आर्यभट्ट ज्ञान विश्वविद्यालय
ARYABHATTA KNOWLEDGE UNIVERSITY

ARYABHATTA KNOWLEDGE UNIVERSITY, PATNA

SYLLABUS
FOR
FIRST BACHELOR OF OCCUPATIONAL THERAPY
(B.Th.O.) EXAMINATION

Aryabhatta Knowledge University, Patna
(Duration of Course 4 ½ Years including 6 months Internship)

First Bachelor of Occupational Therapy (B.ThO) (1 ½ Years)

Subject	Short Form	Theory		Practical		Total	
		Marks	Hours	Marks	Hours	Marks	Hours
Human Anatomy	(H.Ana)	100	3	100	3	200	6
Human Physiology	(H. Physio)	100	3	100	3	200	6
Ergodynamics	(E.Dy.)	100	3	100	3	200	6
Pathology & Bacteriology	(Patho+Bact.)	50	2	---	---	50	2
Bio-Chemistry & Bio-Physics	(Bio-Chem&Bil-Phy)	50	2	---	---	50	2
Bio-Mechanics	(Bio-Mech)	50	2	---	---	50	2
	G.Total	450	15	300	9	750	24

Second Bachelor of Occupational Therapy (B.ThO) (1 ½ Years)

Subject	Short Form	Theory		Practical		Total	
		Marks	Hours	Marks	Hours	Marks	Hours
Medicine	(Med)	100	3	050	1 ½	150	4 ½
Surgery	(Surg)	100	3	050	1 ½	150	4 ½
Pharmacology	(Pharma)	100	3			100	3
Ergotherapeutics	(E.Th.)	100	3	100	3	200	5
Applied & Experimental Psychology & Bil-Statistical	(A.E.Psy & (Bio-St.0	100	3	050	1 ½	150	4 ½
General & Social Psychology	(Gen. & Soc.Psy)	50	2	---	---	50	2
	G.Total	550	17	250	7 ½	800	24 ½

Final Bachelor of Occupational Therapy (B.ThO) (1Year)

Subject	Short Form	Theory		Practical		Total	
		Marks	Hours	Marks	Hours	Marks	Hours
Medical Occupational Therapy	(MOT)	100	3	100	3	200	6
Surgical Occupational Therapy	(SOT)	100	3	100	3	200	6
Rehabilitation & Threapeutic Management0	(Rehab.&Th.Manag.)	100	3	-----	-----	100	3
Orthotic & Prosthetics	(Ortho&Prosth)	100	3	100	3	200	6
Bio-Engineering & Ergonomics	(Bio-Eng. & Erg.)	100	3	100	3	200	6
Psychiatry	(Psych)	50	2			50	2
	G.Total	550	17	400	12	950	29

Total Marks: 750+800+950=2500

ARYABHATTA KNOWLEDGE UNIVERSITY, PATNA

1. HUMAN ANATOMY
SECTION – I
GENERAL & SYSTEMIC ANATOMY

1. **INTRODUCTION :**
   Scope of Anatomy Cell as a structural and functional Unit, Organization of tissue, organs and system; Anatomical position of the body.
2. Skin and the appendages of the skin.
3. **MUSCLES:**
   Voluntary and involuntary muscles, short description of the structure of different muscles.
4. **MUSCLES:**
   Classification of Voluntary muscle, origin and Insertion Tendon, Isometric and isotonic contraction of the muscle.
5. **BONES:**
   Hard connective tissue, composition and functions, classification of bone according to Morphology and Development, various terms as ridge, tuberosity and trochanter.
6. **BONES:**
   Development of bones, parts of long bones and blood supply of bones, central remarks about the bones of skull, thorax, vertebral column and extremities.
7. **JOINTS:**
   Definition, classification of joints, structure of fibrous and cartilaginous joints.
8. **JOINTS:**
   Structure of synovial joint, movements of joints, blood supply of bone and joints.
9. **NERVOUS SYSTEM:**
   Nerve cell, Synapse and Reflex Arc.
10. **NERVOUS SYSTEM:**
    Organization of Central Nervous system, Spinal nerves and Nerve endings with demonstrations of various parts.
11. **CARDIOVASCULAR SYSTEM:**
    Blood as a connective tissue, functions in short, gross anatomy of heart with demonstration and surface anatomy.
12. **CARDIOVASCULAR SYSTEM:**
    Arteries, Veins, Capillaries, Collateral circulation, nervous control of blood circulation, with demonstration and surface anatomy.
13. **RESPIRATORY SYSTEM:**
    General outline of Respiratory Passages, Gross anatomy of Lung Pleura; with demonstration of surface anatomy.
14. **RESPIRATORY SYSTEM:**
    Broncho-pulmonary segments, intercostal muscle and mechanism of respiration.
15. **DIGESTIVE SYSTEM:**
    General idea or outline of Gastro-intestinal tract and associated glands; Demonstration of organs.

16. **EXCRETORY SYSTEM:**
Structure and function of kidneys, general outline of uterus, urinary bladder and urethra; demonstration of organs.

17. **REPRODUCTIVE SYSTEM:**
General outline of Male and Female genital organs, detail in female, brief in male.

18. **ENDOCRINES:**
Definition, structure in general, control of secretion of pituitary, thyroid, Adrenal pancreas with demonstration.

19. **LYMPHATIC SYSTEM:**
Lymph circulation, Lymph nodes and Lymphoid tissue in details.

20. **GENERAL EMBRYOLOGY:**
(1) Female and Male Genital organs and development of ovum and sperms.
(2) Fertilization and formation of three germ layers and their dominations.
(3) Development of Bones, axial and appendicular skeleton and muscles.
(4) Neural tube, brain vesicles and spinal cord.
(5) Development of Brain and Brain stem structures.

PRACTICAL AS PER SYLLABUS:
(1) Muscles of the whole body.
(2) Demonstration of organs in Thorax and abdomen.
(3) Demonstration of viscera of Head, Face and Neck.
(4) Demonstration of all the Glands in the body.
(5) Surface marking on living body of lung, pleura, fissures and Lobes of Lungs, Heart, Abdominal viscera.
(6) Identification of body prominences on inspection and palpation in the body especially of extremities. Points to palpate nerves and arteries, Identification of prominent muscles.
(7) Extra-Ocular muscles and salient points about the eyeball.
(8) Ear-Specially the Internal Ear.
(9) Demonstration of Brain.

SECTION-II

MUSCULO-SKELETAL AND NEURO - ANATOMY

1. **SUPERIOR EXTREMITY:**

Osteology: Clavicle, Scapula, Humerus, Radius, Ulna, Carpals, Metacarpals.

Soft Parts: Breast, Pectoral Region, Axilla, Front of Arm, Back of Arms, Cubital fossa, Front of Forearm, Back of forearm, nerves and vessels of forearm, palm, Dorsum of hand, shoulder girdle, shoulder joints, elbow joint Radio-Ulnar joint, wrist joint, joints of hand.

2. **INFERIOR EXTREMITY:**

Osteology: Hip Bone, Femur, Tibia, Fibula and Patella, Tarsals Metatarsus.

Soft Parts: Front of thigh-Femoral triangle, Femoral canal & femoral hernia, Adductor canal, Medial compartment of thigh Gluteal region back of thigh, Popliteal Fossa, Anterior compartment of leg, Posterior compartment of leg, sole of foot, Lymphatic drainage of leg, drainage venous if leg, Hip joint, knee joint, ankle joint, tarsal joints.

3. **TRUNK:**

Osteology: Cervical, Thoracic, Lumbar vertebrae, Sacrum, Coccyx, and Ribs.

Soft tissue: Inter-vertebral joints, cost-vertebral joints, Inter-vertebral Disc, Ligaments and Muscles.

4. **THORACIC CAGE:** With muscles and Movements.

Head, Neck, Face region : Bones, Muscles, Nerves of face and neck muscles.

Joints: Temporomandibular, Atlanto-occipital joint.

Dissection of Extremities and Demonstration of dissection: Parts of trunks; brain, thoracic and abdominal contents.

5. **NEURO-ANATOMY:** In details with applied and clinical aspect with demonstration of Brain and spinal cord.
    1. Sulci and Gyri and various areas of cerebral Hemispheres.
    2. Thalamus, Hypothalamus, Basal Ganglion.
    3. Cerebellum.
    4. Pons, Medulla.
    5. Spinal Cord.
    6. Ascending tracts.
    7. Descending tracts.
    8. Clinical application of knowledge of the tracts.
    9. Autonomic nervous system.
    10. Nervous control of urinary bladder and bladder dysfunction.
    11. Vestibule cochlear system.
    12. Cranial nerves.

2. HUMAN PHYSIOLOGY

Section-I : General Physiology

General Physiology:

1. Cell structure and Organelles.
2. General Principles of Biophysics.
3. Body Fluid Compartments.

Blood:

1. Composition of blood, Plasma Proteins formation and their function.
2. Structure formation and function of R.B.C.
3. Structure formation and function of W.B.Cs and Platelets.
4. Coagulation and its defects, bleeding, clotting time.
5. Blood group and their significance Rh. Factor.
6. Reticule Endothelial system. Jaundice structure and functions of spleen.
7. Haemoglobin and E.S.R.

Cardiovascular System:

1. Structure, properties of Heart muscle and nerve supply of Heart. Structure and function of arteries, capillaries and veins.
2. Cardiac cycle and heart sounds.
3. Cardiac output, measurement, factors affecting.
4. Heart rate and its regulation, cardio vascular reflexes.
5. Blood pressure, its regulations and Physiological variations.
6. Peripheral resistance, factors controlling role in B.P.
7. Hemorrhage.
8. E.C.G.
9. Changes in muscular exercise.

Respiratory System:

1. Mechanism of respiration. Intra-pleural and Intra-pulmonary pressure.
2. Lung volumes and capacities.
3. O_2 and CO_2 carriage and their exchange in tissues & lungs.
4. Nervous chemical regulation of respiration – Respiratory centers.
5. Respiratory states – Anoxia, Asphyxia cyanosis …. Acclimatization.

Digestive System:

1. General outline and salivary digestion.
2. Gastric secretion & its mechanism of secretion & functions.
3. Mechanism of secretion of succus entericus and pancreatic juice and its functions.
4. Structures and secretions and functions of liver.

Nutrition:

5. Digestion, absorption and metabolism of carbohydrates.
6. Digestion, absorption and metabolism of Fats.
7. Digestion, absorption and metabolism of proteins.
8. Vitamins, sources functions and requirements.
9. Balanced diet in different age groups and occupation.

Endocrines:

1. Anterior Pituitary.
2. Post pituitary and parathyroid.

3. Thyroid.
4. Adrenal cortex.
5. Adrenal Medulla, Thymus.
6. Pancreas and blood sugar regulation.

Reproduction System:

1. Sex determination and development, puberty.
2. Male sex hormones and their functions, spermatogenesis.
3. Female sex hormones and functions, menstrual cycle, Ovulation and contraceptives.
4. Pregnancy, functions of placenta and lactation.

Excretory System:

1. Gross and minute structure of kidney and features of renal circulation.
2. Mechanism of formation of urine, GF.R. & Tubular function.
3. Renal function, Tests.
4. Physiology of Micturition.

SECTION-II
(NEURO-MUSCULAR PHYSIOLOGY)

MUSCLE AND NERVE:

1. Structure of neurons, membrane potential and generation of action potential.
2. Nerve impulse conduction saltatory conduction.
3. Nerve muscular junction and drugs acting on it, Myasthenia gravis.
4. Degeneration and regeneration of peripheral Nerves, reaction of degeneration Wallerian degeneration, Electro-tonus and Pfluger's law.
5. Types of Muscle, Microscopic structure of Muscle, Properties of muscle, comparison of various types of muscle.
6. Sarcomere, Mechanism of muscular contraction.
7. Thermal and chemical changes during muscular contraction.
8. Starlings law, Isotonic, Isometric contractions, Chronaxie, Rheobase.
9. Action potential.
10. Motor Units and its properties, clonus, tetanus, fatigue, summation, all or none law, beneficial effect.
11. Electromyography, applied aspects.
12. Nerve fibers classification, spread or impulse.
13. Velocity of nerve conduction, factors, affecting velocity.

NERVOUS SYSTEM:

1. Types and properties of Receptors, types of sensations.
2. Structure of synapse Reflex arc and its properties, occlusion summation, subliminal fringe etc.
3. Sensory tracts of spinal cord.
4. Motor tracts – Pyramidal and Extrapyramidal.
5. Hemi sections and complete section of Spinal Cord. Upper and lower motor neuron paralysis.
6. Cerebral Cortex, areas and functions of E.E.G.
7. Structure – connections and functions of cerebellum, and hypo-thalamus.
8. Basal ganglia and thalamus. Connections and functions.
9. Reticular formation tone, posture and vestibular apparatus.
10. Autonomic Nervous system.

SPECIAL SENSES:

1. Broad feature of Eye, Errors of refractions, lesions of visual pathways.
2. Speech and its disorders.
3. Ear and Vestibular apparatus.

PRACTICAL AND DEMONSTRATION

A.
1. Haemoglobinometer and total R.B.C. count.
2. Total W.B.C. Count.
3. Preparation and staining of Blood smears. Determination of differential W.B.C. count.
4. Blood Grouping.
5. Erythrocyte Sedimentation Rate.
6. Bleeding and clotting time.

B.

1. Artificial Respiration.
2. Pulmonary function tests.

HUMAN PHYSIOLOGY EXPERIMENTS

C.
1. Heart sound.
2. Arterial Blood pressure in man.
3. Cardiac efficiency tests.
4. Recording and study of Electrocardiogram.

D.
1. Testing of peripheral sensations and cranial nerves.
2. Superficial and deep reflexes.
3. Tests for Cerebral and Cerebellar functions.
4. Study of special senses.

PRACTICAL

E.
1. Electrical Reactions & Electro diagnostic tests.
2. Varieties of stimuli, Electrical Apparatus for Physiological Experiments.
3. Frog's Nerve-muscle preparation and demonstration of the following experiments on it.
4. Electromyography – Principle & application.
5. Simple muscle twitch.
6. Effect of load, Temperature and fatigue of Muscular Contractions.
7. Frog's normal cardiogram.

Effect of followings on normal cardiogram of Frog:

- Temperature.
- Extrasystole.
- Stimulation of Vagal sympathetic trunk.
- Stannius ligature.
- Radial pulse tracing.
- Basal Metabolic rate.
- Work Physiology.

Physiological effect of Electrical stimulation & use of High frequency current and various heat therapy agents.

3. ERGODYNAMIC THERAPEUTICS

SECTION-I

(BASIC PRINCIPLES)

I.
(a) History and development of Occupational Therapy.
(b) Rehabilitation – Philosophy and need of Rehabilitation, Rehabilitation Team. Principles of Physical Medicine.

2. Current basis for Occupational Therapy, Definition of Occupational Therapy Philosophical base of Occupational Therapy.
3. Occupations as a major activity base of Human being.
4. Forma of Occupation:
   (a) Work.
   (b) Daily living Task.
   (c) Play.

5. (a) Occupation as an evolutionary Trait.
   (b) Occupation and Biological Dimensions.
   (c) Psychological Dimensions of Occupation.
   (d) Social dimensions of occupation.
   (e) Occupation and therapy.

6. **Therapeutic Exercises:**
   (a) Objective: To develop (1) Power (2) Endurance (3) Co-ordination (4) Range of Movement (5) Speed.
   (b) Principles applicable to all forms of Exercises.
   (c) Dosages, Principles and Effects.
   (d) Types: (1) Passive (2) Active assistive (3) Active (4) Progressive Resistive (5) Stretching (6) Isokinetic (accommodating resistive Exercises).

7. Therapeutic application of Activities:
   (a) Characteristics.
   (b) Factors to be considered in selection.
   (c) Activity Analysis.
   (d) Methods of instructions.
   (e) Activities of Daily Living.
   (f) Prevocational Activities.

8. Principles of Administration and Organization.

9. **EXERCISE THERAPY:**
   (I) Analysis of different involuntary movements and their importance in exercise therapy.
   (II) (i) Mechanical anatomy of motion and postures.
   (ii) Gait training and gait analysis.
   (III) Relaxation; Reeducation of posture, balance and co-ordination, functional re-education.
   (IV) Mat excuses, group therapy; Recreational therapy; Sport therapy, Yoga therapy, Breathing exercises, Pre-and post-natal exercises.
   (v) Hydrotherapy; Massage and manipulation – Definitions; Classification, contra-indication, indication etc.
   (vi) Stability and fundamental derived positions.
   (vii) Maintenance and Restoration of R.O.M. and Joint stability. Mobilizing and strengthening activities, increasing endurance and tolerance.
   (viii) Reduction of Hypertonicity and rigidity and initiation and stimulation of Muscle contraction, study of various neuro-muscular Reeducation techniques.

SECTION-II
(EVALUATION METHODS)

1. Basic principles of planning treatment.
2. Evaluation/Assessment of (a) Joint Range of Motion (b) Muscle Strength (c) Cognition (d) Co-ordination (e) Sensation (f) Perception (g) Cognition (h) Selected developmental Reflexes and Reactions (i) Tissue Resistance.

3. **Basic consent of Human Development:**
   (1) Definition & factors influencing human development.
   (2) Biological.
   (3) Environmental.
   (4) Inherited.
   (5) General principles of Development.
4. **Principles of Maturity:**
   (1) Cephalocaudal pattern.
   (2) Proximal, distal, Medial and lateral patterns.
   (3) Mass to specific pattern.
   (4) Cross to fine.
5. **Performance Skills:**
   (1) Activities of Daily living.
   (2) Pre-Vocational.
   (3) Vocational.
6. Practical as per Syllabus.

4. PATHOLOGY AND BACTERIOLOGY

1. Aims and objects of study of Pathology, Meaning of the terms etiology, pathogenesis, lesions and disease.
2. Various causes of disease and an approach to laboratory study and diagnosis of process of disease.
3. Brief outline of sick cells, degenerations, necrosis, gangrene etc.
4. **Inflammation:** Definition, Vascular and cellular, Phenomenon, tissue changes, exudates and pus formation, Difference between acute and chronic inflammation.
5. Repair (bone, skin, nerves and muscles etc.).
6. Circulatory disturbances with emphasis on ischemia, thrombosis, embolism, infarction. Diseases of cardio vascular system.
7. General approach to bacterial and viral infections, emphasis on tuberculosis, syphilis, leprosy, fungal infections.
8. General approach to immunity and allergy.
9. Neoplasia, Benign and malignant, spread of tumours.
10. Diseases of nervous system, joints, bones and muscles.
11. Brief outline of blood disorders and parasitic infections.
12. Animal parasites.
13. Deficiency diseases, pigments and pigmentation.
14. Physical irritants and chemical poisons.
15. Ionizing radiations.
16. Medical Genetics.
17. Regional pathology of heart, blood vessels, female reproduction system, Nervous system, the bones, these joints, the muscles the skin etc.
18. Disease of respiratory system and genitourinary systems.

5. BIOCHEMISTRY AND BIOPHYSICS

BIOCHEMISTRY:

1. Biochemical characteristics of living matter.
2. Biochemistry morphology of cell-Physiology.
3. Nucleic acids.
4. Proteins.
5. The enzymes.
6. Metabolism-carbohydrates; Proteins; Vitamins, Lipids.
7. Harmons.
8. Nutrition.
9. Biochemistry of connective tissues, Nerve tissue and muscle.
10. Water, electrotype and acid base balance.
11. Chemistry of biological materials-blood, C.S.F., Milk.
12. Physio-chemistry phenomenon.
13. Common procedures use in biochemistry.
14. Laws of solution: Diffusion and osmotic pressure; Permeability of membrane, colloids, surface tension; Absorption; Hydrogen on concentration; enzymes. Digestion and absorption.
15. Chemistry of lipids; including sterols and phospholipids; chemistry of carbohydrates, proteins, nucleoproteins; blood and lymph, haemoglobin and its derivatives, bile, urine, urinary deposit, faeces etc.

BIOPHYSICS:

1. Molecular Biophysics. Structure thermodynamics.
2. Electro-chemistry.
3. Micro-bio, including Electro microscopy, spectroscopy, configurations, chromatography, electro phrases, tracer technique.
4. Cell biophysics.
5. Computers.
6. Reduction biology.

6. BIOMECHANICS

1. **Essential Concepts:**
   - (a) Matter and measurements.
   - (b) Motion and Force-Classification of force – system.
   - (c) Force distribution.
   - (d) Newton's Laws.
   - (e) Moments.
   - (f) Forces and moments in action.
   - (g) Concepts of static equilibrium, and dynamic equilibrium.
   - (h) Gravity and effects on Human body.
   - (i) Axes, Planes, Equilibrium Base and Balance.

2. **Properties of non-metallic materials:**
   (a) Plastics.
   (b) Thermoplastics.
   (c) Polymers.
   (d) Polyethylene.
   (e) Polymethyl.
   (f) Silicones.
   (g) Plaster of Pairs.
3. Material properties of bones: Soft tissue and cartilage.
   (a) Bones:
   (i) Preposition (ii) Strength properties (iii) Elastic properties (iv) Visco-elastic properties (v) Weight v/s bones cancellous v/s cortical bone (vi) Age changes.
   (b) (i) Tissues (ii) Strength characteristics of tendon (iii) Physiological characteristic of tendon.
   (c) Cartilage:
      (i) Properties.
      (ii) Friction: Magnitude, sufficient of friction, viscosity.
      (iii) Lubrication: Types of Lubrication, Boundary Lubrication, Fluid film lubrication, synovial joint lubrication.
      (iv) Wear: Adhesive wear, abrasive wear, fatigue, wear.
4. **Functional Biomechanics:**
   (a) Joint Motions and Forces.
   (b) Kinematic aspects.
   (c) Instant centre concept.
   (d) Centre of Rotation.
   (e) Types of surface joint motions.
5. **Kinetic aspects of motivation of limb movements:**
   (a) Classification of levers.
   (b) Physiological significance of negative mechanical advantage.
   (c) Muscle function and performance.
   (d) Calculation of muscle and joint forces by:
      (i) Lever approach (in detail).
      (ii) Equilibrium approach (in brief).
      (iii) Muscle stabilization forces (in brief).
6. **Lower Extremity:**
   (a) Hip and thigh:-
      (i) Hip Joint motion and forces on hip joint.
      (ii) Two leg stances and one-leg stances.
      (iii) Calculation of hip joint forces by lever approach.
      (iv) Varus and Valgus of femoral neck.
      (v) Over all effect of osteotomy.
      (vi) Other factors affecting hip joint forces.
      (vii) Effect of cane by lever approach.
   (b) Knee and leg:
      (i) Motions of the knee joint.

(ii) Forces of the knee joint.
(iii) Calculation of knee joint forces by lever approach.
(iv) Patellofemoral joint.

(c) Ankle and Foot:
(i) Motion and Ankle.
(ii) Forces of Ankle joint.
(iii) Stability of Ankle joint.
(iv) Weight-bearing on foot.
(v) Arches of foot.

7. Biomechanics of Gait (Normal Human Locomotion)
(a) Principles of stability.
(b) Postural principles.

8. Analysis of joint movements and muscle action:
(i) Normal joint range and variations within normal limits.
(ii) Muscle action – against, antagonist, fixator, synergists.
(iii) Isotonic and Isometric contractions.
(iv) Group Action of Muscles.
(v) Skilled movements.

9. Analysis of movement and A.D.L.:
(i) Fundamental positions and their use-ray lying, sitting, standing, kneeling and hanging.
(ii) Derived positions of moving limbs; back, trunk and head.
(iii) Analysis of pattern of movements from bed to walking.
(iv) Developmental sequence of movement from baby to adult.
(v) Common postures in yogic systems.

10. Prevention of postural strain and occupational hazards; correct use of body mechanics at home; at school, at A.D.L.; at work; at recreation etc.

11. Classification, definitions and effects of passive, assisted active and resistive movements.

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SYLLABUS
FOR
SECOND BACHELOR OF OCCUPATIONAL THERAPY
(B.Th.O.) EXAMINATION

SYLLABUS
FOR
Second Bachelor of Occupational Therapy (B.Th.O.) Exam., 1998
1. MEDICINE
SECTION-I
GENERAL MEDICINE

I. **Diseases of Cardio-Vascular System:** Ischemic Heart Disease, Hypertensive Heart Disease, Rheumatic Heart Disease, Congenital Heart Disease, Thyrotoxic heart disease, Syphilitic heart disease, Vascular disease, Thrombosis, Embolism.

II. **Rheumatic Disease:** Rheumatoid arthritis, rheumatic Fever, Still's Disease, Collagen disease.

III. **Diseases of Endocrine System:** Emphasis on diabetes, Mellitus and outline of Hypopituitarism, Goitre, Hyperthyroidism & Hypothyroidism.

IV. **Disease of Respiratory System:**
   a) Diseases of lung, Bronchitis, Bronchial Asthma, Bronchiectasis pulmonary embolism, pulmonary tuberculosis, lung abscess, emphysema.
   b) Disease of Pleura-pleurisy, Empyema.

V. **Diseases of Digestive System:** Gastric and Duodenal Ulcers, Hematemesis.

VI. **Deficiency Disease:** Rickets, protein deficiency.

VII. Leprosy, elementary knowledge of skin and veneral diseases and infectious diseases.

VIII. Study of other medical conditions.

IX. **Dermatology:**
   1. Characteristics of normal skin.
   2. Abnormal changes.
   3. Types of skin lesions.
   4. **Conditions:**
      Leprosy, Acne, Boil, Carbuncles, Impetigo, parasitic, infections of skin, Herpes, Urticarial, Pityriasis, Skin disorders, Associated with circulatory disturbances, water born, defects in pigmentation, psoriasis, leucoderma, fungal infections, Alopecia, Dermatitis, Eczema, skin allergies, venereal disease, syphilis etc.

X. Brief study of preventive and social medicine.

XI. Excretory diseases. Rental failure, Glomeruli in Renal bone diseases.

SECTION-II: Neurology

I. General principles of Neurological diagnosis.

II. Vascular Disorders of Brain.

III. Space occupying lesions within the skull Tumors, Hematomas and Abscess.

IV. Acute infections of Nervous system: Encephalitis, Meningitis, Poliomyelitis.

V. Common infections of peripheral, spinal and cranial nerves.

VI. Injuries of brain and spinal cord.

VII. Vertebra disc. Lesions and low back pain.

VIII. Cerebral palsy, hydrocephalus, spinal bifida & Myopathies.

IX. Introduction to degenerative Neurological conditions: Syringomyelia. Disseminated sclerosis, lateral sclerosis.

X. Functional Neurology.
XI. Study of other Neurological conditions.

Practical as per syllabus.

2. SURGERY

SECTION-I: General Surgery

I. Description of events frequently accompanying surgery in General Anesthesia, Blood Transfusion and physiological response of the body to surgery.

II. Common pre and post-operative complications-clinical picture, treatment and prevention.

III. Wounds, sinuses and Ulcers: Incisions, healing and principles of treatment.

IV. Major Abdominal Surgery: Management and complications. Thoracic and cardiac surgery – Thoracotomy, Tubectomy, Pneumonectomy, Theracoplasty, Mitral Valvotomy.

V. Thoracic and cardiac surgery: Thoracotomy, Tubectomy, Pneumonectomy, Theracoplasty, Mitral volvotomy.

VI. Neuro-surgery – Surgery of peripheral nerves and outline of cranial and spinal cord; surgery.

VII. Plastic surgery: Principles of cinoplasty, tendon transplant, cosmetic surgery. Type of grafts, surgery of hands with emphasis on management of traumatic and leprosy hand.

VIII. Burns: Classification, early and late complication and management and reconstructive surgery.

IX. Ophthalmology: Errors of refraction, conjunctivitis, trachoma, corneal ulcer, iritis, cataract, retinitis, detachment of reti-glacema, ptosis, defects of External Rectus and Hysterical blindness.

X. E.N.T.: Sinusitis, Rhinitis, Otitis media, Otosclerosis, functional amphonia and deafness.

XI. Obstetrics and gynaecology: Review of the system, pregnancy, labour; common complications and their treatment common Gynaecological disorder and their management.

SECTION-II: Orthopaedics

I. Fractures and Dislocations and soft tissue injuries:
   a) Pathology of Fractures and Repairs of bones, reasons for Union ..... Non-union, delayed union, fibrous union, excess as callus myositis, General principles of treatment, common fractures of the upper extremity, lower extremity and fractures of the vertebra. Newer methods of fracture stabilization special references to postoperative exercises and prevent joint stiffness, spina Exercises for prevention of deformities.
   b) Dislocation of shoulder, Elbow, Hip, Knee and Spines.
   c) Soft tissue injuries: Rupture, contusion and sprains, of muscle, tendons and ligaments.

II. Deformities:
   a) Common foot deformity: Congenital torticollis cervical Rib, spinal Bifida.

b) Acquired: Scoliosis, Kyphosis, Lordosis, Genu valgum and Varum flat foot, Genu recurvatum, Pes cavus, Matatarsalgia, Claw hand, Mallet Finger, contractures.

III. Operative procedures and Orthopaedics Appliances.
   a) Reconstructive Operations, Arthroplasty, Arthrodesis, Cineplasty, Tendon Repairs and Transfers.
   b) Amputations: Common sites of Amputations, Advantages and Disadvantages, Amputation of upper and lower extremities.

IV. Inflammatory Diseases and other affections of bones:
   a) Bones-Osteomyelitis, T.B. Bone.
   b) Joints osteoarthritis, Rheumatoid Arthritis, T.B. Joints, Synovitis.
   c) Tendon Sheath and Bursa-Tenosynovitis.
   d) Osteomalacia, Osteoporosis.

V. Study of other conditions in Orthopaedics.

RADIOLOGY

Practical knowledge of X-ray reading – X-rays of the following conditions – Fractures, dislocations, Arthritis, Tuberculosis, Bronchiectasis Abnormalities of Vertebral columns.

* Practical as per Syllabus.

3. PHARMACOLOGY
SECTION-I

1. General Pharmacology.
2. Detail study of Pharmacology.
3. Drug allergy and idiosyncracy.
4. Drug Toxicity.
5. Metabolic forte of drug.
6. Method of Administration of drugs.
7. Chemical character of drugs.
8. Drugs acting on Central Nervous System – Anaesthetics, Alcohols, Alkaloids, Narcotics, Antipyretics, Hypnotics, Sedatives, Anti-convulsant, Stimulants, Psychotherapeutics. Drugs acting on Autonomic nervous systems. Drug acting on pain & inflammatory conditions.
9. Drugs acting on peripheral nervous system-stimulating and/or inhabiting cholinergic and adrenergic activity.
10. Drugs acting on neuromuscular junction and muscles; pupil ciliary movement; skin etc.
11. Drugs acting on respiratory system, gastro intestinal system on kidney and uterus.
12. Drug acting on cardio vascular system; blood & blood forming tissues, blood vessels.
13. Chemotherapeutic agents, General anaesthetics, study of local and general anaesthetic on eye and skin etc. and other physiological system.
14. Hormones and drugs affecting endocrine functions.
15. Vitamins, antibiotic, sulpha drugs.
16. Metabolic and other inorganic compounds.
17. Immunological products/agents.

18. Diagnostic agents.
19. Study of clinical pharmacology and pharmacotherapeutics. Mode of action of drug; Pharmacological principle of medical practices.
20. The chemical and physical basis of Pharmacology.
21. Manifestations of Pharmacological actions.
22. Classification of drugs according to selective actions, general action of drugs.
23. Definition of Pharmacological terms.
24. Conditions influencing absorption and excretion of drugs.
25. Conditions influencing action of drugs e.g. allergy and idiosyncracy; anaphylaxis; tolerance and cumulative action etc.
26. Action of sera and vaccination.
27. Action of drugs on mental conditions.
28. Action of drugs on mental conditions.
29. Detail study of Pharmacotherapeutics and clinical pharmacology. Action, drug dosage; factors modifying D. Drug action. Instruction in experimental pharmacodynamics study of Pharmacokinetics aspect.
30. Pharmacodynamics- Principal of Drug action, mechanism of Drug action, drug dosage factors modifying, Drug action Instruction in experimental Pharmacodynamics study of Pharmacokinetics aspect.
31. Adverse Drug Effects: Side effects, secondary effects, toxic effect, poisoning, intolerance, idiosyncracy, drug allergy, photo sensitivity, drug dependence, drug abuse (Addition), drug withdrawal reactions, drug induced diseases.

Mechanism and types of drug reaction:-

32. Introduction of forensic medicines and toxicology; and medicolegal aspect.
33. Chemotherapy.
34. Study of pharmacology including Materia Medica and Pharmacological chemistry and applied pharmacology and therapeutics elaborating the rational basis of medical treatment of diseases or illness and various clinical conditions, use of drugs.
35. Method of prescribing and treatment for common diseases or illness or any associated clinical problems of existing earlier or arising during or after the process of therapeutic system of Physiotherapy and Occupational Therapy, with the use of modern scientific drugs/medicine.
36. Principle practice of western medical science and modern scientific system of medicine its application in various clinical conditions.

4. ERGO-THERAPEUTICS

SECTION-I

1. Human development process:-
   a) **Posture and movements:**
      i) Growth, development and maturation.
      ii) Spatiotemporal adaptation.
      iii) Sensory-Motor-sensory integration (SMS).
      iv) Reflex and Reaction maturation.

b) i) Learning theory.
ii) Behavioural therapy.
iii) Social learning theory.
iv) Psychoanalytical therapy, of Freud and Erik Erikson.
v) Cognitive theory of Jean Piaget.
vi) Humanistic self theory.
vii) Ethology.
viii) Maturational theory of Arnold Gesell.

2. **Frames of References :** Organizing system for occupational Therapy Practice :
a) Developmental frames of References.
b) Sensory motor and Reference.
c) Overview of sensory motor approaches.
i) Fay – Domane – Delacote.
ii) Neuromuscular reflex therapy.
iii) Bobath-Neuro developmental treatment.
iv) Rood : Neurophysiological approach.
v) Kabat - Knottvoss: Proprioceptive Neuromuscular facilitation.
vi) Brunnstrom approach: Movement Therapy.
vii) Ayres Sensory integration approach.
viii) Fuchs: Orthokinetic.

3. Rehabilitation of hand:
a) Evaluation of hand.
b) Functional tests.
c) Hand Exercises, Activities and functional or those.

4. Bio feed-back:
a) Bio feed-back process.
b) Feed-back concept in occupational therapy.

SECTION-II (Ergo-therapeutics)

Functional Bracing:

a) Definition and concept of functional bracing.
b) Factors to consider while using functional bracing (F.B.).
c) Objectives.
d) Fracture healing and use of F.B.
e) Basic consideration and design for long bone fractures.
f) Material used.
g) Advantages over other conventional treatment.

Pylon:

a) Definition, description, design, material and application.
i) Below knee.
ii) Above knee.
b) Advantages and disadvantages.
c) Rigid dressing.
i) Instant fitting of pylon.
ii) Early fitting of pylon.
d) Pathological gait.

3. Play Therapy:

a) Functional of play.
   - i) Social
   - ii) Physical
   - iii) Sensory
   - iv) Emotional
   - v) Perceptual
   - vi) Cognitive

b) Content and structure of play

c) Therapeutics of play
   - i) Erikson
   - ii) Anna Freud
   - iii) Jean Piaget
   - iv) Reilly

d) Role of play in occupational therapy process.

4. Mental Health Therapeutics:
   - a) Milieu –Therapy.
   - b) Group therapy.
   - c) Recreational therapy.
   - d) Art and Activity therapy.
   - e) Perceptual motor therapy.
   - f) Industrial therapy.
   - g) Biblio therapy.
   - h) Behaviour therapy.
   - i) Attitude therapy.
   - j) Music therapy.
   - k) Somatic therapy.
   - l) Creative-therapy (Art, music, creative writing, body work)

5. Yoga Principles objectives and offsets of following Yogic asanas, and various other systems of yoga.

SECTION-I
5. APPLIED PSYCHOLOGY

A) **Developmental (Child) Psychology:**

1. Factors influencing development; Developmental periods … Pre-natal, infancy, Babyhood, Childhood, Adolescence, Physiological and motor Development, Development of speech, Emotional and social development; moral development, child's family relationship, Play… different theories and its role in building moral development.
2. Problems in Emotional development Nail-biting, Lonely behavior, bedwetting, thumb-sucking, Aggressive and harmful behavior, relationship of child parent-Teacher.

B) Industrial Psychology:

1. Efficiency in production: Work curve, factors affecting the work-curve, moral and rewards for work, financial rewards; non-financial rewards; ways of measuring the effectiveness of psychological rewards.

2. Industrial and Highway Accidents: Causes of Accidents – Personal and Environmental; Accident prevention.

C) Clinical Psychology:

1. Diagnosis and treatment, outlook of the clinician, open mind experimental outlook, and dispassionate observation.
2. Study of behavior problems, mental deficiency, problem of rehabilitation. Bad child and a gifted child; importance of report with the patient.
3. Juvenile delinquency, etiology, prevention, treatment.

D) Mental health and therapy:

1. Concept of mental health, guidance and learning, parental attitudes affecting guidance-over protection, Regarding some behavior problems – feeding problems; Jealousy and sex-problems; sex education.
2. Treatment of mal-adjustments-shock therapy, lobotomy, Psychotherapy (Psycho-analysis)-Directive and Non-Directive therapy, group Psycho-therapy and vocational guidance.

   Types of physically handicapped children: Physically handicapped child in a mentally crippled child.

EXPERIMENTAL PSYCHOLOGY
PRACTICABLES

A. Learning and Retention:

1. Serial position effects under massed and distributed practical.
2. Speed of learning different amounts of materials.
3. Visio-motor co-ordination (Mirror Drawing experiment).
4. A study of Habit formation and effect of Reversal of habit.
5. Study of the process of committing to memory nonsense material (See-Sam figures).
6. Retroactive inhibition.
7. Memory changes tin serial reproduction.
8. National learning.
9. Rational learning.
10. Bilateral transfer in Mirror drawing.
11. Memory and Attention value in advertisements.
12. Progress in learning (Maze learning).
13. Substitution learning.
14. Memory Preservation

B. Psycho-Physics:

1. Measuring of differential threshold (lifted weights) by the methods of minimal changes and the method of constant stimulus differences.
2. Mapping of cutaneous sense spots.
3. Determining spatial threshold or Aesthesiometric Index on the back of the hand.
4. Method of mean error (Galton's meter rod).
5. To determine the "Illusion effect" for a Muller – layer figure (Method of Average) Mean error.

C. Attention and other fields:
1. Span of attention.
2. Influence of SET on attention.
3. Measuring Muscle Staidness.
4. Muscular work, (Ergo-graph) Measurement of Fatiguability).
5. Localization of sounds.
6. Colour preferences.
7. Reaction time and association.

D. Intelligence and Personality:
1. Koh's Block Design Test.
2. Alexander's pass. Along test.
3. Caw's cube construction test.
4. Pinter Patterson test of intelligence.
5. Callins dravan test of Intelligence.
6. Bhatia's Battery of Intelligence.
7. Colonel cox test of Intelligence.
8. Introversion Extroversion (Neyman Kohlstdt Diagnosis test).
9. Measurement of serial attitudes.
10. Personally characterisation with the TAT (Thematic Appreciation Test)
11. Non-verbal mental deficiency diagnosis test.
12. Progressive matrices.
13. Measurement of mechanical aptitude of an individual.
14. Measurement of Aesthetic personality score.

NOTES:

1. Every student will be examined in THREE exp. one from section (A) One from Section (B) and (C) one from Section (D).
2. Minimum 20 exp. Have to be performed during the academic section, at least 2 from the section (A) from the section (B), 1 from section (C) and 2 from the section (D) must be selected.
3. Distribution of marks in practicals:

Sl. No.	Procedure	Tabulation Interpretation and graph work
1.	1 Experiment from section A	3 + 7 = 10
2.	1 Experiment from section B & C	3 + 7 = 10
3.	1 Experiment from section D	3 + 7 = 10
4.	Viva on each experiment	5 x 3 = 15
5.	Practical record book	5
	Total	**= 50**

SECTION-II – BIO-STATISTIC

1. Frequency distribution, normal distribution curve, histogram.
2. Measures of central value-mean, median, mode.
3. Measures of variability – Range, semi-inter-quartile range (S.I.Q.R.). Standard Deviation, Variance, coefficient of variation.
4. Finding percentile norms, percentile rank by interpolation in cumulative distributions.

5. Correlation-product-movement coefficient of correlation; Rank-Difference correlation.
6. Reliability and significances-standard error of a mean and its interpretation, reliability of a difference between means.
7. Testing Hypotheses – 't' and 'F' tests.
8. Computation of Chi Square from a contingency table and its interpretation.

6. GENERAL AND SOCIAL PSYCHOLOGY

A) General Psychology)

1. i) Nature of Psychology – Behaviour and experiences, conscious, sub-conscious and unconscious mind.
   ii) Fields of Psychology: Introspective and Experimental methods.
   iii) Schools of Psychology – Associationism; Psychoanalytical theory, behaviourism; Gestalt psychology; structuralism and functionalism.
2. Heredity (Chromosome theory): Environment – Physical, psychological and social environment.
3. Motivation – Principle of Homoeostasis, need and its relation to structure and environment; kinds of motives – Physiological, psychological social and unconscious motives, life goals and levels of aspirations; interests and attitudes as motivational forces.
4. Emotion-Its nature and relationship with autonomic nervous system; James-Lange theory of Emotion; McDougall's theory of emotion; sentiments and feeling; pathological and functional disorders of emotions; emotional hygiene.
5. Conflict and frustration, common defensive mechanisms – Identification, Regression, repression, projection, sublimation and rationalization.
6. Learning-Role of learning in Human life; Types of learning.
   a) Thorndike's Trial and Error learning.
   b) Associative (Conditioning) Learning, Practical application of conditioning technique as in morbid fears, compulsion to steal and other neurotic behavior in eliminating undesirable behavior.
   c) Learning by insight-gestalt learning, Kolber's experiments on animal learning; Transfer of learning.
7. Memory (Retention): Types of memory – Recall, recognition and Rose memory, causes of forgetting, retroactive inhibition, disorders or memory – Amnesia, par amnesia , hyperamnesia.
8. Attention and perception – Nature of attention, factors determining attention; nature of perception, principles of perceptual grouping, illusions and hallucinations.
9. Intelligence – Definition, intelligence tests-their uses: How the test is standardized; Intelligence Quotient (I.Q.) General intelligence and special intelligence.
10. Personality – Definition; Types approach and Trait approach, Measurement of personality – Interview, Questionnaire Rating, performance, projective methods factors contributing towards development of personalities Biological and social factors.

(B) Social Psychology

1. Nature and scope of social Psychology.
2. Social Interaction – Primary and social stimulation.
3. Psychological groups and their classification.
4. Socialization of the individual.
5. Social control (Social Heredity) – Morals, costumes, Fashions; Propaganda its technique.
6. Leadership (Personal social control) – Functions, role and qualities of a leader.
7. Personality-culture and personality.
8. Attitudes and prejudices-classification of Attitudes; Evils and causes of prejudices. How to change attitudes and prejudices.
9. Crowds and public opinion.
10. Social change and progress.

आर्यभट्ट ज्ञान विश्वविद्यालय
ARYABHATTA KNOWLEDGE UNIVERSITY

ARYABHATTA KNOWLEDGE UNIVERSITY, PATNA

SYLLABUS
FOR
FINAL BACHELOR OF (ERGO-MEDICINE) OCCUPATIONAL THERAPY (B.Th.O.) EXAMINATION

1. MEDICAL OCCUPATIONAL THERAPY
SECTION-I
PEDIATRIC AND GENERAL MEDICINE

1. Review of methods of evaluation and Therapeutic principles.
2. Therapeutics in community medicine preventive and remedial aspects.
3. Specific Pediatric conditions:
   - (a) Neonate and infest service.
   - (b) Direct special care nursery service.
   - (c) Counseling services to house, staff and discharge planning.
   - (d) Post discharge follow up.
4. Congenitally blind of visually impaired child.
   - (a) Occupational Therapy Programme.
   - (b) Re-evaluation.
   - (c) Therapeutic goals, and objectives.
   - (d) Methods, models and procedure.
5. (a) Cranial Nerve affection – Bell's palsy.
   (b) Brachial plexus injury + Erb's palsy & Klumpke's.
6. Congenital dislocation of lip.
7. Spina bifida.
8. Down's Syndrome.
9. Autism.
10. Sensory integrative dysfunction:
    - (a) Clinical evaluation of sensory integrative dysfunction (Brief).
    - (b) General principles and methods of intervention in brief.
    - (c) Learning Disorders:-
      - (i) Disorders in form and space perception.
      - (ii) Tactile defensiveness and related behavior responses.
      - (iii) Unilateral disregard and function of right cerebral Hemisphere.
      - (iv) Auditory language disorders.
      - (v) Developmental Apraxia.
      - (vi) Disorder in postural and bilateral integration.
11. Hand dominance and Lateralization of cerebral function.
12. Child Abuse and neglect:
    - (a) Definition.
    - (b) Normal and Abnormal blocks in development.
    - (c) Classification of cerebral palsy in development.
    - (d) Associated serological abnormalities and problems.
    - (e) Intervention.
    - (f) Treatment general principles, techniques and application of basic concepts of Occupational Therapy.
    - (g) Specific remediation techniques:
      (a) Gross-motor movement (b) Fine-motor movement.
      (c) Handling the child
      (d) Feeding: (1) Oral Motor (2) Food intake & self feeding.

(e) Dressing (e) Chair adaptations

13. Lower motor Neuron dysfunction:
    (a) Poliomyelitis.
    (b) Gullain Barrie Syndrome.
14. Upper Motor Neuron Lesions.
    (a) Meningitis.
    (b) Encephalitis.
15. Mental Retardation.
16. Epilepsy.
17. Muscular dystrophies.
18. Nutritional deficiency disorders:
    (a) Protein energy Malnutrition (PEM)
    (b) Marasmus.
    (c) Rickets.
19. Still's Disease.
20. Behaviour Disorders
    (a) Nail Biting.
    (b) Thumb sucking.
    (c) Enuresis.
    (d) Temper Tantrums.
    (e) Juvenile delinquency.
    (f) Truancy.
    (g) Sibling rivalry.
21. Excretory Diseases
    Renal failure
    Renal Bone Diseases.
22. Review of Methods of Evaluation and treatment.
23. Occupational Therapy in :
    (a) Gerontology.
    (b) Cardiac dysfunction.
    (c) Cardiovascular episodes.
    (d) Leprosy.
    (e) Blind and Visually Impaired Adults.
    (f) Diabetes Mellitus.
    (g) Cancer
    (h) Rheumatoid Arthritis.
    (i) Gullain Barrie Syndrome.
    (j) Peripheral Nerve Infections.
    (k) Transverse myelitis.
    (l) Multiple Sclerosis & Disseminated Sclerosis.
    (m) Parkinson's disease.
    (n) Deaf Mute and Hard of Hearing.
    (o) Psycho-Somatic Diseases.
    (p) Respiratory Diseases: Pulmonary Tuberculosis.

SECTION-II
MENTAL HEALTH OCCUPATIONAL THERAPY
PSYCHIATRIC OCCUPATIONAL THERAPY

1. (a) Introduction and brief Review of Development of Psychiatric Occupational Therapy.
   (b) Major streams of thoughts in Psychiatry.
   (c) Brief Review of Methods of evaluation in Psychiatry.
2. Mental Health:
   Characteristics of mentally health person.
   Characteristics of mentally ill person.
   Factors adversely affecting mental health.
   Community mental health.
3. Psychiatric Occupational Therapy:
   (a) Principles and Functions.
   (b) Psychiatric O.T. Problems.
   Sensory Integrative Perspective.
   Behaviour Therapy Perspective.
   Developmental Perspective.
   Occupational Behaviour Perspective.
   Humanistic approaches.
   Psychoanalytical perspective.
   (c) Elements in Psychiatric O.T. Process.
   The Clinical therapist, activity –
   Treatment, prevention, maintenance, and rehabilitation.
4. Types of Therapeutic Medias.
   Therapeutic Activity –
   Milieu Therapy, Group Therapy, Creative Therapy.
   (Art, Music, Creative writing, Body work)
   Recreational Therapy, Perceptual-motor therapy
   Projective Technique, Industrial Therapy.
   Biblio Therapy, Behaviour Therapy
   Attitude Therapy, Yoga, Somatic Therapeutics.
   Social Skills Training.
   Anxiety Management Training.
5. Therapeutics in the following: Management Goals and Methods in:
   (a) Psychosis –
   - Organic Psychosis
   - Schizophrenia
   - Manic Depressive Psychosis
   - Involutional Melancholia
   - Functional Psychosis.
   (b) Psychoneurosis or Neurosis
   Anxiety Reaction
   Phobic Reaction
   Obsessive Compulsive Neurosis Hysteria.
   (c) Psychoneurosis or Neurosis

Personality and character disorders.
Drug dependence (Addiction, Abuse) & Alcoholism stress & its management.

(d) Mental Deficiency:
(e) Psychological disorders of childhood and Adolescence.
(f) Psychiatric disorders of old age.
(g) Epilepsy.

6. Hospital Administrative Procedure for Admission and Discharge of a patient.

* Practical as per Syllabus.

OCCUPATIONAL THERAPY PRACTICAL EXAMINATION

- Evaluation of.
- To examine and evaluate the patients suffering from Musculo-skeletal, Neurological, Psychiatric conditions and Mental Retardation.

1. Examination
   1. Motor
      - Muscle Tone
      - Muscle Power grading
      - Measurement of Girth
2. 2. Range of Motion
      - Goniometry
      - Contracture, Deformity and measurement of limit length.
3. Sensory
   Touch, Pain, Temperature, Pressure and
   Kinesthetic sense.
4. Neurological
      - Primitive Reflexes, motor development, superficial and deep tendon reflexes.
      - Involuntary movement.
      - In co-ordination.
      - Gait.
5. Functional Evaluation of Activities of Daily Living
   I. - Prescription of Aids-Devices.
      - Home Management.
   II. The aims and plan of treatment of the patients suffering from the diseases (as per theory syllabus).
   III. Equipment / Machines Therapeutic Activities
      - Handling of the Equipment and Machinery.
      - Prescription of Therapeutic Activities according to the need of the patient.

2. OCCUPATIONAL THERAPY IN SURGERY

SECTION-I

SURGERY

1. Review of Methods of evaluation and therapeutic principles.
2. Therapeutics in community Medicine – Preventive and Remedial aspects.
3. Burns:
   - (a) Types of burns and 9 course of recovery.
   - (b) Review of anatomy and Physiology.
   - (c) Classification of burns.
   - (d) Other major burns damages.
     - i) Heterotopic ossification.
     - ii) Peripheral injuries.
     - iii) Decubitus ulcer.
     - iv) Hypertrophic scarring.
     - v) Contracture Formation.
   - (e) Role of Occupational Therapy in-
     - i) Pre-grafting period.
     - ii) Post-grafting period.
   - (f) Positioning and splinting.
   - (g) Exercise.
   - (h) Pressure stretch techniques.
   - (i) Burnt Hand:
     - i) Dermal Burns.
     - ii) Pulsar Burns.
   - (j) Treatment Plan.
   - (k) Psychological consideration.
   - (l) Follow-up.
4. Hand injuries:
   - (a) Review of evaluation of hand.
   - (b) Nerve Injuries:
     - i) Haematoma and classification of Nerve injury.
     - ii) Process of nerve injury and repair.
     - iii) Median Nerve Injury.
     - iv) Ulnar Nerve injury.
     - v) Median Nerve Ulnar Nerves injury.
     - vi) Radial Nerve Injury.
   - (c) Tenders injuries:
     i) Process of Repairs (ii) Flexor Tendons.
   - (d) Fractures:
     (i) Process of bone healing (ii) Carpal fractures
     (iii) Metacarpal fractures (iv) Ligament injuries
     (v) Modalities for range of movement, functional activities and splinting.
5. Spinal Cord injuries:
   - (a) Introduction.
   - (b) Results of spinal cord injury.

(c) Levels of lesion.
(d) Prognosis.
(e) Medical and surgical management (Review).
(f) Complication and concomitant problems.
(g) Sexual functions.
(h) General treatment considerations.
(i) Positioning.
(j) Self-care.
(k) Assistive equipment.
(l) Allocational (Avocational)
(m) Educational.
(n) Prevocational.
(o) Paraplegic patient:
(i) Evaluation:
(ii) Treatment: Bed phase, self-care, for mobile bed patient and wheel chair user, assistive devices, vices, transfer activities and skills.
(p) Quadriplegic patient:
(i) Evaluation.
(ii) Treatment: Bed phase wheel/chair phase adaptation to activities, self-care functional restoration functional splints, environmental central system and community recently.

6. Head Injuries:
(a) Mechanisms of Head Injury.
(b) Medical and Surgical management.
(c) Description of dysfunction.
(d) Description clinical picture.
(e) Evaluation.
(f) General aims and Methods of treatment.

7. Common Spinal Nerve Injuries:
(a) Review of Neuroanatomy and Neurophysiology in brief.
(b) Lesions of Brachial plexus and cranial nerves.
(i) Classification.
(ii) Signs and Symptoms.
(iii) Therapeutic application.
(c) Lesions of Lumbar plexus:
(i) Classification.
(ii) Signs and symptoms.
(iii) Therapeutic application.
(d) Lesions of Sacral Plexus:
(a) Classification.
(b) Signs and Symptoms.
(c) Therapeutic application.

8. Cancer: Therapeutic Principles and management of patients of Radical Mastectomy.

9. Chronic obstructive pulmonary diseases.

10. Disability Evaluation and Calculation of percentage loss for the purpose of compensation based on Mebriday scale.

SECTION-II

Orthopaedic Occupational Therapy

1. Review of methods of evaluation and treatment.
2. Principles in the use of upper and lower extremity prosthesis.
3. Therapeutics in a Amputations and Prosthesis (Upper & Lower extremities):
   - i) Aetiology
   - ii) Surgical Managements.
   - iii) Special consideration and problems.
   - iv) Stump care.
   - v) Levels of amputation and functional loss in upper extremity and lower extremity amputation.
4. Fractures of upper and lower extremities and its complications.
5. Fracture spine and spinal deformities.
6. Congenital deformities:
   - (a) Congenital dislocation of Hip.
   - (b) Talipus equinus.
   - (c) Talipus varus.
   - (d) Genu Valgum – Varus & Genu Recurvatum.
   - (e) Arthrogryposis.
   - (f) Torticollis.
7. Foot deformities and their management.
8. Orthopaedic diseases.
   Short review or othopaedic disease:
   - (1) Osteomyelitis.
   - (2) Arthritis.
9. Orthopaedic problem in Neurological disorders:
   - (a) Poliomyelitis.
   - (b) Spina Bifida.
   - (c) Peripheral Nerve injuries.
10. Orthopaedic conditions and their management:
    - (a) Spine:
      1. Cervical spondylosis.
      2. Cervical rib.
      3. Ankylosing spondylitis.
      4. Prolapsed lumbar disc.
      5. Acute lumber.
      6. Spondylosis.
      7. Spondylolisthesis.
      8. Spinal stenosis.
    - (b) Shoulder Joint:
      1. Dislocation.
      2. Periarthritis (Frozen shoulder).
      3. Painful arc syndrome.

(c) Elbow Joint:
1. Tennis elbow.
2. Friction neuritis of Ulnar nerve.
3. Olecranon bursitis.

11. Neurological disorders:
1. Compression of the medial nerve in carpel Tunnel (Carpel Tunnel syndrome).

* Practicals: As per syllabus.

OCCUPATIONAL THERAPY PRACTICAL EXAMINATION

To examine and evaluate the patients suffering from Musculoskeletal, Neurological, Psychiatric conditions and Mental Retardation.

1. Examination
1. Motor
- Muscle Tone
- Muscle Power grading
- Measurement of Girth

2. Range of Motion
- Goniometry
- Contracture, deformity and measurement of limit length.

3. Sensory
Touch, Pain, Temperature, pressure and Kinesthetic sense.

4. Neurological
- Primitive reflexes, motor development, superficial and deep tendon reflexes.
- Involuntary movement.
- Inco-ordination.
- Gait.

5. Functional Evaluation of Activities of Daily Living.
I. - Prescription of Aids-Devices.
- Home Management.
II. The aims and plan of treatment of the patients suffering from the diseases (as per theory syllabus).
III. Equipment/Machines Therapeutic Activities
- Handling of the Equipment and Machinery.
- Prescription of Therapeutic Activities according to the need of the patient.

3. REHABILITATION AND THERAPEUTIC MANAGEMENT
REHABILITATION

I. REHABILITATION: Concept and Principle.
(a) The Philosophy and need of rehabilitation.
(b) Principles of rehabilitation medicine.
(c) Basic principles of administration and organization.

II. REHABILITATION APPROACH:

(i) Nursing.
(ii) Communication problem.
(iii) Social problems.
(iv) Psycho-social aspect.
(v) Vocational problems and vocational placement.
(vi) Community based rehabilitation programme & community resources.
(vii) Other aspects of rehabilitation.

III. Rehabilitation programme for medical, surgical, orthopaedic, Neurological conditions and various other clinical conditions, and in specific conditions.

THERAPEUTIC AND CLINICAL MANAGEMENT
(PRINCIPLE & PRACTICE)

The students are required to undergo detail study and extensive Practical Training and Clinical Practice in the following areas to qualify and authorize them to practice physiotherapy or occupational therapy system and western medical science for preventive, curative, restorative treatment and rehabilitative management as well as health care of the patients and disability groups.

I. Clinical evaluation and investigation.
II. Diagnosis and differential diagnosis.
III. Prescription writing and treatment planning.
   (a) Use of Physiotherapy or Occupational Therapy system for functional, physical, and mental restoration or other desired achievements.
   (b) Principle and Practice of Western Medical Science and Modern Scientific System of Medicine and its application in various clinical conditions.
   (c) Methods of prescribing the treatment of general or common diseases or illness or any associated clinical problems existing earlier or arising during or after the process of Physiotherapy or Occupational Therapy System; through Modern Scientific Medicine.
IV. Referral approach for specialized diseases or clinical conditions.
V. Rehabilitative approach and management.
VI. Disability percentage & certification, physical fitness conditions and certification.

4. ORTHOTICS AND PROSTHETICS
SECTION – I
ORTHOTICS

1. Orthotic component and system.
   Terminology, objectives, types of head, orthosis, U.E. (Upper Ex Shoulder, elbow, wrist).
2. Orthotic component and system terminology, description, fabrication and fitting and types ------, knee, ankles and foot.
3. Shoe and shoe modification.

4. Spinal Orthosis. (a) Components.
   (a) Pelvic band.
   (b) Thoracic band.
   (c) Anterior extension of Thoracic band with sub axillary extension.
   (d) Lumbo –Sacral and thoracic uprights.
   (e) Lateral Uprights.
   (f) Oblique lateral uprights.
   (g) Intra and capsular band.
   (h) Full front abdominal support.

5. Types:
   (i) Chair back.
   (ii) Knight.
   (iii) William.
   (iv) Taylor.
   (v) Knight Taylor.
   (vi) Collars.
   (vii) Flexible spinal corsets and belts.
   (viii) Jewett (Ash Brace).
   (ix) Cervical Orthosis.
   (x) Milwaukee-Principle and indication.
   (xi) For treatment.

SECTION-II
PROSTHETICS

1. Prosthetic component parts and system:
   (a) Terminal device, wrist unit and elbow unit, upper arm calf, sockets, cable components and harness, stump sock.
   (b) Pre prosthetic training.
   (c) Prosthetic training:
      i) Check out of prosthetic.
      ii) Control system and efficiency.
2. Prosthetic training programme.
   (a) Foot amputations.
   (b) Symes.
   (c) Below knee.
   (d) Through knee.
   (e) Above knee.
   (f) Hind quarter.
3. Prosthetic components for below knee:
   (a) Post ankles assembly.
   (b) Conventional foot.
   (c) Sach foot.
   (d) Internal keel.
   (e) Shank.

(f) Socket; P.T.B. Socket, air cushion socket, suspension, system, supracondylar calf, supracondylar walls on Flare, Supra patellar walls on socket. 0

(g) Biomechanics of below knee prosthesis.

4. Prosthetic components of through knee:
   1. Conventional.
   2. Suction socket.
   3. Quadrilateral socket.
   4. Hip disarticulation.
5. Prosthesis for Hind-Quarter and very short above knee amputation.
   (a) Saucer Socket.
   (b) Tilting table.
   (c) Canadian.
6. Prosthetic joint deviations in A.K. and B.K. Prosthesis.

5. BIO-ENGINEERING AND ERGONOMICS

SECTION-I
BIO-ENGINEERING

1. Physical properties of material including basic principles of solid mechanics:

   (a) **Solid Machines:**
   (i) Definition of strain and stress. Experimental relation between strain and stress.
   (ii) Failure of materials-Brittle failure, ductile failure and fatigue failure-Entrance limit.

   (ii) Stress in complex loading situation: Bending, torsional, loading, concepts of rigidity including plastic materials, properties, section and length considerations, energy concepts in loading.
2. Materials: Steel aluminium, titanium, magnesium, plastic, rubbers, cellular rubbers and plastics, leathers, fabrics, and Plaster of Paris.
3. Canes, crutches, walkers, rollators: Types of gait patterns of crutch, methods of measurement for crutch, cane, walker.
4. (a) Wheel Chair : Types, components, specifications, modifies, stair climbing, wheel chair and other mobility. Wheel chair check outs, operations check of wheel chair, wheel chair cushions, and related protective devices.
   (b) Tricycles: Hand driven and power driven.
5. Assistive Devices, mobile arm support and slings.

SECTION-II
ERGONOMICS

1. Definition and objectives.
2. Principles and methods of Ergonomics.

3. Substances and Psycho Physiological structure of activity.
4. Analysis of work activity.
5. Design of hardware for handicapped persons.
6. Ergonomics design of work place.
7. Optimizing of working movements and controls.
8. Occupational therapy base in occupation.
9. Occupational therapy base in activity.
10. Computers: Basic concepts and its use for the handicapped.

6. PSYCHIATRY

I. (a) MENTAL HEALTH:
   (i) Normal Mental Health.
   (ii) Criteria of normality of matured personality.
   (iii) Factors contributing to normal mental health.
   (iv) Self-actualizing individual.

   (b) Study of Abnormal Personality:
   Neurotics, Hysterical, Psychotic, Paranoid, Schizoid, Psychopathic etc.

II. General Etiological Factors:
Hereditary, Genetical, constitutional, acquired traumatic, inductive, toxic, degenerative, social and environmental including pathogenic family pattern, precipitating causes, frustration and conflicts.

III. Symptomatology and treatment of:
   (a) Psychosis:
      (i) Functional:
      Functional Schizophrenic, Reaction group, simple paranoid, catatonic, hebephrenic, paranoid, state, paranoia, juvenile schizophrenia, autistic thinking Dementia.
      (ii) Organic-Toxic confused states, Senile Psychosis, Arteriosclerotic, Degenerative, G.P. I.
   (b) Affective Disorders:
   Dynamics of Mania, Hypomania, Chronic Mania, M.D.P. Involutional Depression, Senile Depression, Post–Partum depressive reactions, Reactive and Neurotic Depression, Endogenous Depression, Suicide (Egoistic, Altruistic, Anomic).
   (c) Epileptic Disorders:
   Epileptic Psychosis.

IV. Neurosis:
Symptomatology, Diagnosis and treatment and Psychodynamics of Anxiety State, Hysteria, Conversion reaction, Dissociative reaction, dual personality, obsessional neurosis, Phobias, Hypochondriasis, Neurasthenia and Mental fatigue.

V. Mental Retardation:

(i) Definition.
(ii) Etiological factors: Pre-natal, Post-natal, inceptive, Hormonal, Congenital.
(iii) Types of mental retardation clinical types-Microcephaly.
(iv) Symptomatology of various grades of retardation, differential diagnosis and treatment.

VI. Child Psychiatry:
Behaviour disorders-Nail biting, Enuresis stealing, Truancy Thumb sucking, speech difficulties, pica, vomiting, anorexia, delinquency.

VII. Introduction to the dynamics of Psychological disorders: Asthma, Skin, rashes, hypertension, bowel disorders.

Introduction to treatment in Psychiatry.

(a) E.C.T.
(b) Insulin coma therapy.
(c) Drug therapy – (Tranquilizers, Mood elevators, hypnotics and sedatives).
(d) Psychotherapy – Deep and superficial, individual and group, expressive, suppressive, environmental manipulation, reductive.
(e) Psychodrama.
(f) Psychoanalysis.
(g) Play-therapy.
(h) Occupational therapy and physiotherapy.