their complications.
   - x. Corrective Surgery
     - a. Arthroplasty, Arthrodlesis, Osteotomy, Tendon Transplant, Soft tissue release, grafting.
     - b. Physical Therapy as applicable to above conditions.
2. Injuries:-
   - i. Soft tissue injuries.
   - ii. Crush Injuries.
   - iii. Repair of Injured tendons and nerves.
   - iv. Injuries of Semilunar cartilage and cruciate ligaments of Knee:- Physical therapy applicable to above complications.
3. Deformities:-
   - i. Congenital:- Torticollis, cervical rib, Sprengels shoulder, spinabifida, Talipes Equini Varus and valgus, hallux valgus, pes planus and other common deformities.
   - ii. Acquired:- Scoliosis, Kyphosis, Lordosis, Coxavera, genu valgum, genu varum and recuratum, planus and other common deformities.
   - iii. Other miscellaneous:- orthopaedic conditions commonly treated by Physical Therapy:- Physical therapy related to above conditions.

iv. Amputations:- Traumatic, Elective, common sites of amputations in upper and lower extremities, advantages and disadvantages, physical therapy as applicable to care of prosthetic training with emphasis in Lower extremity.

Note:- Emphasis should be on the assessment of disability with the selection of treatment based on these.Where possible therapy should be related to the activities of daily living and patient's occupation and directed towards the development of self confidence and independence.

THIRD YEAR

BIOMECHANICS AND KINESIOLOGY :-

KINESIOLOGY :-

1. Introduction to Kinesiology.
2. Fundamentals of Human Motions., C. G., line of gravity, plane and axis of motion in human body.
3. Musculo-skeletal system, Skeletal muscles-types and properties, function and co-ordination of the muscular system, types of muscular action, function, classification and motion of the joints of vertebral column, upper extremity and lower extremity.

BIOMECHANICS :-

1. Introduction to Mechanics, Biomechanics, static, Dynamic.
2. Scaler and vector quantities.
3. Motion-Cause, Kind and factors mofifiying motion.
4. Force-Nature, magnitude and its components.
5. Lever-Classification, Principles and Anatomic Levers.
6. Motion and force-Newton's laws of motion, friction, fluid and rebounding forces.
7. Stability and equilibrium-principles of stability.
8. Posture and locomotion.

PHYSICAL THERAPY IN MEDICINE :-

Part – II

1. Pathological Changes:-
   Review of Pathological changes and principles of the treatment by Physical therapy of:-
   - i. Inflammation-acute, chronic and suppurative.
   - ii. Oedema-Traumatic, obstructive, Paralytic, Oedema due to poor muscle and laxity of the fascia.
2. Arthritis and allied conditions [In Details]
   - i. Spondylosis and disorder.
   - ii. Rheumatoid Arthritis, Stills's disease, infective arthritis.
   - iii. Spondylitis, ankylosing Spondylities.
   - iv. Non-Articular Rheumatism-Fibrositism, Myalgia, Bursitis, Peri-Arthritis etc.
3. Diseases of the Respiratory System:-
   - i. Machanism of Respiration.
   - ii. Examination of Chest of Patients and Principles of Physical Therapy.
   - iii. Bronchitis, Asthma, Lung abscess, Bronchiectasis, Emphysema.
4. Common conditions of skin:- Acne, Psoriasis, Alopecia, Leucoderma, Leprosy.
5. Common Cardiac Disorder:- Thrombosis, Embolism, Buerger's disease, Arteriosclerosis, Thrombophlebitis, Phlebitis, Gangrene, Congestive Cardiac failure, Hypertension.

6. Deficiency Diseases:- Rickets.

PHYSICAL THERAPY IN SURGERY :-

Part – II

1. Complications common to all operations:- Pre and Post operative Physical Therapy.
2. Wounds, Local Infection, Ulcers, Surgical procedures related to peripheral vascular diseases.
3. Burns, Degree of Burns, skin Grafts.
4. General Abdominal Surgery and obstetrics and Gynaecology:-
   i. Abdominal-incisions:- Its pre and post operative physical therapy.
   ii. Operations on stomach, intestines, Appendisectomy, Spleenectomy, Cholecystectormy.
   iii. Operations on abdominal wall, hernia.
   iv. Operations of Genitio-urinary system, Prostatectomy Nephrectomy.
   v. Antenatal and Post natal training.
   vi. Prolapse rectum.
   vii. Complications of Pregnancy.
   viii. Weak abdominal and pelvic floor muscles.
   ix. Stress incontinence.
   x. Prolapse Uterus.
   xi. Special points related to Pelvic Surgery.
   xii. Pelvic inflammatory conditions.
   xiii. Surgery of the Breast-Radical mastectomy.

Physical Therapy related to Above conditions.

5. Thoracic Surgery:-
   i. Thoracic incisions-pre and post operative treatment and later rehabilitation of the patients.
   ii. Lobectomy, Pneumonectomy, Thoracotomy, Thoracoplasty.
   iii. Operations on Chest Wall.
   iv. Common Complications with emphasis to atelectasis, Pneumothorax, Bronchopulmlnary fistula, Pre and Post Operative Physical Therapy related to Cardiothoracic Surgery.
   v. Operations on pericardium and heart, Chronic Constrictive pericarditis, valvular incompetence and stasis, Mitral Valvotomy, Congenital heart defects:- Patent ductus arteriosus, Tetrology of Fallot.
6. Ear, Nose and Throat conditions:- Otitis Media, Sinusitis, Vasomotor Rhinorrhoea, Adenoids, Tonsilities, Physical Therapy related to above conditions.
7. Neuro-Surgery:-
   i. Cranial Surgery:- Head Injuries, Intra cranial abscess. Intracranial lumbar.
   ii. Surgery of spinal cord and cauda equina. Spina Bifida and its complications. Infections of the spine. Epidural abscess. Tuberculosis. Lumbar Disc herniation. Cervical Disc herniation, Laminectomy, Pre and Post operative Physical therapy related to above conditions.
   iii. Surgery of peripheral nerves, Peripheral nerve injuries, Pre and Post operatice Physical Theapy as applicable to above conditions.

8. Pre and Post operative physical therapy, related to plastic surgery:- Tendon transplantation in Leprosy, Polio etc. Pre and Post Operative Physical therapy related to above conditions.

PHYSICAL THERAPY IN SURGERY :-

1. Introduction.
2. Definitions concerned in the phase of disability process.
3. Definitions concerned with causes of impairment, functional limitation and disability.
4. Rehabilitation and disability prevention.
5. Present rehabilitation services.
6. Reservation and legislation for rehabilitation services for the disabled.
7. Community and rehabilitation.
8. Basic principles of Administration, Budget, approach personnel and space etc.
9. Contribution of social worker towards rehabilitation.
10. Vocational evaluation and goals for disabled.
11. Rural Rehabilitation incorporated with Primary Health Centres.
12. Principles of Orthotics and Prosthetics:-
    a. Lower Extremity Orthotics.
    b. Spinal Orthotics.
    c. Upper extremity orthotics.
    d. Upper extremity prosthetics.
    e. Lower extremity Prosthetics.
13. Principles of Communication, Impairment:-
    a. Speech production.
    b. Communication disorders secondary to Brain Damage.
    c. Aphasia and its treatment.
    d. Evaluating Language.
    e. Dysarthria and its treatment.
    f. Non aphasic Language disorders.
14. Code and Conduct.
15. Ethics and Management.
    a. Principles in Management of social problems.
    b. Social needs of the patient.
    c. Rehabilatation Centre Environment.
    d. The social worker as member of the Rehabilitation team.
    e. Community Resources.
16. Principles in Management of Vocational Problems.
    a. Vocational Evaluaton.
    b. Vocational Goals for Several disabled.
17. Mental Subnormality:-
    a. Identification and assessment of the Mentally subnormal.
    b. Classification of the Mentally subnormal.
    c. Common Characteristics of Different categories fo the Mentally subnormal.
    d. Causes, prevention and Management of the Mental subnormal.
    e. Training of the mentally subnormal.
    f. Home Education programme.
    g. Rehabilitation of the mentally subnormal.
18. Definition, scope, importance of A. D. L.

19. Goal of self Help Devices.
20. Teaching A. D. L. in the following areas:-
    a. Wheel chair activities.
    b. Bed activities.
    c. Self Care activities:-
        i. Toilet.
        ii. Eating.
        iii. Dressing.
        iv. Miscellaneous hand activities.
21. Principles of design materials used.
22. A. D. L. Form.
23. A. D. L. Room.
24. Relationship of A. D. L. to Occupational therapy and physical therapy.
25. Practicals:- Eating device, bathing device, shoe wearing adapted device, brushing device, combing device, writing device, leather cuff amputee, helping hand, socking devices.

PHYSICAL THERAPY PRACTICAL EXAMINATION

To examine and evaluate the patients suffering from Muscular neurological and skeletal conditions.

I. Examination.

1. Motor:- Muscle Tone, Muscle Power grading, measurement of girth.
2. Range of Motion:- Coniometry,contracture,deformity,and measurement of limb length.
3. Sensory: Touch, Pain Temperature, Pressure and Kinesthetic sense.
4. Neurological: -
    i. Primitive reflexes, Motor development.
    ii. Superficial and deep tendon reflexes.
    iii. Involuntary movements. Inco-cordination, Gait.
5. Respiratory System:-
    a. Measurement of Chest expansion.
    b. Pattern of Breathing, Diaphragmatic.
    c. Localized costal breathing.
6. Functional Evaluation of A. D. L.'s:-
    a. The aims and plan of treatment of the patients suffering from the diseases as per Theory Syllabus.
    b. To operate the electro-therapeutic and mechanic-therapeutic equipments for treatment of patients as per electro-therapy and exercise therapy practical syllabus of first year.

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SYLLABUS FOR DPT III YEAR (FINAL YEAR)
STATISTICS & APPLIED MATHS

1. Meaning & Definition of Statistics and Biostatistics, Satstical data, Frequency series, Frequency distribution, Normal Distribution curve, Histogram.
2. Measure of central value-Mean, median, mode, measure of dispersion or variability, Range, semi inter-quartile, standard deviation, variance, cofficient of variation, finding percentile norms.
3. Precentile Rank by interpolation in cumulative distribution.
4. Correlation – product – movement cofficient and Rank differences correlation reliability and significance – standared error of a mean and its interpretation.
5. Reliability of a difference between means, Testing Hypothesis, T and F test.
6. Computation of chisquare from a contigency table & its interpretation.

PHARMACOLOGY

1. **General Pharmacology (In Brief):**
   1. Introduction & General Concepts.
   2. Pharmaco-kinetics (routes of administration, metabolism & elimination).
   3. Pharmaco-dynamics (mechanism of drug action, therapeutic & side effects, toxicity).

2. **Autonomic Nervous System (In Brief):**
   1. Brief outline of Sympathetic-parasympathetic nervous system.
   2. Therapeutic engents-uses, effects and interaction with physical therapy.

3. **Cardio-Vascular System (In Brief):**
   1. Drug Classification.
   2. Commonly used drugs and its interaction with physical therapy.

4. **Glcocorticoids, thyroxin-uses, side effects and interaction with physical therapy (In Brief):**

5. Central Nervous System (In Brief):
   1. Anaesthetic agenst – uses, side effects and interaction with physical therapy
   2. Sedatives and hypnotics – uses, side effects and interaction with physical therapy.
   3. Anti epileptic drugs– uses, side effects and interaction with physical therapy.
   4. Analgesics – uses, side effects and interaction with physical therapy.
   5. Anti inflammatory drugs– uses, side effects and interaction with physical therapy.
   6. Psychotherapeutic agents– uses, side effects and interaction with physical therapy.
   7. Alcoholism and drug dependence and interaction with physical therapy.
   8. Therapeutic agents used for movement disorders - – uses, side effects and interaction with physical therapy.

6. **Respiratory system (In Brief) :**
   1. Therapeutic agents – uses, side effects and interaction with physical therapy.

7. **Gastrointestinal System (In Brief) :**
   1. Therapeutic agents in Peptic ulcer, diarrhoea – uses, side effects and interaction with physical therapy.

8. **Diabetes mellitus (In Brief) :**
   1. Drug therapy and its interaction with physical therapy.

9. **Geriatric (In Brief) :**
   Pharmacological challenges in geriatric are group and its effects on physical therapy.
   1. K.D. Tripathi. "Essentials of Med Pharmacology"
   2. Larence & Bernett, "Clinical Pharmacology"
   3. Lynne Eddy, "Physical Therapy in Pharmacology"
   4. F.S.K. Barar, "Essential of Pharmacotherapeutics."

10. **Routes & Mode of drug administration (In Brief) :**

BIOCHEMISTRY

1. **Carbohydrates :** Definition, Classification with examples and general functions. Metabolism – Glycolysis, T.C.A. Glycogen metabolism, Blood Sugar regulation Diabetes and diabetic keto-acidosis.

2. **Lipids :** Definition, classifications and general functions, Essential fatty acids, cholesterol, Blood lipid, Brief/review of lipoproteins, Metabolism-Oxidation of fatty acids, cholesterol synthesis, and fatty liver.

3. **Protein :** Definition, classification, and Bio-medical Imporance. Study of haemoglobin and immunoglobulins.

4. With functions. Plasma Proteins and functions. Metabolism : General reaction of amino acids. Formation and fate of ammonia – Urea cycle.

5. Nucleic Acids : Brief overview of the structure of RNA and DNA including nucleotides.

6. Nutrition : Basic principle of nutrition of carbohydrates, Proteins and lipid caloric requirement and balance diet.

7. Enzymes : Definition, classification with examples. Factors affecting enzyme action. Brief study of enzyme inhibition. Clinical important of enzymes.

8. Vitamins : Definition, classification and functions. Dietary source, Daily requirement and deficiency disorders.

9. Water and Electrolyte Balance : General outline of fluid compartments of the body with their water and electrolyte content and balance, Dehydration.

10. Tissue Chemistry : Chemistry of connective tissue, bone and teeth. Composition function and chemical mediators of nerve structure of muscle tissue. General Biochemistry of muscle contraction and relaxation.

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