Syllabus

for Courses affiliated to the

Kerala University of Health Sciences

Thrissur- 680596

BACHELOR OF OCCUPATIONAL THERAPY

Abbreviated

as BOT

Course Code:

(2020-21 admission onwards)

2019

- **COURSE CONTENT**

- **Title of course:**

  BACHELOR OF OCCUPATIONAL THERAPY– Abbreviated as BOT.

- **Objectives of course**

A graduate of occupational therapy at the end of training should be able to

- Assess & identify problems related to functional performance & use clinical reasoning skills in problem-solving & develop need based strategies to address the problems
- Use appropriate advanced therapeutic modalities for effective OT intervention to enhance ability of individuals, groups and communities to participate in purposeful occupational tasks.
- Adhere to the professional code of ethics, contribute to profession, participate in the ongoing learning processes & create and maintain high standards of practice
- Demonstrate the knowledge, attributes and appropriate skills in monitoring the health programme and orient to provide preventive and rehabilitative services

- Develop consultative role for health and family welfare services in existing socioeconomic, political and cultural environment as part of CBR organization.
- Use job modification techniques based on ergonomic principles effectively in work places to achieve good quality of life for community.
- Use early intervention programme for high risk infants & developmental disabilities to promote typical development and prevent/ address secondary changes, learning disabilities and others.
- Demonstrate competency in OT intervention of patients in intensive care units (NICU, PICU, MICU & SICU). § Provide unique contribution in Occupational Therapy practice through bio-medical and social sciences concepts
- Use bio-mechanical and patho-physiological principles to design common orthotic devices and to fabricate hand orthotics and self-help adaptation.
- Use functional analysis index and correlate it with disability evaluation (WHO, ICF disability rating) to aid in workman compensation and others legal procedure.
- Recognize intrinsic values of people irrespective of culture, beliefs and economic status.
- Participate in research studies and identify correct evidence based strategies in treatment of patients.
- Take appropriate responsibilities in the role of leader, supervisor and manager in various situations
- The basic medical, physiological, psychological, behavioural sciences knowledge should equip them to be work knowledgeably as a part of a multi-disciplinary team as the OT is expected to work as a part of a team.

- **Medium of instruction:**

  Medium of instruction and examinations shall be in English.

- **Course outline**
  - The Bachelor of Occupational therapy degree program is a four year program with an additional six months (One year of Internship) of compulsory rotating internship.
  - The professional degree program consists of classroom lectures, practical and

laboratory demonstrations, bed side clinics, self-directed academic activities and clinical postings. The first year of this program combines studies in theoretical and practical occupational therapy, with biological and behavioral sciences.

- In second year, students develop this knowledge and apply theory to practical problems of occupational therapy. Third-year students focus on occupational therapy techniques, with clinical practice in teaching units in hospitals and community health agencies.
- The final year extends clinical experience in the form of Internship and Externship. Students also undertake studies in statistics and research techniques.

- **Duration**

  The course span shall be 4 ½ years. The first four are academic years. This is followed by 6 months Internship.

- **Syllabus**

1st YEAR

- Anatomy
- Physiology
- Sociology
- Psychology
- Introduction to Occupational therapy, Disability and Integration and Therapeutic activities

2nd YEAR

- Introduction to Pathology and Microbiology
- Biochemistry and Pharmacology
- Fundamentals of Occupational Therapy
- Clinical Orthopedic, Rheumatology and Radio Diagnosis
- Clinical Neurology
- Biomechanics, Applied Anatomy and Applied Physiology

- General Medicine, General Surgery and Pediatrics
- OT Clinical Placements (Peads, Psychiatry, Ortho and Neuro)

3rd YEAR

- Clinical Psychology, Health Psychology and clinical Psychiatry

- Community Medicine, Basic Nursing and First Aid
- Occupational therapy in Psychiatry
- Occupational Therapy in Pediatrics and Developmental Disabilities
- Occupational therapy in Orthopedics, Neurology and Ergonomics

4th YEAR

- Clinical Cardiorespiratory, Work Physiology
- Rehabilitation Medicine
- O.T in Rehabilitation
- Group Process in O.T
- Organization and Administration in Occupational therapy
- Biostatistics, Research Methodology and Dissertation

- **Total number of hour**

1	Theory 1st year to 4th year	2035 hrs
2	Clinical (1st Year to 4th Year)	2280 hrs
3	Internship	1150 hrs
4	Others (Library, internal assessment, seminar, Guest lecture, PT)	275 hrs
5	Total Hours	5740 hrs

Recommended clock Hours per year (Miscellaneous)

1	Library Hours	100 hrs
2	Physical Education	35 hrs
3	Seminars / Case Discussion (Except 1st Year)	50 hrs
4	Internal Assessment	70 hrs
5	Guest Lecture / CME / Conference (Except 1st Year)	20 hrs

Recommended Hours for Clinical Work and Internship

1	Clinical (1st Year to 4th Year)	2030
2	Internship	1150
3	Total Hours	3180

- **Branches if any with definition**

  Present in clause 2.10 of the curriculum.

- **Teaching learning methods**

  As shown in clause 2.4 course outline

- **Content of each subject in each year**

1st YEAR

101 ANATOMY

MODULE I INTRODUCTION:

Define Anatomy and mention its subdivisions. Name regions, cavities and systems of the body. Define anatomical positions and anatomical terms CELL: Define a cell. Mentions the shape, size and parts of a cell. Name and gives functions of organs, Names of cell bodies. Defines chromosomes, genes, Reviews mitosis and meiosis, Mentions the main events, but stages not necessary. TISSUES: Classifies tissues. Classifies and mentions the microscopic structure of types of tissues such as epithelial, connective, muscular and nervous tissues. Gives examples for each type of tissue. CARDIO-VASCULAR SYSTEM: Comprehends the external and internal features of the structure of the Heart and their implications. Mentions position of the heart. Identifies and name, the chambers of the heart, surface and borders of the heart. Identify the venae cavae, pulmonary trunk and aorta. Mentions the internal features of the chambers of the heart. State the basic features of the blood supply & nervous supply of the Heart., States the basic arrangement of the pericardium, Identify the coronary artery and coronary sinus., . Names the parts of the conducting system of heart, Mentions the position and general distribution of major arteries and major veins and names their main branches. Names the types of arteries and veins; gives examples and indicates a basic microscopic structure of type of blood vessels. LYMPHATIC SYSTEM: Comprehends the general and regional arrangements of the lymphatic system. Names the lymphatic organs and mentions their location. Illustrates the basic structural features of lymphatic vessels, lymph nodes, thymus, spleen and tonsils. Assign functional roles to the lymphatic system, State the position and immediate relations of spleen.

MODULE II RESPIRATORY SYSTEM:

List the parts of the respiratory system. Comprehends the functional anatomy of the parts of the respiratory System. Mentions the basic feature of innervations of bronchi and lungs, States the position extent and gross and microscopic structure of the Parietal pleura, Comprehends the arrangements of pleura. Mentions the parts, and Position of the parietal pleura. Names the

recesses of pleura. Identifies the trachea and bronchi Identifies the right lung and left lung. Names the components of the hilum of lung. Names the bronchopulmonary segments, Illustrates the main features of the microscopic structure of the lung. Identified the borders and surfaces of the lung on the specimen.

DIGESTIVE SYSTEM (No details are required): List the parts of the digestive system, Mentions the boundaries and features of the mouth, Classifies teeth., Mentions position, extent, subdivisions, communications, internal, features and muscles of pharynx. Names the tonsils and defines fauces. Identifies internal features of the mouth and pharynx of the specimen. States the position, course and extent of oesophagus, Identifies oesophagus of the specimen, States the basic nerve supply. Mentions the position and gross structure of the stomach. Identifies the stomach and its borders, the surfaces and subdivisions. Enumerates the immediate relations of the stomach. States the basic nerve supply of the stomach. Names the subdivisions of the intestine and mentions their positions. Mentions the differences between small and large intestine. Names the arteries arising from the abdominal aorta. Names the organs supplied by these branches , Awareness of the name and position of the principal autonomic visceral nerve plexus in the abdomen and pelvis, and the organs supplied by them., Mentions the positions and gross features of the liver and biliary system., Names the positions and subdivisions of the pancreas, Names the major salivary glands, Indicate their positions. Mentions the site of openings of their ducts. GENITO - URINARY SYSTEM (No details are required): Comprehends the basic functional implications and the basic structure of the kidney and ureter. Mentions the position, size and shape of kidney. Name the immediate relations of the kidney. Indicate the cortex, medulla, pyramids, sinus, calyces, and pelvis of ureter in a macro section of the kidney, Illustrates the structure of a nephron. Identifies the ureter and indicate the position of the ureter. States the anatomy of the bladder and urethra. Mention the position, shape and size and surface of the bladder. Indicate the immediate relations of the bladder. Mention the basic innervations of the bladder, Name and identify the subdivisions of the male

urethra. Mentions the position, extent and immediate relations of male urethra. Locate and identify the female urethra. Mentions the position, extent and immediate relations of the female urthera, Name the sphincters of the urethra. Lists and locate the parts of the male reproductive system. State the anatomy and functional considerations of the testis, male accessory organs of reproduction and external organs. Name the constituent structures of the spermatic cord. Mention the position of the inguinal canal. Name the component structures and parts of the penis, List and locate the parts of female reproductive system. States the anatomy and functional considerations of ovary, uterine tubes, uterus, vagina and female external genitalia. Mentions the basic features of parts of the female external genitalia. Enumerates the factors responsible for the maintenance of the position of the uterus and anatomy of its prolapse. Mentions the position, extent and gross structure of the female breast. Name the common, internal, and external iliac arteries.

MODULE III NERVOUS SYSTEM: Define the subdivisions of the nervous system. Define central, peripheral and autonomic nervous system and names their subdivisions. Comprehend the position and form of the spinal cord, its structure and function in terms of neuronal connections. Indicates the position and extent of the spinal cord. Illustrates the principal features shown in a transverse section of spinal cord. Specifies the basic features of a mono and multisynaptic spinal reflex pathway. Illustrate the white and gray matter, and anterior, lateral and posterior columns of the spinal cord. Mentions the origin, termination and position of important ascending and descending tracts, site of crossing of fibres of these tracts, and function of each tract. State the main consequences of spinal cord transaction and hemi section, and explains the rationale of cordotomy, Indicates the blood supply and meninges of spinal cord. Names the subdivision of the brain. Identifies and mentions the external features of parts of the brain. Mention the internal structure and basic features of parts of the brain stem and name the nuclei and fibre tracts with special emphasis on cranial nerve nuclei. Identify and mentions parts of the cerebellum. Mentions the external features and internal structures of the cerebellum and names its various afferent

and efferent tracts and their termination. Mention the features of the gross components of the cerebrum. Mentions and identifies the location of gyri, sulci and cortical areas. State and identify association, commissural and projection fibres. Define and identify component of forebrain including cerebral cortex, insula, olfactory bulb, olfactory tract, uncus, fornix, basal ganglia, thalamus, hypothalamus, internal capsule, corpus callosum etc. Predict the result of damage to internal capsule. Outlines sensory and motor pathways and is able to trace these pathways. Names sensory and motor nerve endings with functions Defines pyramidal motor system and names its tracts Defines upper and lower motor neurons, Names the parts and tracts of the extra - pyramidal system and indicate the functions. Outlines the basic structures of sensory organs: - Nose, tongue, eye, ear, and skin. Briefly outline the nature and basis of muscle tone. Mentions the anatomical pathway involved in the production and maintenance of muscle tone. States the formation, circulation and drainage CSF. Locate and identify the ventricles. Identify and name the meninges and space around and locate the cistern. Define lumbar puncture and cisternal puncture. States the features of the meninges. Recognizes the differences between extradural, subdural and subarachnoid haemorrage. Outlines the arrangement of major blood vessels around the brain and spinal cord. Mentions the arteries forming the Circle of Willis. Name the branches of major arteries supplying the brain and spinal cord and mentions the parts of their supply. Predicts the result of blockage or rupture of central deep branches, predicts the result of occlusion of cerebral arteries, Predicts the result of occlusion of vertebral or basilar arteries, Identifies and mentions the connections of dural venous sinuses. Names and identifies the parts of the limbic system. Mentions their function in emotion and behaviour. Mentions the position and structure of the autonomic nervous system. Mentions the sites of origin and termination of the preganglionic and postganglionic sympathetic and parasympathetic fibers. Names and locates the sympathetic and parasympathetic ganglia. Summarizes the functional differences between the sympathetic and parasympathetic systems. Enumerates the cranial nerves in serial order. Mentions the nuclei of origin & termination and

indicates the site of attachment to brain / brain stem. Explains the general distribution of the cranial nerves and the course of the VIIth nerve. Predicts the result of injury to cranial nerves. Anatomy or spinal cord - review. Names the groups of spinal nerves. Explains the formation and branches of the spinal nerves and distribution of anterior and posterior rami. Locates and names the plexuses of nerves. Indicates the course and distribution of branches of the plexuses of the nerves.

ENDOCRINE SYSTEM: Lists the endocrine organs and mentions their position. Mentions the hormones produced by each endocrine organ.

MODULE IV INTRODUCTION TO BONES (Osteology): Defines skeleton. Mentions the subdivisions of the skeleton. Names the bones in each subdivision. Knows the number of bones in each subdivision and total number of bones. Classifies the bones and gives examples. Enumerates the common surface features of bones, Defines ossification. Explains the types of ossification and gives examples. Defines ossification centre. Explains the growth of long bone in length and width. Indicates blood supply and nerve supply of a bone When regional anatomy is taught: Identifies, names and correctly orientates the bones. Identifies surfaces, borders and all other surface features. Marks and indicates the muscular and ligamentous attachments on the bone. INTRODUCTION TO JOINTS (Syndesmology / Arthrology): Defines a joint or articulation. Classifies the joints and gives examples for each type. Defines each type of Joint, Mentions the basic features of a synovial joint. Defines the axis and movements possible in a synovial joint. Defines range of movement and limiting factors. Indicates the blood supply and nerve supply in general. Defines stability of a joint, Demonstrates common movement. When regional anatomy is taught:-Mentions the type, the articular surfaces, ligaments, movements, axes of movements. Chief muscles producing the movements, limiting factors and nerve supply and blood supply of all individual joints. Mentions the factors for stability. Articulates the bones correctly. Indicate applied anatomy for all joints INTRODUCTION TO MUSCLES (SKELETAL MUSCLE) (Myology): Defines a skeletal muscle. Defines faciae, tendon, aponeurosis. Classifies the skeletal muscles by shape etc, and

gives examples. Defines origin, insertion, muscle work (contractions), types of muscle work, range of muscle work, group actions - protagonists, antagonists, synergists and fixators; shunt and spurt muscles; types of levers with examples, When Regional anatomy is taught: Mentions the position, origin, insertion, nerve supply and actions of the skeletal muscles. (For the skeletal muscles of soft palate, pharynx and larynx position, action and nerve supply may be sufficient). Indicates groups of muscles by position and action, group action and nerve supply of groups of muscles. Indicates segmental innervation of muscles. Predicts the result of paralysis of individual and goups of muscles.

MODULE V UPPER EXTREMITY- Pectoral region: Outlines the features of the pectoral region. Names, identifies and correctly orientates the sternum, clavicle, scapula and humerus, Outlines the main features of the bones of shoulder girdle, Identifies the parts, borders and surfaces of sternum. Mentions its other features, Identifies the ends, surfaces, curvatures and other features of clavicle. Identifies the borders, angles surfaces, processes, fossae and other features of scapula. Identifies the ends, head, greater and lesser tubercles and anatomical and surgical necks of humerus; also the capitulum, trochlea, and radial, coronoid and olecronon fossae and epicondyles. Locates and identifies the muscles of pectoral region mentions their origin, insertion, nerve supply and action. Scapular region: Comprehends the main features of the muscles in the scapular region. States the layered arrangements of the muscles of the back. Names and identifies the muscles of the scapular region. Mentions their origin, insertion, nerve supply and actions. Demonstrates the bony land marks of scapula, humerus and clavicle. Axilla: Mentions and identifies the boundaries and contents of axilla. Names the branches of axillary artery. Names and identifies the cords and branches of brachial plexus and mentions their root value. Illustrates the formation of brachial plexus Shoulder girdle: Comprehends and applies to function the main features of joints of the shoulder girdle. Names the joints of shoulder girdle. Identifies the articular surfaces and names the ligaments and movements of sternoclavicular and acromioclavicular joints Mentions the types of the joints, Demonstrates and names the movements of

scapula. Mentions the chief muscles producing these movements. Correlates movements of scapula. Assigns functional roles of the articular disc and costoclavicular ligament of sternoclavicular joint and coracoclavicular ligament. Shoulder joint: Mentions the type, articular surfaces and ligaments of the shoulder joint. Defines and demonstrates the movements of shoulder joint. Names and identifies the chief muscles producing these movements. Analyses these movements and mentions limiting factors. Mentions the blood supply and nerve supply of this joint. Analyses the association of movements of scapula and movements of the shoulder joints, Mentions the limiting factors and the factors for its stability. Indicates applied anatomy. Upper arm: Names and identifies the muscles at the front and back of the upper arm. Names and identifies the ends, borders, surfaces and features of the humerus. Identifies the head, anatomical neck, tubercles, surgical neck, bicipital groove, condyle, capitulum, trochlea epicondyles, radial, cornonoid and olecranon fossae, Mentions the origin, insertion, nerve supply and actions of the muscles of the front and back of the upper arm. Indicates the course, relations and distribution of radial and musculocutaneous nerves. Elbow joint: Mentions the type, articular surfaces and ligaments of elbow joint. Defines and demonstrates the movements possible and names the chief muscles producing these movements. Mentions the factors for stability and limiting factors, Indicates the applied anatomy. Mentions the blood supply and nerve supply. Explains the carrying angle. Forearm, wrist and hand: Mentions the bones of forearm, identifies the ends, borders, surfaces and features of radius and ulna. Identifies the head, neck, tuberosity and styloid process of radius. Identifies the coronoid process, olecranon process, trochlear notch, tuberosity, head and styloid process of ulna. Also the radial notch of ulna and ulnar notch of radius. Names and identifies the carpal bones, metacarpat bones and phalanges in an articulated hand. Identifies the muscles of front and back of the forearm. Mentions the position, origin, insertion, nerve supply and action of these muscles. Indicates the course, relations and distribution of median, ulnar and radial nerves Mentions the type, articular surface and ligaments or radioulnar joints. Defines the movements of supination and

pronation. Mentions the axis and muscles producing these movements. Analyses these movements and applies to functional role in routine day to day actions. Mentions the position and distribution of ulnar and radial arteries and ulnar, median and radial nerves, Names and locates the carpal bones. Mentions the type, articular surface and ligaments of wrist joint. Defines and demonstrates the movements and mentions the muscles producing them. Mentions its blood supply and nerve supply. Mentions the visible tendons around the wrist and their synovial sheaths. Predicts the result of paralysis of muscles of the forearm. Mentions the functional implications of prehension in the structure of hand. Indicates the arrangement of tendons of the digits, retinaculae, fibrous flexor sheaths, and synovial sheaths. Evaluates the hinge type of interphalangeal joints, ellipsoid type of metacarpophalangeal joints and saddle type of carpometacarpal joint. Names and identifies the small muscles of the hand. Mentions their position, origin, insertion, nerve supply and action. Mentions the types of bones forming and ligaments of the joints of the hand. Defines the movement and the muscles producing these movements. Predicts the results of paralysis of the small muscles of hand. Demonstrates the type of grip.

Nerves of upper limb: Comprehends and applies the knowledge of position and distribution of nerves of upper limb. Mentions the root value of the nerves. Identifies the nerves and mentions the position course, relations and distribution of nerves of upper limb. Predicts the result of injury to these nerves. Blood vessels of upper limb: Comprehends and applies the knowledge of the position and distribution of blood vessels and lymph nodes. Traces the main arteries and veins. Indicates their position and names the main branches of tributaries. Names and locates the lymph nodes Cutaneous Nerves of upper limb: Names the cutaneous nerves and illustrates the areas of their distribution. Illustrates the dermatomes

MODULE VI LOWER EXTERMITY: Names, identifies and orientates to hip bone, femur, tibia, fibula and patella. Identifies the components and features of hip bones. Identifies the ends, borders, surfaces, head, neck, trochanters, condyles and epicondyles of femur and the features of the tibia and fibula. Identifies and

mentions the origin, insertion, nerve supply and action of the muscles in the front of thigh. Mentions the boundaries and contents of femoral triangle and subsartorial canal. Indicates the position, course and distribution of femoral nerve. Indicates the course and main branches of femoral artery and mentions the blood supply of neck of femur. Indicates the position of femoral vein. Medial side of thigh: Names and identifies the muscles of the medial side of thigh. Mentions their origin, insertion, nerve supply and action. Indicates the course, relations and distribution of obturator nerve. Back of thigh: Identifies and mentions the position, origin, insertion, nerve supply and action of the hamstring muscles. Indicates the position, course, relation and distribution of sciatic nerve Gluteal region: Identifies and mentions the position, origin, insertion, nerve supply and action of the muscles. Names and mentions the position and course of the nerves found there and names the arteries there. Hip joints: Mentions the type, articular surface and ligaments. Defines the movements and names the chief muscles producing the movements, Mentions the blood supply, nerve supply, factor for stability and limiting factors, Indicates applied anatomy.

Knee joint: Mentions the type, articular surfaces, and ligaments. Defines the movements and names and chief muscles for the movements. Analyses the movements. Knows the blood supply and nerve supply. Indicates applied anatomy. Defines locking and unlocking of the joint. Popliteal fossa: Indicates the boundaries and contents, Mentions the position and branches of tibial and common peroneal nerves. Front of leg and dorsum of foot: Names and identifies the tarsal bones, metatarsal bones and phalanges in an articulated foot, Names and identifies the muscles. Mentions the positions, origin, insertion, nerve supply and action of the muscles, Position and distribution of deep peroneal nerve. Indicates the position and attachments of extensor retinaculae. Mentions and identifies the features of the tibia and fibula. Lateral Side of leg: Names and identifies the muscles. Mentions the position, origin, insertion, nerve supply and action of muscles. States the position, course and distribution of superficial peroneal nerve. States the position and attachment of peroneal retinaculae. Back of leg and sole of foot: Name and identifies the features of the bones of the

foot. Names and identifies the muscles of back of leg. Mentions the position, arrangement, origin, insertion, nerve supply and action of the muscles. States the position, course and distribution of tibial artery. States the position, and distribution of posterior tibial artery. Mentions the position, and attachment of flexor retinaculum. Mentions the arrangement, origin, insertion, nerve supply and action of muscles of the foot. Indicates the types of formation, and factors for the maintenance of the arches of foot. Mentions the type, articular surface, ligaments, movements, chief muscles for the movement, axes of movements and applied anatomy of tibiofibular joints, ankle joints, subtalar joints, M.P. joints and I.P. joints, Palpates and identifies the tendons around the ankle and dorsum of foot. Nerves: Indicates the position, formation and branches of lumbar and sacral plexuses. Mentions the root value of the nerves, Mentions the position, course, relation and distribution of the nerves. Predicts the result of injury to the nerves, Illustrates cutaneous innervation of dermatomes Blood vessels: Indicates the position of arteries and their main branches. Indicates the position of veins and their main tributaries. Indicates the position of lymph nodes.

MODULE VII

TRUNK - THORAX – ABDOMEN Vertebral Column: States the basic osteology of vertebral column. Identifies the parts of a typical vertebra. Identifies and states the main features of typical vertebra of each group of vertebrae. Identifies a typical vertebrae. States the form, structure and movements of joints of the vertebral column. Mentions the movements and the muscles producing them. Identifies the intervertebral disc and mentions its parts. States the formation and ligaments of the intervertebral joints. Names and identifies the curvatures of the vertebral column and indicates deformities. States the contents of vertebral canal. THORAX: States the main features of the bones and joints of thoracic cage. Mentions the boundaries, States the parts and features of sternum. Defines true, false and floating ribs. Mentions the parts and features of typical ribs. Knows the main features of a typical rib. Mentions the type and formation of the joints between rib and vertebrae, between costal cartilage and sternum, and between costal cartilages. Mentions the type and formation of joints between parts of

sternum. Indicates the importance of sternal angle. Analyses pump handle and bucket handle movements of ribs. Palpates bony land marks such as jugular notch, sternal angle, xiphisternum and spines of thoracic vertebrae. Defines intercostals space and lists the contents. Mentions the course and branches of typical intercostals nerve. Names the muscles of thorax. Mentions the origin, insertion, nerve supply and action of intercostals muscles and diaphragm. Names the structures passing though the diaphragm and mentions the orifices in the diaphragm. Defines the boundaries and subdivisions of the mediastinum and lists the contents. Identifies the contents. States the features of thoracic parts of sympathetic trunk. Abdomen: Mentions the main features of lumbar vertebrae, sacrum and coccyx. Mentions the formation and subdivision of the bony pelvis. Lists the features of the female bony pelvis and their roles. c. Mentions the type, articular surfaces, ligaments and movements of the joints of pelvis. Defines abdominal cavity. List the layers of anterior abdominal wall. Names and mentions the origin, insertion, nerve supply and action of the muscles and the features of these muscles. Explains the formation of rectus sheath and lists it contents. Defines inguinal canal and knows its position, extent formation and contents. Indicates is clinical importance. Defines inguinal hernia. Names and identifies the muscles of posterior abdominal wall. Gives their origin, insertion, and action. Lists the organs on the posterior abdominal wall. Names the blood vessels on the posterior wall. Mentions the position and formation of lumbar plexus. Names its branches. States the anatomy of lumbar region. Understands the disposition of muscles of the back in layers. Mentions the arrangement of lumbar fascia. Identifies the muscles in lumbar region. Understands the lumbar roots to abdomen. Identifies and mentions the attachments and actions of the large muscles of back. (at least the ones ending capitis), Distinguishes abdominal cavity and peritoneal cavity. Mentions the features of lumbar part of sympathetic trunk and other sympathetic ganglia. Mentions the branches and distribution of the abdominal aorta and iliac arteries. States the inferior vena cava and iliac veins and mentions their tributaries. PELVIS: States the main features of subdivision, boundaries, walls and floor of pelvis. Mentions the

features of the pubic symphysis and sacro-iliac joints. Distinguishes and mentions the major differences between the male and female pelvis. Identifies the muscles of the pelvic floor and mentions their attachments, actions and nerve supply. Mentions the structures of the urogenital diaphragm. HEAD AND NECK: Musculo skeletal and neurovascular features. Identifies the anterior and posterior triangles of neck. Names the subdivisions. List the contents. States the main features of the skull and the facial skeleton. Identifies the large skull bones and their parts. Identifies the cranial fossae and hypophyseal fossa. Identifies the internal and external auditory meatuses. Foramen magnum and stylomastoid foramen and names the main structures passing though them. Identifies and names the main muscles of the face. Mentions their nerve supply and action. Predicts the results of paralysis to the facial muscles and sequel of injury to the facial nerve (VII nerve), Maps the cutaneous distribution of the three divisions of the trigeminal (Vth) nerve on the face. Identifies the general feature of a typical cervical vertebra, atlas, axis and seventh cervical certebra. Identifies the erector spinae, sternomastoid and scalene muscles geniohyoid. Mentions their attachments, actions and nerve supply. Identifies the phrenic, accessory and vagus nerves. Mentions their distribution. Identifies and states the position, distribution and root values of the nerves of cervical and brachial plexuses. Demonstrates the action of sternomastoid. Mentions the type, articular surfaces, ligaments, movements, and muscles producing these movements, at the atlanto-occipital and atlanto-axial joints. Demonstrates these movements and the movements of the cervical part of vertebral column. Identifies the subclavian, vertebral and carotid arteries. Mentions the position and extent of these arteries. Identifies the components of the Circle of Willis. Mentions the distribution of internal and external carotid and vertebral arteries. Predicts the sequelae of occlusion of these arteries. Identifies the internal jugular and subclavian veins. Mentions their position, formation and termination. States the basic organization of the autonomic nervous system. States the sites of craniosacral and thoracolumbar outflows. Defines the modes of distribution of pre and postganglionic efferent neurons in sympathetic and parasympathetic

nervous system. Names the cranial nerves containing parasymphathetic fibres and mentions their distribution. Distinguishes between sympathetic and parasympathetic systems in relation to their functions. Eye: States the position of the lacrimal apparatus, the functional implications of structure of the eye and the lacrimal apparatus. Names and illustrates the coats, their subdivisions, the refractive media, the chambers of the eye and the optic nerve. Mentions the structure of retina and optic pathway. Has a basic understanding of the light and accommodation reflex. (Omitting the pathway). Mentions the distribution of the three divisions of trigeminal (Vth) nerve, Names and states the nerve supply and simple actions of the extraoccular muscles. Predicts the results of lesions of 3rd, 4th and 6th cranial nerves. Nose: Names the bony components of the nose. Mentions the parts and boundaries of the nose. States the main features of the nasal cavity. Names and identifies the para nasal air sinuses and locates their openings. Temporomandibular joint: States the type, articular surface, ligaments, possible movements, muscles performing the movements and nerve supply of the temporomandibular joint. Palpates and identifies the joint and its articular surfaces. Identifies and names the muscles of mastication. Mentions their actions and nerve supply. Mouth: States the main features of the mouth cavity, tongue, palate, salivary glands, teeth and gums. Mentions the sensory and motor innervation of the tongue. Identifies the salivary glands. Demonstrates movements of the tongue and palate. Tests and produces the swallowing (gag) reflex. Predicts the sequelae of lesions of the VIIth and XIIth cranial nerves. Pharynx: States the position and extent of the pharynx. States the three subdivisions and features of each subdivision. Names the muscles of pharynx and their action. Mentions the sensory and motor innervation of the pharynx. Larynx and trachea: Identifies the hyoid and states its parts. Identifies the larynx and names the laryngeal cartilages. States the boundaries of laryngeal inlet and glottis. Identifies the vocal and vestibular folds. States the movement of the laryngeal cartilages. Names the laryngeal muscles and mentions their attachments, action and nerve supply. Defines the position, extent and gross structure of the trachea. States the mechanics of phonation and speech,

production of sound voice and speech. Ear: States the basic structural plan of the organs of hearing and equilibrium. Mentions the three subdivisions of the ear. Mentions the nerve endings for hearing and equilibrium. Cranial nerves: Enumerates the cranial nerves in serial order. Relates and interprets the number to the names. Indicates the nuclei of origin of termination. Mentions the attachments to the brain and the cranial exit. State the sensory and motor distribution. States the position and course of VII nerve. Predicts the sequel of lesion.

EVALUATION Internals : Theory and Oral (10 marks For Anatomy Record to be included in internals.) University: Theory and Oral

10 PHYSIOLOGY

MODULE I CELL INTRODUCTION: Outline of basic concepts of cell structure, functions of components; transport across membranes, SKIN: Structure; functions; blood flow; temperature regulation.

MODULE II BLOOD: 1. Outline of components; and their function; RBC, WBC, Platelets, Blood groups. Significance of RBC & WBC counts ESR and other related tests. Clotting mechanisms, Blood volume and its regulation

MODULE III CIRCULATION: Structure & Properties of cardiac muscle: Cardiac cycle., ECG: Heart sounds, cardiac output., Factors regulating the action of the heart., Blood pressure; its maintenance and regulation, Cerebral circulation: Renal circulation: Pulmonary circulation., Effects of exercise: effects of postural changes, Lymph; factors affecting its flow.

MODULE IV RESPIRATION: Defence mechanisms in the Respiratory tree; mucociliary transport. Mechanics of Respiration. Transport of blood gases. Acid-base balance. Lung function tests (including lung volumes). Artificial ventilation, Nervous and chemical regulation of respiration. Hypoxia-types and causes, Effects of exercise on respiration

MODULE V

DIGESTION: Digestion in the mouth, stomach and intestine, Bile; Pancreatic secretion, Mechanisms of control of secretions and motility, Diet and Nutrition. EXCRETION: Structure of the nephrons, Formation of urine, Micturition.

ENDOCRINE: General metabolism. Carbohydrates, protein and fat metabolism. Outline of the various hormones and their actions with special emphasis on Thyroxine and Parathyroid hormone.

MODULE VI REPRODUCTION: Male reproductory system, Female reproductory system, Outline of pregnancy: functions of placenta; Parturition; lactation; contraceptive measures., 4. Physiology of foetus; factors that affect foetal growth.

MODULE VII NERVOUS SYSTEM: Structure of neurons, Properties of neurons: (excitations & conduction), Synapses and synaptic transmission; Reflexes and properties of reflexes; Sensory endings, Spinal cord; Pathways in the spinal cord., Brain stem; Thalamus; Basal ganglia; Cerebellum; Cerebral cortex; Control of posture and control of voluntary motor activity. SPECIAL SENSES: Vision, Audition; Olfaction; Gustation: Vestibular apparatus

MODULE VIII MUSCLE: Structure of muscle tissue: gross structure and microscopic structure. Arrangement of myofibrils. Myoneural junction. Chemical processes involved in muscle contraction, Physiology of muscle contraction. Single muscle twitch, Quantal, summation. Wave Summation, Tetany. Effects of temperature changes. All or none law. Fatigue, Isotonic, Isometric, Isokinetic contraction, Exercise metabolism. Oxygen debt, Respiratory quotient. Development of endurance. Factors affecting endurance and muscle strength. Factors affecting general and cardiorespiratory endurance. Aerobic and anaerobic work. Efficiency of muscular activity, aerobic versus anaerobic (eg. speed, work, load, fatigue diet, obesity). Age and exercise. Age changes in muscle function. Age changes in CVS. Age changes in pulmonary function. Age and physical work capacity. Age and nervous system. Environment and exercise. Adaptation to heat and cold. Exercise in heat and cold. Human limitation in heat. Acclimatization to heat. Exercise at high altitudes.

PRACTICAL DEMONSTRATIONS A. Lung Volumes B. Effect of exercise on

ventilation C. Physical fitness D. Determination of BP E. Effects of exercise on BP F. Heart rate G. Pulse H. Respiratory rate I. Examination of sensory and motor systems and cranial Nerves J. Examination of superficial and deep reflexes. K. Tests of vision (acuity and colour perception) and hearing (Rhine's test & Weber's test).

EVALUATION Internal : Theory, Orals University: Theory, Orals

103 SOCIOLOGY

MODULE I INTRODUCTION: Definitions of sociology, sociology as a science of society, uses of the study of sociology, application of knowledge of sociology in physiotherapy and occupational therapy. SOCIOLOGY AND HEALTH: Social factors affecting health status, social consciousness and perception of illness, social consciousness and meaning of illness, decision making in taking treatment. Institutions of health, their role in the improvement of the health of the people.

MODULE II SOCIALIZATION: Meaning of socialization, influence of social factors on personality, socialization in hospitals, socialization in the rehabilitation of patients. SOCIAL GROUPS: Concept of social groups, influence of formal and informal groups on health and sickness, the role of primary groups and secondary groups in the hospital and rehabilitation settings. FAMILY: Influence of family on human personality, discussion of changes in the functions of a family, influence of the family on the individual's health, family and nutrition, the effects of sickness on family, family and psychosomatic disease. COMMUNITY: Concept of community, role of rural and urban communities in public health, role of community in determining beliefs, practices and home remedies in treatment. CULTURE: Components of culture, impact of culture on human behaviour, cultural meaning of sickness, response of sickness & choice of treatment (role of culture as social consciousness in moulding the perception of reality) Culture induced symptoms and disease, sub-culture of medical workers. CASTE SYSTEM: Features of the modern caste system and its trends

MODULE III SOCIAL CHANGE: Meaning of social change, factors of social change, human adaption and social change, social change and stress, social change and deviance, social change and health programmes. The role of social planning in the improvement of health and in rehabilitation. SOCIAL CONTROL: Meaning of social control, role of norms, folkways, customs, orals, religion law and other means of social control in the regulation of human behaviour, social deviance and disease.

MODULE IV SOCIAL PROBLEMS OF THE DISABLED: Consequences of the following social problems in relation to sickness and disability; remedies to prevent these problems: Population explosion, Poverty and unemployment, Beggary, Juvenile delinquency Prostitution, Alcoholism, Problems of women in employment SOCIAL SECURITY: Social security and social legislation in relation to the disabled, SOCIAL WORKER; The role of a medical social worker

EVALUATION: Internal - Theory University – Theory

104 PSYCHOLOGY

MODULE I DEFINITION OF PSYCHOLOGY: basic information in relation to following schools methods and branches. Schools: Structuralism, functionalism, behaviourism, psychoanalysis, gestalt psychology. Methods: Introspection, observation, inventory and experimental method. Branches: General, child, social, abnormal, industrial, clinical, counselling, education.

MODULE II HEREDITY AND ENVIRONMENT: Twins, Relative importance of heredity and environment, their role in relation to physical characteristics, intelligence and personality, naturenurture controversy. DEVELOPMENTAL THEORIES AND GROWTH BEHAVIOUR: Infancy, Early childhood, Middle childhood, Puberty (physiological and psychological changes), adulthood, middle age, and old age.

MODULE III INTELLIGENCE: Definitions: IQ, Mental Age, List of various intelligence tests – WAIS, WISC, Bhatia's performance test, Raven's Progressive

Matrices test. MOTIVATION: Definitions: Motive, drive, incentive, and reinforcement. Basic information about primary needs: hunger, thirst, sleep, elimination activity, air, avoidance of pain, attitude to sex. Psychological needs: Information, security, self – esteem, competence, love and hope. EMOTIONS: Definition, Differentiate from feelings, physiological changes of emotion Role of RAS, hypothalamus, cerebral cortex, sympathetic nervous system, adrenal gland, heredity and emotion, and control of anger, fear and anxiety.

MODULE IV PERSONALITY: Definition, list the components: Physical characteristics, abilities, temperament interest, and attitudes. Discuss briefly the role of heredity, nervous system, physical characteristics, abilities, family, and culture on personality development. Basic concepts of Freud: Unconscious, conscious, id, ego, and superego. List and define the oral, anal, and phallic stages of personality department. List and define the 8 stages as proposed by Erickson, 4 concepts of learning as proposed by Dollard and Miller; drive, cue, response and reinforcement. Personality assessment; interview, standardised, non-standardised, exhaustive and stress interviews, list and define inventories BAI, CPI and MMPI. Projective tests: Rorschach TAT and sentence completion test.

MODULE V LEARNING: List the laws of learning as proposed by Thorndike. Types of learning: Briefly describe, classical conditioning, operant conditioning, insight, observation and Trial and Error type. List the affective ways to learn: Massed Vs. Spaced. Whole Vs. Part, Recitation Vs. Reading, Serial Vs. Free recall, Knowledge of results, Association, Organization, Mnemonic methods, Incidental Vs Intentional learning, role of language. THINKING: Definition, concepts, creativity, steps in creative thinking; list the traits of creative people, delusions FRUSTRATION: Definition sources, solution, conflict; Approach - approach, avoidanceavoidance, and approach – avoidance, solution

MODULE VI SENSATION, ATTENTION, AND PERCEPTION: List the senses: Vision, Hearing, Olfactory, Gustatory and cutaneous sensation, movement, equilibrium and visceral sense. Define attention and list factors that determine attention; nature of stimulus, intensity, colour, change, extensity, repetition, movement, size, curiosity, primary motives. Define perception and list the principles of

perception : Figure ground, constancy, similarity proximity, closure, continuity, values and interest, past experience context, needs, moods, religion, sex and age, perceived susceptibility, perceived seriousness, perceived benefits, and socioeconomic status. Define illusion and hallucination. List visual, auditory, cutaneous, gustatory, and olfactory hallucination.

MODULE VII DEMOCRATIC AND AUTHORITARIAN LEADERS: Qualities of leadership: Physical factors, intelligence, self-confidence, sociability, will and dominance. Define attitude, change of attitude by: Additional information, changes in-group affiliation, enforced modification by law and procedures that affect personality. (Psychotherapy, Counselling and religious conversion). DEFENCE MECHANISMS OF THE EGO: Denial rationalization, projection, reaction formation, identification, repression, emotions, insulation, undoing, introjection, acting out, depersonalisation.

MODULE VIII HEALTH PSYCHOLOGY: Psychological reactions of a patient during admission and treatment, anxiety, shock, denial, suspicion, questioning, loneliness, regression, shame, guilt, rejection, fear, withdrawal, depression, egocentricity, concern about small matters, narrowed interests emotional over reactions, perceptual changes, confusion, disorientation , hallucinations, delusions, illusions, anger, hostility, loss of hope. Reaction to loss, death and bereavement: shock and disbelief, development of awareness, restitution, resolution. Stages of acceptance as proposed by Kubler- Ross. STRESS: Physiological and psychological changes, relation to health and sickness: Psychosomatics, professional stress, burnout. COMMUNICATIONS: Types: verbal, non-verbal, elements in communication, barriers to good communication, developing effective communication, specific communication techniques, Counselling: Definition, Aim, differentiate from guidance, principles in counselling and personality qualities of counsellors. COMPLIANCE: Nature, factors, contributing to non-compliance, improving compliance. EMOTIONAL NEEDS: Emotional needs and psychological factors in relation to unconscious patients, handicapped patients, bed-ridden patients, chronic pain, spinal cord injury, paralysis, cerebral palsy, burns, amputations, disfigurement, head injury,

degenerative disorders, Parkinsonism, leprosy, incontinence and mental illness. GERIATRIC PSYCHOLOGY: Specific psychological reactions and needs of geriatric patients. PAEDIATRIC PSYCHOLOGY: Specific psychological reactions and needs of paediatric patients, BEHAVIOUR MODIFICATION: Application of various conditioning and learning principles to modify patient behaviour. SUBSTANCE ABUSE: Psychological aspects of substance abuse: smoking, alcoholism, and drug addiction, PERSONALITY STYLES: Different personality styles of patients.

EVALUATION : Internal - Theory University – Theory

105 INTRODUCTION TO OCCUPATIONAL THERAPY, DISABILITY AND INTEGRATION AND THERAPEUTIC ACTIVITIES

SECTION-A: INTRODUCTION TO OCCUPATIONAL THERAPY

MODULE I History of Occupational Therapy: Describe the history and development of Occupational Therapy internationally, describe the present development of O.T in India, including organization and functions of All India Occupational Therapist's Association.

MODULE II An overview of Occupational Therapy: Define Occupational Therapy, Discuss the scope of O.T in a major hospital for Paediatrics, Physical and Psychiatric Disorders, Discuss the scope of O.T in the community

MODULE III Occupational Therapy and the Rehabilitation team: Describe Occupational Therapy's contribution as part of the total rehabilitation team, Briefly outline the roles of the different team members.

MODULE IV Occupation: Philosophy and concepts: The concept of Occupation in Occupational Therapy, Importance of Occupation in people's life, Occupation as a therapeutic medium, Therapeutic qualities of Occupation: Purpose and meaning.

MODULE V Occupation as Therapy: Analysis of roles, occupations, tasks,

activities & performance components, Selection, Gradation and Adaptation.

MODULE VI Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL): Purpose of evaluation, Content of ADL and IADL evaluation, Parameters of ADL and IADL evaluation, ADL and IADL evaluation methods.

MODULE VII Therapeutic movements and exercises in OT: Principles of therapeutic exercises, Types of muscle contractions (Isotonic, isometric muscle contractions), Types of therapeutics movements (Passive, Active, Active assisted and resistive movements), Briefly outline isometric, progressive resistive and regressive resistive exercises.

MODULE VIII Overview of Assessments: Reflexes (superficial and deep tendon reflexes), Muscle tone, Range of Motion, Muscles strength,Voluntary control, Co-ordination, Sensation (cutaneous and cortical), Cognitive - Perceptual functions, Hand functions.

MODULE IX Framework for Professional practice: Core values and attitudes of OT practice, OT code of ethics, The therapeutic relationship.

PRACTICAL ANALYSING OCCUPATIONS AND ACTIVITIES

Analyse the following occupational performance areas:

- Self-care:
- Personal care
- Eating
- Dressing
- Personal hygiene: Grooming, Bathing and oral care
- Toileting
- Functional mobility
- Indoor mobility (Accessibility within the home)
- Outdoor mobility (Accessibility outside the home environment)
- Community Management
- Transportation
- Shopping
- Finances (money management)

d. Productivity

e. Work

- Tailoring
- Clerical including Basic computer applications
- Teaching
- Agriculture

f. Home making

- Meal preparation – Gathering & transporting items, Cooking, service and clean up, dish washing
- Laundry – collecting & transporting, washing & folding, ironing, sewing
- Indoor household maintenance – bed making, dusting, floor care, bath rooms
- Outdoor household maintenance – Yard maintenance and gardening
- Child care – bathing, diapering, dressing, feeding, lifting and carrying, play and cradle care

g. School

- Writing and using of instruments
- Reading

h. Leisure & Play

- Sports
- Games (Indoor & Outdoor)
- Picnic
- Gardening
- Craft activities (any five activities) i. Socialization
- Correspondence
- Making phone calls

SECTION B: INTRODUCTION TO DISABILITY & INTEGRATION

MODULE I Definitions: Disabilities and identifying characteristics – Congenital &Acquired, Physical & Mental Historical Overview of Disability in Society Progress of Disability related Services & Advocacy movements in 20th& 21stCentury, Current Legislations – IDEA, ADA (USA), PWD Act. (India).

MODULE II Interaction with persons having disabilities, Role of Family in

Successful Rehabilitation of PWD, Behavioral problems related to Disabilities - Causes and Strategies for Intervention, Adolescence, Sexuality and related Issues, Marriage & Family life for Individuals with Disabilities.

MODULE III Inclusive Education & Its Components –Assessments, IPE, LRE, Assistive Technology – ADL, Mobility, Communication, Vocational SSA & IEDCSS Right to Education Act 2009. Gainful employment

MODULE IV Importance of Prevention, Detection, Early Intervention, ICDS & ASHA – Importance in the area of Prevention. Need of Awareness Creation in Society and Methods – Use of Mass media Community Based Rehabilitation & Integration Government Schemes & Educational Opportunities for People with Disabilities in India MINI PROJECT: Experiences growing up as a person with disability: Report of 2 Case Studies based on Interviews of PWD and family members

SECTION C : THERAPEUTIC ACTIVITIES

MODULE I Design : Introduction to design - Students will be able to identify design in nature, textures, buildings, textiles, etc., to apply the colour wheel (primary and secondary colours, different shades and tones) for colour preparation. Painting/designs (blow, spray, blotch, finger, oil, wax, thread, charcoal, etc), Montage and collage. Paper mat weaving and paper folding, Paper cutting and streamers, Macrame - cord /knotting, Symmography, Ball decoration and paper beads. Plate decorations and coconut shell designs. Aluminium wire pictures. Wire decorations. Embroidery (4 stitches), Lettering and posters, Batik printing, Tie and Dye fabric design, Block designing and printing, including adaptations. Finger puppets clay modelling and paper mache. Hand puppets, and dramatic presentation as group work, Simple card weaving.

MODULE II Carry out techniques - cutting, thonging, stitching, punching, braiding, lining, fastenings (rivets, eyelets, press buttons, buckles, zips and velcro), decorating leather articles, use of paints, dyes. Prepare 1 splint and 1 aid eg. opponens splint and palmar pocket aid. [Prepare 1 project - eg. watch strap, purse, wallet, belt, pocket pouch, spectacle case etc., using as many techniques

as possible. Outline - storage availability, cost and care of materials.] Tailoring : Types of stitches and their uses , Types of seams and their uses , Types of openings and fastenings, Pattern making, measuring and cutting, stitching Pillow case, Shopping bag , Apron

MODULE III Home Activities: Plan and prepare simple meals. Gardening & Recreational Activities: Outline the use of Sports, Games , Picnic , Drama, Leisure & hobbies , Music as a therapeutic medium. Note: File Preparation: Apply therapeutic, prevocational and vocational values and prepare file for each activity, which will be assessed.

EVALUATION Internal : Theory, Oral, Practical and Activities Analysis File

University : Theory, Oral and Practical

2nd YEAR

1. Introduction to pathology and Microbiology 2. Biochemistry and Pharmacology 3. Fundamentals of Occupational Therapy 4. Clinical Orthopaedic, Rheumatology and Radio diagnosis 5. Clinical Neurology 6. Biomechanics, Applied Anatomy and Applied Physiology 7. General Medicine, General Surgery and Paediatrics

201 INTRODUCTION TO PATHOLOGY & MICROBIOLOGY

SECTION A : PATHOLOGY

MODULE I Introduction: Concepts of diseases, classification of lesions, Bacterial, viral and parasitic infections – a general outline, Inflammation and repair, Degeneration, necrosis and gangrene, Hemorrhage, shock, embolism, thrombosis, Tuberculosis, Leprosy, Typhoid. F. Deficiency diseases, Tumours: Aetiology & spread, Common tumours, Blood : Anaemia, Heart and blood

vessels, common congenital anamolies, rheumatic & coronary heart diseases, Respiratory system: Pneumonias, Bronchiectasis, Emphysema, Chronic bronchitis, Asthma, Bone and joints : Autoimmune disease, septic arthritis, Osteomyelitis. K. Skin : Leprosy, Urinary system, Central nervous system: CNS infections, vascular disorders. N. Rheumatoid Arthritis, Sclerodema and Psoriasis, Diseases of muscle including poliomyelitis, Myopathies, Volkmann's ischemia.

SECTION B : MICROBIOLOGY

MODULE II Introduction and history of microbiology, General lectures on micro – organisms: Classification, Shape and arrangement, Special characteristics – spores, capsules, enzymes, motility, reproduction, Disinfection and antiseptics, Sterilization and asepsis, Antibacterial agents – fundamental aspect, susceptibility tests, Infection – source of infection-portals of entry, spread of infection, Non – specific immunity, Immunity – natural and acquired, Allergy and hypersensitivity, Pathogenic yeasts and fungi, Virology – virus infections, with special mention of Hepatitis, Poliomyelitis & Rabies. Outline of common pathogenic agents and diseases produced by them, treatment and prevention. 1. Respiratory tract infections. 2. Meningitis. 3. Enteric infections. 4. Anaerobic infections. 5. Urinary tract infections. 6. Leprosy, tuberculosis and miscellaneous infections. 7. Wound infections. 8. Sexually transmitted diseases. 9. Hospital acquired infections.

EVALUATION Internal : Theory University : Theory

202 BIOCHEMISTRY AND PHARMACOLOGY

SECTION A: BIOCEMISTRY

MODULE I Cell; Introduction, Cell structure, Cell membrane structure & function, various types of absorption. Intracellular & their function. Carbohydrates;

Definition General Classification with examples, Sources & Functions, Digestion and absorption, metabolism of carbohydrates, with emphasis on glycolysis, gluconeogenesis, HMP shunt pathway. Inborn errors associated with carbohydrates metabolism, regulation of blood glucose level, diabetes mellitus (aetiology, biochemical abnormalities, biochemical basis of complications, lab diagnosis)

MODULE II Lipid chemistry: Definition General Classification with examples, Sources & Functions, Digestion and absorption, metabolism of Lipids (fatty acid oxidation-beta and alpha oxidation, cholesterol synthesis) Phospholipids, inborn errors, Atherosclerosis. Proteins and amino acids: Definition General Classification with examples, & Functions, Digestion and absorption, metabolism of Proteins glycin, phenylalanine, thyrosine, Aminoacidurias.

MODULE III Integration of metabolism and ETC, Vitamins; Definition, classification according to solubility, Major Individual vitamins - sources digestion, absorption, deficiency.

MODULE IV Mineral metabolism: Definition, Digestion, absorption, function. Examples of Disorders of individual Minerals Iron Copper.

Water and Electrolyte Balance: Water distribution in the body, Body water, water turn over, Regulation of water balance, Distribution of electrolytes Electrolyte balance, Acid-base balance

MODULE V Nucleotide, nucleic acid chemistry: Nucleotide chemistry, nucleotide composition and function of free nucleotides in the body, nucleic acid (DNA and RNA)chemistry, difference between DNA and RNA, structure of DNA, function of RNA, structure and function of RNA. Clinical Biochemistry; Normal level of blood & urine constituents, Relevance of blood & urine level of glucose, Renal and Liver function tests.

MODULE VI Detoxification, Enzymes: Definition, classification, factors affecting enzyme activity, diagnostic enzymology, Hormones: Definition, classification, mechanism of action.

MODULE VII Procedures in Bio chemistry; Electrophoresis Chromatography, RIA, ELISA, Radioactivity; Diagnostics, Research & therapeutic applications Radiation

hazards

SECTION B PHARMACOLOGY

MODULE I Introduction to Pharmacology – Terminology – Agonist – Antagonist Pharmacokinetics, Pharmacodynamics, Pharmacotherapeutics, Toxicology Drug – Receptor interaction – Association – Dissociation constants, Routes of administration – Absorption – Distribution – Termination of action. Autonomic Pharmacology – neurotransmitters, Acetylcholine, sites of action – epinephrine, Norepinephrine – Cholinergic blockers of muscarinic and nicotinic function – Belladonna alkaloids, synthetic substitutes, adrenergic blockers, both alpha and beta blockers and blockade.

MODULE II Cardiovascular Pharmacology – Congestive Cardiac failure – glycosides – Angina And Antianginal Agents – Antihypertensives – Diuretics – beta blockers, calcium channel blockers, ACE – inhibitors, - Peripheral vascular diseases and vasodilators – Cardiac antiarrythmic agents. Blood disorders – cyanocobalamine – Shock – plasma substitutes, plasma expanders, vasoconstrictors – coagulants and anticoagulanyts – heparin and coumarins.

MODULE III Neuropharmacology – Sedatives and Hypnotics, barbiturates and their antagonists – Narcotics and narnotic analgesics – Opioids – Dangers of addition – prevention Role of superficial and Topical remedies in induction of analgesia – Demonstrate preparation of a Liniment. Behaviroal Pharmacology and Psychopharmacology – Anxiety states, Anti anxiety drugs – Benzodiazepines – Diazepam congeners – Mood disorders and depressed states – antidepressants Lithium – Psychodysletics and their dangers in misuse among student population.

MODULE IV Movement Disorders – Parkinsonism – CHARACTERISTICS OF DISEASE, tremor, rigidity – chemotherapy, Epilepsies – types – drug management of disease – Spastic disease – drug treatment of acute muscle spasms – gastro intestinal pharmacology, hyperacidity, antidiarrhoels, purgatives. Inflammatory diseases – anti-inflammatory agents – Analgesics – Nonsteroidal antiinflammatory agents – Aspirin, paracetamol, indomethacin, diclofenac, piroxicam, mefenamoic acid, Steroidal AGENTS, CLUCOCORTICOIDS,

PREDNISOLONE, dexamethasone, betamethasone, baclomethasone Chemotherapy – bacterial infections – drugs against micro organism – sulphonamnides, antibniotics, floxacins – Parasitic infestations malaria, amoebae, filariasis – flagellates – Respiratory Pharmacology- use of broncho dilator – airway clearance – Cancers – antimiotics, antimetabolities, irradiation – radioactive materials in cancers. EVALUATION Internal : Theory University : Theory

203 FUNDAMENTALS OF OCCUPATIONAL THERAPY

MODULE I Model, Frame of Reference and Approaches; An overview of Model, Frame of Reference and Approaches, Model of Human Occupation, Canadian Model of Occupational Performance, Ecological Model in Occupational Therapy

MODULE II Approaches used in Occupational Therapy; Biomechanical approach, Neuro Developmental Treatment (NDT) approach (Adults & Paediatrics), Roods approach (Adults & Paediatrics), Brunnstrom approach, Proprioceptive Neuromuscular Facilitation (PNF) approach, Affolter's approach, Motor Relearning Programme,Task Oriented Approach, Sensory Integrative Therapy (Paediatrics & Psychiatry), Behavioural frame of reference, Peto's Conductive Education, Rehabilitative approach, Cognitive Behavioural approach, Psychoanalytical- Include expressive media used in OT, Occupational Behaviour and Model of Human Occupation, Developmental groups and developmental approach, Cognitive Disability FOR, Acquisitional FOR.

MODULE III Assessments in Occupational Therapy Assessments in Occupational Therapy for the following areas of dysfunction:

- Paediatric
- Gross motor
- Fine motor
- Cognition
- Perception including Visuo-motor skills

- Oro-motor evaluation
- Play

B. Physical

- Functional Ability
- Hand functions
- Cognition and Perception
- Basic ADL and IADL
- Cranial Nerves
- Cerebellar functions

Evaluation Procedures including:

- Reflexes (superficial and deep tendon reflexes),
- Muscle tone
- Range of Motion
- Muscles strength
- Voluntary control
- Co-ordination
- Sensation (cutaneous and cortical)
- Cognitive - Perceptual functions
- functions
- Psychiatry:
- History
- Sensory Perceptual
- Task skills
- Intra and Inter personal skills
- Social and group skills
- Group level
- Roles and Routines

EVALUATION Internal: Theory, Orals and Practical University: Theory, Orals on section A, B and C Practical on section B only

204 CLINICAL ORTHOPEDIC, RHEUMATOLOGY & RADIO DIAGNOSIS

Section A; Orthopedic and Rheumatology

MODULE I INTRODUCTION TO ORTHOPAEDICS; Introduction to orthopaedic terminology, types of pathology commonly dealt with, clinical examination, common investigations and outline of non- operative & operative management.

MODULE II PRINCIPLES OF OPERATIVE TREATMENT; List indications, contraindications and briefly outline principles of Arthrodesis, Athroplasty, osteotomy, bone grafting,Tendon-Transfers, limb lengthening procedures, Principles of internal and external fixation of bone injuries

MODULE III SPRAINS AND MUSCLE STRAINS; List common sites of sprains and muscle strains and describe the clinical manifestations and treatment.

MODULE IV FRACTURES & DISLOCATIONS: General principles Outline the following: Types of Fractures including patterns, open and closed fractures and fracture- dislocations, Differences between dislocation & subluxation, General & Local signs & symptoms of fractures & dislocations, Principles of management of fractures & dislocations, Prevention & Treatment of complications including: Fracture-disease, Volkman's ischaemic contracture, Sudek's Atrophy, Carpal Tunnel Syndrome, Myositis ossificans, and Shoulder-hand syndrome, Fracture healing.

MODULE V UPPER LIMB FRACTURES & DISLOCATIONS; Enumerate major long-bone fractures and joint injuries, Briefly describe their clinical features, principles of management and complications.

MODULE VI LOWER LIMB FRACTURES & DISLOCATIONS; Enumerate major long bone fractures and joint injuries, Briefly describe their clinical features, principles of management and complications

MODULE VII SPINAL FRACTURES AND DISLOCATIONS: Outline the mechanism, clinical features, principles of management and complications of spinal injuries.

MODULE VIII RECURRENT DISLOCATIONS : Outline the mechanism, clinical features, principles of management and complications of recurrent dislocations of the shoulder and patella.

MODULE IX AMPUTATIONS; Classify amputations, list indications for surgery, Outline pre-operative, operative and prosthetic management, Outline prevention and treatment of complications.

MODULE X BONE & JOINT INFECTIONS; Outline the etiology, clinical features, management and complications of: septic arthritis, Osteomyelitis, Tuberculosis (including spinal T.B.)

MODULE XI BONE & JOINT TUMORS : Classify and outline the clinical features, management and complications of common (benign/malignant) bone and joint tumours.

MODULE XII CHRONIC ARTHRITIS Outline the pathology, clinical features, mechanism of deformities, management and complications of: Rheumatoid arthritis, Osteoarthritis of major joints and spine, Ankylosing spondylitis.

MODULE XIII LOWBACK ACHE, PAINFUL ARC SYNDROME, TENDONITIS & FASCITIS Outline the above including clinical features and management.

MODULE XIV SPINAL DEFORMITIES: Classify spinal deformities and outline the salient clinical features, management and complications.

MODULE XV POLIOMYELITIS: Describe the pathology, microbiology, prevention, management and complications of polio. Outline the treatment of residual paralysis including use of orthoses and muscle transfers.

MODULE XVI CONGENITAL DEFORMITIES: Outline the clinical features and management of CTEV, flat foot, vertical talus, limb deficiency (Radial club hand and femoral, tibial and fibular deficiencies) meningeomyelocoele and Arthrogryphosis multiplex congenita. MODULE XVII PERIPHERAL NERVE INJURIES: Outline the clinical features and management, including reconstructive surgery of: Radial, median and ulnar nerve lesions, Sciatic and lateral popliteal lesions, Brachial Plexus injuries including Erbs, Klumpke's & Crutch Palsy.

MODULE XVIII HAND INJURIES: Outline of clinical features, management and complications of: Skin and soft tissue injury, Tendon injury, Bone and joint injury.

MODULE XIX LEPROSY: Outline of clinical features, management and complications of neuritis, muscle paralysis, trophic ulceration and hand & feet deformities.

Section B; Radio Diagnosis

MODULE I Outline the basic views used in radiography, list the different types of radiodiagnostic methods using X-ray, CT Scan, Ultrasonogram. Outline the guidelines for interpretation, Demonstrate X-rays showing different anomalies of the "spine" in comparison with a normal X-ray, Outline the value of C.T. Scan of Spinal cord in diagnosis, recognize some of the normal and abnormal features, Outline the value of MRI of spinal cord in diagnosis; recognize some of the normal and abnormal features, Identify on X-rays; Fractures and dislocations of extremities and spine, different disorders of bone, Eg.: Osteomyelitis, osteoporosis, rickets, tumours,etc.

MODULE II Outline the basic views used in radiography, list the different types of radiodiagnostic methods using X-ray, CT Scan, Ultrasonogram. Outline the guidelines for interpretation, Outline the value of C.T. Scan of Brain and Spinal cord in diagnosis; recognize some of the normal and abnormal features, Outline the value of MRI of Brain and spinal cord in diagnosis, recognize some of the normal and abnormal features

EVALUATION Internal: Theory, Orals External: Theory

205 CLINICAL NEUROLOGY

MODULE I NEUROANATOMY: Review the basic anatomy of the brain and spinal cord including: Blood supply of the brain and spinal cord, anatomy of the visual pathway, Connections of the cerebellum, and extrapyramidal system, relationship of the spinal nerves to the spinal cord segments, Long tracts of the spinal cord, the brachial and lumbar plexuses, and cranial nerves.

MODULE II NEUROPHYSIOLOGY: Review in brief the Neurophysiological basis of : tone and disorders of tone and posture, bladder control, muscle contractions and movement and pain. Functions of the lobes of the brain

MODULE III Congenital and childhood disorders, Cerebral Palsy. Hydrocephalus, Spinal Bifida, Cerebrovasular accidents. General classification: thrombotic, embolic, heamorrhagic & inflammatory strokes. Gross localization and sequelae. Detailed rehabilitative programme. Trauma - board localization, first aid and management of sequelae of head injury and spinal cord injury. Diseases of the spinal cord. Craniovertebral junction anomalies Syringomyelia Cervical and lumbar disc disease. Tumours, Spinal arachnoiditis. Demyelinating diseases (central and peripheral) Guillain - Barre syndrome. Acute disseminated encephalomyelitis. Transverse myelitis. Multiple sclerosis.

MODULE IV Degenerative disorders. Parkinson's disease. Dementia. Infections: Pyogenic Menignitis sequelae. Tuberculosis infection of central nervous system.Poliomyelitis. Disease of the muscle -classification, signs, symptoms, progression and management. Peripheral nerve disorders. Peripheral nerve injuries: localisation and management. Entrapment neuropathies. Peripheral neuropathies.

Miscellaneous: Epilepsy: Definition, classification and management. Myasthenia Gravis: Definition, course and management. Intracranial tumours: Broad classification, signs and Symptoms. Motor neuron disease.

Evaluation: Internal: Theory and Orals: University: Theory

206 BIOMECHANICS, APPLIED ANATOMY AND APPLIED PHYSIOLOGY

MODULE I Structure that provide stability for the column. Muscles of the vertebral column and the specific functions of each. Ligaments that limit specific motions (i.e. flexion, extension, lateral flexion, rotation). Forces acting on the vertebral column during specific motions. The relationship between the intervertebral and facet joints during motions of the vertebral column. The role

of the intervertebral disc in stability and mobility. The effects of forces acting on the structural components during motion and at rest. The effects of disease process, injury, or other defects in the vertebrae. The effects of an increased lumbosacral angle on the pelvis and lumbar vertebral column.

THE SHOULDER COMPLEX Structural components of the shoulder complex including the articulating surfaces, capsular attachments and ligaments and movements Sternoclavicular , Acromioclavicular, Scapulothoracic, Glenohumeral joints . Describe the function of the shoulder complex including dynamic stability of the glenohumeral joint, musculohumeral rhythm. Scapulothoracic and glenohumeral contributions. Muscles of elevation : Deltoid, Supraspinatus, Infraspinatus, Teres minor, Subscapularis, Upper trapezius, Lower trapezius, Serratus anterior, Middle trapezius and Rhomboids). Muscles of depression(Latissimus dorsi, Pectoralis, Teres major, and Rhomboids. The articular surfaces of the joints of the complex, The function of the ligaments of each joint. Accessory joint structures and the function of each. Motions and ranges available at each joint and movement of articular surfaces within the joint. The normal mechanism of dynamic stability of the glenohumeral joint, utilizing principles of biomechanics. The normal mechanism of glenohumeral stability in the dependent arm. Scapulohumeral rhythm. Including contributions of each joints. The extent of dependent or independent function of each joint in scapula-humeral rhythm. How restriction in the range of elevation of the arm may occur. One muscular force couple at a given joint and its function. The effect of given muscular deficit may have on shoulder complex function.

The advantages and disadvantages of coracoacromial arch. The structural stability of the three joints, including the tendency toward Degenerative changes and derangement. Draw the action lines of muscles of the shoulder complex and the moment arm for each, and resolve each into components.

MODULE II THE ELBOW COMPLEX Structure of the Humeroulnar and Humeroradial joints including articulating surfaces, joint capsule, Ligaments & Muscles. Function of the Humeroulnar and Humeroradial joints including the Axis of motion, Range of motion, Muscle action. Structure of the superior and

inferior radioulnar joints. Function of the superior and inferior radioulnar joints. Mobility and stability of the Elbow complex and its relationship to Hand and Wrist. Effects of injury and the resistance to longitudinal compression forces, to distraction forces & to Medial lateral forces. All of the articulating surfaces associated with each of the following joints humero- ulnar, humeroradial superior and inferior radioulnar. The ligaments associated with all the joints of the elbow complex. Axes of motion for supination and pronation and flexion and extension, the degrees of freedom associated with each of the joints of the elbow complex, Factors limiting the range of motion in flexion and extension. Factors that create the carrying angle, Factors limiting motion in supination and pronation. The translatory and rotatory components of the brachioradialis and brachialis at all points in the range of motion. The moment arms of the flexors at any point in the range of motion. Muscle activity of the extensors in a closed kinematic chain with activity in an open kinematic chain. The role of pronator teres with the role of pronator quadratus. The role of biceps with that of brachialis. The resistances of elbow joint to longitudinal tensile forces with its resistance to compressive forces. The features of a classic tennis elbow with the features of cubital tunnel syndrome. The role of and structure of the annular ligament with the role and structure of the articular disc.

THE WRIST AND HAND COMPLEX: Wrist complex including Radiocarpal joint Midcarpal joint and the Ligaments of the wrist complex. Function of the radiocarpal and midcarpal joints including the movements and muscles involved.

Hand complex including: Structure of fingers (Carpometacarpal, Metacarpophalangeal and interphalangeal joints of fingers, ligaments, Range of motion). Finger musculature including Extrinsic & MCP, PIP and DIP joint function, and intrinsic finger muscles. Structure of the Carpometacarpal, MCP and IP joints of thumb. Thumb Musculature including the Extrinsic & Intrinsic thumb muscles. Prehension, Power, Cylindrical,Spherical & Hook grips. Precision handling, Pad to Pad, Tip to Tip and Pad to side prehension and functional position of wrist and hand. The articular surfaces of the joints of the wrist and hand complexes. The ligaments of the joints of the wrist and hand, including the

function of each. Accessory joint structures found in the wrist and hand complex, including the function of each. Types of movements and types of motion of the radiocarpal joints, the midcarpal joint, and the total wrist complex. The sequence of joint activity occurring from full wrist flexion to extension including the role of the scaphoid, the sequence of joint activity in radial and ulnar deviation from neural. The role of the wrist musculature in producing wrist motion. Motions and ranges available to joints of the hand complex. The gliding mechanisms of the extrinsic finger flexors. The structure of the extensor mechanism, including the muscles and ligaments that compose it. How M.C.P. extension occurs, including the muscles that produce and control it. How flexion and extension of the PIP joint occur. Including the muscular and ligamentous forces that produce and control these motions. How flexion and extension of DIP joints occur, including the muscular and ligamentous forces that produce and control these motions. The role of the wrist in optimizing length - tension in the extrinsic hand muscles. The activity of reposition, including the muscles that perform it. The functional position of the wrist and hand. The role of the interossei and lumbrical muscles at the MCP and IP joints. The muscles used in cylindrical grip to those active in spherical grip, hook grip, and lateral prehension. The muscles that are active in pad - to - pad, tip-to-tip, and pad to side prehension. COMPARE the activity of muscles of the thumb (in opposition of the thumb to the index finger) with the activity of those active in opposition to the little finger. The characteristics of power grip with those of precision handling. The most easily disrupted form of precision handling that may be used by someone without any active hand musculature; what are the prerequisitesfor each.

MODULE III THE HIP COMPLEX: General features of the hip joint including the articulating surfaces of the pelvis & the femur; Angulations; Angle of inclination, Angle of Torsion; Internal architecture of femur and pelvis ; joint capsule.Ligaments & Muscles (Flexors, Extensors - one joint extensors, two joint extensors, Adductors, Medial Rotators and Lateral Rotators). Function of hip - Rotation between pelvis, lumbar spine and hip; Pelvic motion - Anterior posterior

pelvic tilting, Lumbar pelvic rhythm, Lateral Pelvic tilting, Pelvic rotation. Summarize the pelvic motions in the static erect posture. Femoral motion. Hip Stability in Erect Bilateral stance, sagital plane equilibrium and Unilateral stance. Reduction of Forces with weight shifting and using a cane and deviations from normal in muscular weakness & Bony abnormalities. The articulating surfaces of the pelvis and femur. The structure and function of the trabecular systems of the pelvis and femur. The structure and function of the ligaments of the hip joint. The angle of inclination and the angle of torsion. The planes and axes of the following: pelvic motions and the accompanying motions at the lumbar spine and hip joints, pelvic rotation, and anterior, posterior and lateral tilting at the pelvis. The muscle activity that produces tilting and rotation of the pelvis. Motions of the femur on the pelvis including planes and axes of motion. The structure and function of all the muscles associated with the hip joints. The forces that act on the head of femur. The position of greatest stability at the hip. COMPARE: Forces acting on the femoral head in erect bilateral stance with the forces acting on the head in erect unilateral stance. Coxa valga with coxa vara on the basis of hip stability and mobility. The motions that occur at the hip, pelvis and lumbar spine during forward trunk bending with the motions that occur during anterior and posterior tilting of the pelvis in the erect standing position. Antroversion with retroversion on the basis of hip stability and mobility. The structure and function of the following muscles : Flexors and extensors, abductors and adductors, lateral and medial rotators.

THE KNEE COMPLEX: Structure of the Tibiofemoral joint: Articulating surfaces of femur and tibia, the menisci, Joint capsule and bursae, Ligaments and other supporting

structures. Anterior - posterior and Medial – Lateral stability; Muscle Structure; Knee flexors & extensors; Axes of knee complex; Mechanical axis, Anatomic axis and axis of motion. Function of the Tibiofemoral joint: Range of motion. Flexion and extension, Rotation, Abduction and Adduction, locking and unlocking; Function of Menisci and Muscle function. Structure of the patellofemoral joint. Function of the patellofemoral joint. Effects of injury and disease in the Tibio-

femoral and patellofemoral joints. The articulating surfaces of tibiofemoral and patellofemoral joints. The joint capsule. The anatomic and mechanical axes of knee. Motion at the femoral condyles during flexion and extension in a closed kinematic chain. Motion of the tibia in flexion & extension in an open kinematic chain. The Q angle when given an illustration of the lower extremity, Moment arm of quadriceps at the following degree of knee flexion: 90 deg., 130 deg., 30 deg., 10 deg., The action lines of vastus lateralis and the vastus medialis oblique. The origins and insertions of all the muscles at the knee, The bursae surrounding the knee. The attachments of the ligaments of the medial and lateral compartments. Structures that contribute to the medial stability of the knee including dynamic and static stabilizers. Structures that contribute to the lateral stability of the knee including dynamic and static stabilizers. Structures that contribute to the posterior stability of the knee including dynamic and static stabilizers. Structures that contribute to the anterior stability of the knee including dynamic and static stabilizers. Structures that contribute to the rotatory stability of knee. The normal forces that are acting on the knee. The knee and the elbow joint on the basis of similarities / dissimilarities in structure and function. The lateral with the medial meniscus on the basis of structure and function. The forces on the patellofemoral joint in full flexion with full extension. The action of quadriceps in an open kinematic chain with that in a closed kinematic chain. The effectiveness of the hamstrings as knee flexors in each of the following hip positions: - hyperextension, ten degrees of flexion and full flexion (open kinematic chain). The effectiveness of the rectus femoris as a knee extensor at sixty degrees, Knee flexion with its effectiveness at ten degrees of knee flexion. The function of the menisci. Medial collateral ligament ,the suprapatellar, gastronomies, infrapatellar and prepatellor bursae.

THE ANKLE - FOOT COMPLEX: Structure, ligaments, axis and function of the ankle joint, tibiofibular joints, subtalar joints, Talocalcaneonavicular joints, Transverse Tarsal joint, Plantar arches, Metatarsophalangeal joints, Interphalangeal joints. inversion, eversion, pronation - supination, dorsiflexion - plantar flexion, flexionextension and adduction and abduction. The compound articulators of the

ankle, subtalar, talo-calcaneonavicular, transverse tarsal and tarsometatarsal joints. The role of the tibiofibular joints and supporting ligaments. The degree of freedom and range of motion available at the joint of the ankle and the foot. The significant ligaments that support the ankle, subtalar and transverse tarsal joints. The triplanar nature of ankle joint motion. The articular movements that occur in the weight-bearing subtalar joint during inversion-eversion. The relationship between tibial rotation and subtalar / talocalcaneonavicula inversioneversion. The relationship between hind foot inversion -eversion and mobilitystability of the transverse tarsal joint. The function of the tarsometatarsal joints, Including when motion at these joints is called upon. Supination - pronation of the forefoot at the tarsometatarsal joints. Distribution of weight within the foot. The structure and function of the plantar arches including the primary supporting structure. When muscles supplement arch support, including those muscles that specifically contribute. The effects of toe extension on the plantar arches. The general function of the extrinsic muscles of ankle & foot. The general function of the intrinsic muscles of foot. The effects of gravity and indicate the location of the gravity line in the sagital plane in optimal posture. Analyse posture with respect to the optimal alignment of joints in the antero-posterior and lateral views. The position of hip, knee and ankle joints in optimal erect posture. The position of body's gravity line in optimal erect posture, using appropriate points of reference. The effects of gravitational moments on body segments in optimal erect posture. The gravitational moments acting around the vertebral column, pelvis, hip, knee and ankle in optimal erect posture. Muscles and ligamentous structures that counter balance gravitational moments in optimal erect posture. The postural deviations: pesplanus, halluxvalgus, pes cavus, idiopathic scoliosis, kyphosis and lordosis. The effects of the above postural deviations on body structures i.e. ligaments, joints and muscles.

GAIT: The stance, swing and double support phases of gait. The subdivisions of the stance and swing phases of gait. The time and distance parameters of gait. Joint motion at the hip, knee and ankle for one extremity during a gait cycle. The

location of line of gravity in relation to the hip, knee, and ankle during the stance phases of gait. The gravitational moments of force acting at the hip, knee and ankle during the stance phase. Muscle activity at the hip, knee and ankle throughout the gait cycle, including why and when a particular muscle is active and the type of contraction required. The role of each of the determinants of gait. The muscle activity that occurs in the upper extremity and trunk. Motion of upper extremities and trunk with motion of pelvis and lower extremities. The traditional gait terminology with the new terminology. Normal gait with a gait in which there is a weakness of the hip extensors and abductors. Normal gait with a gait in which there is unequal leg lengths.

MODULE IV The kinetics of normal and abnormal human motion of the musculo-skeletal system. Evaluation procedures for range of motion and functional muscle strength. Principles and techniques of body mechanics, transfers, and positioning and Neuromotor treatment techniques for physical dysfunction.

APPLIED PHYSIOLOGY

A. THE HEART AND CIRUCLATION

1. Structure and properties of heart muscles. 2. The action of the heart 3. Determinants of cardiac performance. 4. Normal E.C.G. 5. Maintenance of blood pressure. 6. Cardiac arrest and heart failure. 7. Outline of lymphatic circulation & pulmonary circulation 8. Cardiovascular compensation for postural and gravitational changes. 9. Hypertension and hypotension 10. Oedema. 11. Central and peripheral venous pressures.

B. NERVOUS SYSTEM AND MUSCLES

1. Outline of structure and function of the central nervous system. 2. Outline of the autonomic nervous system. 3. Types of nerve cells, electrical phenomena in nerve cells. 4. Properties of mixed nerves. 5. Reflex action, reciprocal innervation. 6. Degeneration and re-generation of nerves. 7. Control of posture and tone. Abnormalities in tone 8. Outline of voluntary movement. 9. Cutaneous, deep and superficial sensation. 10. Synaptic transmission. 11. Neuro Muscular transmission. 12. Properties of muscles, contractile responses, type's of contraction, electrical phenomena and tonic reflexes, tetanic contractions,

clonus . wave summation, fatigue C. RESPIRATION

1. Mechanics of respiration 2. Breath sounds. 3. Properties of gases 4. Exchange of gases 5. Lung volumes and capacities 6. Control of bronchial smooth muscle. 7. Lung compliance. 8. Nervous control of respiration. 9. Chemical control of respiration. 10. Voluntary control of respiration 11. Oxygen and carbon dioxide transport. 12. Effects of exercise on respiration. 13. Artificial respiration. 14. COPD and Asthma

EVALUATION Internal: Theory and orals University: Theory

207 GENERAL MEDICINE, GENERAL SURGERY AND PEDIATRICS

SECTION A: General Medicine

Module I INFECTIONS: Outline the mode of spread and appropriate prevention measures of the following Communicable diseases. Bacterial –Tetanus Viral – Herpes simplex, Zoster, varicella, Measles, German measles, Hepatits B, AIDS. Protozoal- Filaria HAEMATOLOGY: Define and briefly describe clinical aspects of iron deficiency, B-12 and folic acid deficiency anaemias. List types of bleeding diathesis. Describe the clinical features of Haemophilia RESPIRATORY TRACT: Bronchitis- Define, list etiological factors and describe symptoms. Pneumonia – list types of pneumonia(lobar, Broncho ,aspiration pneumonias) List etiological agents and briefly outline symptoms and complications of Pneumonia. Asthma – Define, describe briefly the etiological factors and clinical features of Acute exacerbation. Chronic obstructive airway diseases- Define Emphysema and chronic bronchitis. Briefly describe the pathology, symptoms of diseases and clinical course. Tuberculosis- Describe the etiology, pathology and clinical features of Pulmonary TB Bronchiectasis- define and describe briefly the pathology , and clinical symptoms of bronchiectasis, bronchopulmonary segments and basis of postural drainage. Emphysema-Define and briefly describe etiological factors. Chest wall deformities – Define funnel chest, Pigeon

chest, barrel chest, kyphoscoliosis of thoracic spine. Briefly describe functional disability of Occupational, lung diseases, list pneumoconiosis.

MODULE II CARDIO-VASCULAR SYSTEM: Cardiac failure- Define, list causes and symptoms, Rheumatic fever- Define and briefly describe etiology and gross pathology of Rheumatic heart disease. Infective endocarditis- Define and outline etiology, symptoms and complications Ischaemic heart disease- Outline pathology of IHD, define angina pectoris and Myocardial infarction. Describe clinical features and broadly outline medical surgical therapy. Hypertension- Define and outline the clinical features complications and goals of therapy. Outline pathogenesis and clinical features of: Pulmonary embolism. Deep vein thrombosis, pulmonary infarct. Congenital heart disease. List ASD,VSD, Fallot's Tetrology, and PDA,and briefly outline the pathologic anatomy.

MODULE III BONE, JOINT AND CONNECTIVE TISSUE DISORDERS: Brief introduction to concept of autoimmune disease. Define: systemic lupus erythmatous , Polymyositis, Dermatomyositis, polyartheritis Nodusa, Scleroderma. Rheumatoid Arthritis- Describe etiology, clinical features, and complications, Drug therapy, and non pharmacological therapy. Osteoarthritis- Describe etiology, clinical features and complications and review nonsteroidal anti-inflammatory drugs and steroids.

RENAL DISEASES: Define and briefly outline acute and chronic renal failure. Urinary tract infection. Pathogenesis. Outline common clinical conditions complicated by UTI

MODULE IV METABOLIC DISEASES: Diabetes –define and outline etiology. List types of Diabetes and complications and briefly outline use of insulin, diet and oral hypoglycaemic agents in mangement of diabetes. Obesity- Define outline management. GERIATRICS: List diseases commonly encountered in the elderly population and their role in causing disability: Hypertension, Ischaemic Heart disease, cerebrovascular accidents, Benign prostatic Hyperplasia, Cataracts and other causes of failing vision. PLASTIC SURGERY: Classify burns by depth & surface area, Outline causes, Medical management & precautions in the acute stage. List the potential deformities due to burns ,methods of prevention &

precautions. Mention cosmetic & functional treatment measures. Outline plastic surgery procedures & management in rehabilitation of burns including splinting methods for common deformities & Prevention of burns contractures.

Section B General Surgery

MODULE I Plastic Surgery; Classify burns by depth & surface area, Outline causes, Medical management & precautions in the acute stage, List the potential deformities due to burns, methods of prevention & Precautions. Mention cosmetic & functional treatment measures, Outline plastic surgery procedures & management in rehabilitation of burns including splinting methods for common deformities and prevention of burns contractures.

MODULE II Describe abdominal surgical incisions, Outline the post-operative complications in: Nephrectomy, Appendicectomy, Herniorraphy, Mastectomy, Thyroidectomy, Colostomy, Adrenalectomy, Cystectomy,Hysterectomy, ostatectomy,Cholecystectomy,Ileostomy

MODULE III Lump excision and Plastic surgery

Section C Pediatrics

MODULE I Describe growth and development of a child from birth to 12 years: including gross motor, fine motor, social and adaptive development, List the maternal and neonatal factors contributing to high risk pregnancy : inherited diseases; maternal infections-viral and bacterial; maternal diseases incidental to pregnancy, such as gestational diabetes, pregnancy induced hypertension; chronic maternal diseases such as heart diseases, renal failure, tuberculosis, diabetes, epilepsy; bleeding in the mother at any trimester.

MODULE II Briefly describe community programmes: International (WHO), national and local, for prevention of poliomyelitis, blindness, deafness, mental retardation and hypothyroidism. Outline the immunization schedule for children, Cerebral Palsy: Define and briefly outline etiology- Prenatal, perinatal and postnatal causes; briefly mention pathogenesis, types of cerebral palsy (Classification), findings on examination: General examination, examination of C.N.S. Musculoskeletal system, respiratory system, G.I. tract & nutritional status.

MODULE III Briefly outline associated defects: Mental retardation, microcephaly,

blindness, hearing and speech impairment, squint and convulsions. Briefly outline treatment. Outline prevention: Appropriate management of high risk pregnancies, prevention of neonatal and postnatal infections, metabolic problems.

MODULE IV Muscular dystrophy: Outline various forms, modes of inheritance and clinical manifestation; physical findings in relation to disabilities progression of various forms and prognosis. Describe treatment goals in forms which are and are not fatal, Spinabifida, meningomyelocele: Outline development; clinical features-lower limbs, bladder and bowel control; complications-U.T.I. & hydrocephalus; medical treatment and surgical treatment.

MODULE V Juvenile idiopathic Arthritis: classification, pathology in brief, physical findings, course & prognosis. Outline treatment, prevention and correction of deformity, Acute C.N.S infections: Classify (Bacterial and viral) and outline the acute illness, CNS sequelae leading to mental retardation, blindness, deafness, speech defect, neurological deficits, bladder and bowel problems seizure disorder and specific problems such as subdural effusion, hydrocephalus, pressure sores, feeding difficulties and Nutrition

MODULE VI Acute flaccid Paralysis: Causes, Clinical features and management, Nutritional Requirement of the newborn and child: List dietary calories, fat, protein, mineral and vitamin requirement in a normal child and in a child with malnutrition. Classify and outline etiology, findings and treatment of Rickets: Vitamin D deficiency and resistant rickets, Vitamin A deficiency and effects.

Evaluation: Internal: Theory and Orals: University: Theory and Orals

3rd YEAR

1. Clinical Psychology Health Psychology and Clinical Psychiatry 2. Community Medicine, Basic Nursing and First Aid 3. Occupational Therapy in Psychiatry 4. Occupational Therapy in Pediatrics and Developmental Disabilities 5. Occupational Therapy in Orthopedics and Neurology, Ergonomics

301 CLINICAL PSYCHOLOGY, HEALTH PSYCHOLOGY & PSYCHIATRY

SECTION A: CLINICAL PSYCHOLOGY AND HEALTH PSYCHOLOGY

MODULE I Definition of clinical Psychology. General and historical introduction of Abnormal Psychology, Psychology in relation to medicine, different schools. Methods of Clinical Psychology: Case history method, interview Techniques, Clinical observation, Situational tests, Questionnaires. Concepts of normality and abnormality: Causes of abnormality, Criteria for abnormality. Broad classification of Current model of abnormal behaviour - Medical model, Psychodynamic model, behaviouristic model & Humanistic model and Cognitive model

MODULE II Functional units of mind, Id ego and super ego - Their functions and interactions. Role of Defence mechanisms in normal and abnormal behaviour. Evaluation of attention and concentration, perception, memory, thinking, etc. and related disorders (possible demonstrations) Intelligence and mental subnormality. Intelligence test - demonstrations. Measurement of intelligence - children & adult Factors contributing to mental retardation. Prevention, Remedy and care. Personality Assessment: Questionnaire, inventories, projective techniques. Learning and maturation with specific reference to behavioural aspects. Behaviour techniques in therapy Counselling, Psychotherapy and Psychodrama. Brief psychotherapy - Psychodrama. Students are to be posted in psychiatry to attend the out -patient clinics

MODULE III

A. PSYCHOLOGICAL REACTIONS OF A PATIENT Psychological reactions of a patient during admission and treatment: anxiety, shock, denial, suspicion, questioning, loneliness, regression, shame, guilt, rejection, fear, withdrawal, depression, egocentricity, concern about small matters, narrowed interests, emotional over reactions, perceptual changes, confusion, disorientation, hallucinations, delusions, illusions, anger, hostility, loss of hope.

B. REACTION TO LOSS: Reaction to loss, death and bereavement: shock and disbelief, development of awareness, restitution, resolution. Stages of

acceptance as proposed by Kubler- Ross.

C. STRESS : Physiological and psychological changes, relation to health and sickness: Psychosomatics, professional stress, burn out.

D. COMMUNICATIONS : Types: verbal, non-verbal, elements in communication, barriers to good communication, developing effective communication, specific communication techniques.

E. COMPLIANCE : Nature, factors contributing to non-compliance, methods of improving compliance.

F. EMOTIONAL NEEDS : Emotional needs and psychological factors in relation to unconscious patients, handicapped patients, bed-ridden patients, chronic pain, spinal cord injury, paralysis, cerebral palsy, burns, amputations, disfigurement, head injury, degenerative disorders, Parkinsonism, Leprosy, incontinence and mental illness.

G. GERIATRIC PSYCHOLOGY : Specific psychological reactions and needs of geriatric patients.

H. PAEDIATRIC PSYCHOLOGY : Specific psychological reactions and needs of paediatric patients.

I. SUBSTANCE ABUSE : Psychological aspects of substance abuse: smoking, alcoholism, and drug addiction.

J. PERSONALITY STYLES : Different personality styles of patients.

SECTION B: Clinical Psychiatry

MODULE I Introduction, A brief history of psychiatry, with two special references to India and to ancient Indian medicine and its relationship with psychiatry. History taking in psychiatry including mental examination and assessment. Causes of mental disturbances: Hereditary factors. Embryonic development factors. Birth injury. Endocrine disease. Systemic diseases / accidents. Cerebral diseases. . Emotional factors. Stresses related to cultural factors. Preventive measures: In relation to consanguinous marriages, adequate antenatal care, obstetric care, mother and child services, psychological services (eg. child guidance, counselling services) Symptoms of mental illness: Disturbances of consciousness. Disturbances of reasoning and judgement. Disturbances of

memory. Disturbances of thought and perception. Disturbances of volition. Disturbances of motor behaviour. Disturbances of speech. Disturbances of affect. Methods of treatment: Individual and group psychotherapy, Physical Methods: ECT and related side effects, Psychosurgery, Psychopharmacology and related side effects, Social and rehabilitation. Family interaction, environmental manipulation. Criteria for classification and definition of psychiatric illness.

MODULE II Description of the various clinical syndromes including etiology, clinical features, course, treatment, and prognosis. Schizophrenic and other Psychotic disorders Mood disorders, Anxiety disorder including Phobias, Somatoform disorders, Dissociative disorders, Factitious disorders, Eating and sleep disorders, Psychosomatic illness, Personality disorders, Substance related disorders, Sexual dysfunction and gender identity disorders, Organic Brain Syndrome, Psychiatric disorders of childhood, Psychiatric disorders of adolescence, Psychiatric disorders of old age, Legal aspects related to psychiatric patients. Civil responsibility, Criminal responsibility. Testamentary capacity.

Evaluation: Internal : Theory and Orals: University : Theory and Orals

302 COMMUNITY MEDICINE, BASIC NURSING AND FIRST AID

SECTION A: COMMUNITY MEDICINE

MODULE I Natural history of diseases and the influence of social, economic and cultural aspects of health and diseases, various measures of prevention and methods of interventionespecially for diseases with disability, national care delivery system and the public health administration system and the central and state level, local trends and resource.

MODULE II National health programmes including current programmes (Eg.SSA Sarva Siksha Abhiyan), occupational health and methods of prevention of

occupational diseases and hazards, Employees State Insurance scheme and its various benefits. Social security measures for protection from occupational hazards, accidents, diseases, and the workman's compensation act. Objectives and strategies of the national Family Welfare Programme., Community based and institution based rehabilitation. Advantage and disadvantages of institution and community based rehabilitation.

MODULE III Communicable diseases with reference to reservoir, mode of transmission, route of entry and levels of prevention. Poliomyelitis, Meningitis, Encephalitis, Tuberculosis, Filariasis, Leprosy, Tetanus , Measles.

MODULE IV The epidemiology of rheumatic heart disease, cancer, Chronic degenerative disease and cerebrovascular accidents. Influence of nutritional factors such as protein Energy Malnutrition, Anaemia, Vitamin deficiency and minerals on disability. The principles of health education, methods of communication and role of health education in rehabilitation services. The role of community leaders and health professionals in health education. The role of international health agencies in rehabilitation of the disabled. Role of Occupational Therapy in meeting the health care needs of India.

SECTION B:BASIC NURSING & FIRST AID

MODULE I INTRODUCTION : Definition of first aid, importance of first aid, Golden rules of first aid, scope and concept of emergency. FIRST AID EMERGENCIES: Burns & scalds: Causes, Degrees of burns, first aid treatment, general treatment. Poisoning: Classification (irritants, acid alkali, narcotics) Signs and symptoms, first aid treatment, general treatment. Trauma due to foreign body insertion: Eye, ear, nose, throat, stomach and lung. Bites: First aid, signs, symptoms and treatment. Dog bites: Rabies, Snake bite: neurotoxin, bleeding diathesis.

MODULE II SKELETAL INJURIES : Definition, types of fractures of various parts of the body, causes, signs, and symptoms, rules of treatment, transport of patient with fracture, first aid measures in dislocation of joints, treatment of muscle injuries. RESPIRATORY EMERGENCIES: Asphyxia: Etiology, signs and symptoms, rules of treatment. Drowning: Definition and management. Artificial respiration:

types and techniques. WOUNDS AND HAEMORRHAGE: Review of Anatomy and Physiology of the circulatory system. Wounds: Classification, management. Haemorrhages: Classification, signs and symptoms, rules for treatment of haemorrhage. Treatment of haemorrhage from special areas (scalp, mouth, nose, ear, palm and various veins.) Internal haemorrhages: Visible and concealed. SHOCK AND UNCONSCIOUSNESS: Definition, types of shock, common causes of shock, signs and symptoms of shock (assessment of established shock), general and special treatment of established shock.

MODULE III TRANSPORTATION OF THE INJURED: Methods of transportation: Single helper, hand seat, stretcher, wheeled transport (ambulance), Precautions taken: Blanket lift, air and sea travel. COMMUNITY EMERGENCIES: Role of first aider (immediate and later) in fires, explosions, floods, earth quakes, famine. COMMUNITY RESOURCES: Police Assistance, voluntary agencies (local, national, international), Ambulance services (functions)

MODULE IV INTRODUCTION: What is nursing? Nursing principles. Inter personal relationship, Bandaging, basic turns, bandaging extremities; triangular bandages and their application. NURSING POSITION: Environment safety; bed making, prone, lateral, dorsal, dorsal recumbent, fowler's positions, comfort measures, aids to rest and sleep. LIFTING AND TRANSPORTING PATIENTS: Lifting patients up in the bed; transferring from bed to wheel chair' transferring from bed to stretcher. PROVIDING FOR PATIENTS ELIMINATION: Giving and taking bed pan, urinal, observation of stools, urine observation of sputum,. Understand use and care of catheters enema giving. METHODS OF GIVING NOURISHMENT: Feeding, tube feeding, drips, transfusions CARE OF RUBBER GOODS: Observation, reporting and recording temperature, respiration and pulses, simple aseptic technique, sterilisation and disinfection. SURGICAL DRESSING: Parental Administration of Medicine.

EVALUATION : Internal : Theory and practical University : Theory (along with community Medicine)

303 OCCUPATIONAL THERAPY IN PSYCHIATRY

MODULE I Describe the history of Psychiatric Occupational Therapy, and its development up to the present day, Define OT in relation to psychiatry, and the role of an Occupational Therapist in the psychiatric team, Discuss the treatment media used in Psychiatry including the role of activities, Analyze activities with reference to Psychiatry

MODULE II Frames of Reference in the treatment of psychiatric conditions: Cognitive Behavioural, Behavioural, Psychoanalytical- Include expressive media used in OT, Occupational Behaviour and Model of Human Occupation, Developmental groups and Developmental approach, Sensory Integrative approach, Cognitive Disability Frame of Reference, Acquisitional Frame of Reference

MODULE III List and describe the various attitudes applied by the therapist in different conditions, Describe in detail the assessment of a client including specific methods used in the following: Observation, Structured, semi structured and unstructured interviews, Specific assessments used in Occupational Therapy, Help students to identify their client's psychiatric problems in relation to the practical situations observed in OT

MODULE IV Discuss OT assessment, treatment aims, plan and methods of treatment for the following conditions:

- Schizophrenic and other Psychotic disorders
- Mood disorders
- Obsessive Compulsive Disorder, Anxiety & Phobic disorder
- Somatoform disorders
- Dissociative & Factitious disorders
- Eating and sleep disorders

- Psychosomatic illness
- Personality disorders
- Substance related disorders
- Seizure disorders
- Organic Brain Syndrome
- Autism Spectrum Disorder
- Specific Learning Disorder
- Intellectual Disability
- Social Communication Disorder
- Attention-Deficit/Hyperactivity Disorder
- Conduct Disorder
- Gender Dysphoria

MODULE V Outline the types of therapeutic groups and briefly discuss the value of group therapy in psychiatry MODULE VI Explain precautions to be observed by the therapist in a psychiatric unit, with reference to each condition; including handling of tools & materials and grouping of patients.

MODULE VII Outline the following psychiatric setups and the role of OT in each. Therapeutic community, Half Way Homes, Geriatric units, Sheltered workshops, Day care centers, Government mental hospitals and psychiatric institutions, Family therapy units, Psychiatric rehabilitation

EVALUATION Internal : Theory , Practical and Oral Tests and case study file. Univesity: Theory, Practical and Orals

304 OCCUPATIONAL THERAPY IN PEDIATRICS AND DEVELOPMENTAL DISABILITIES

MODULE I NORMAL DEVELOPMENT FROM BIRTH TO FIVE YEARS: Physical development- Gross and Fine motor, Reflex development , Perceptual,

Cognitive, Social, emotional, Language and Self-care and Play development, PSYCHOLOGICAL ASPECTS: Psychological reactions to disability in childhood and OT role, Psychological aspects of hospitalization and OT role.

MODULE II TREATMENT APPROACHES - (Children's activities): Play Therapy, Creative activities. Bobath NDT, Rood's neuromuscular facilitation, Ayre's Sensory Integration Approach, Biomechanical frame of reference, Behaviour modification, Peto's - conductive Education, Special Education principles of education for perceptual and cognitive training.

MODULE III OT APPLICATION : Cardio respiratory conditions of childhood, Cerebral palsy, Visuo perceptual and Visuo motor dysfunction, Muscular dystrophy, Erb's palsy, Poliomyelitis/ PPRP, Spina bifida and hydrocephalus, Nutritional disorders, Mental retardation and Down's syndrome, Congenital Syndromes and Chromosomal abnormalities, Specific learning disabilities, Pervasive Developmental Disorder, Attention Deficit Hyperactivity Disorder, Behaviour disorders, Visual / auditory loss., Speech and communication disorders., Acquired Immuno Deficiency Syndrome, Seizure disorders. Haemophillia Occupational Therapy Intervention for specific areas of dysfunction: Oromotor dysfunction, Pre writing and writing skills, Psychosocial dysfunction

MODULE IV Paedaitric Splinting and Adaptive Devices: Including, seating devices, Adaptations for feeding, Mobility and Ambulatory devices, Indication and use of splint for correction of CDH, Arthrogryphsis and other congenital orthopaedic disorders., Stills disease., Early intervention for congenital neurological disorders (High risk infants)

EVALUATION Internal : Theory, Practical and Oral Tests and case study file. Univesity: Theory, Practical and Orals

305 OCCUPATIONAL THERAPY IN NEUROLOGY, ORTHOPAEDICS AND ERGONOMICS

MODULE I Application of occupational therapy principles and techniques in EVALUATION and treatment of the neurological and orthopaedic conditions: Identification of possible deficits, dysfunction, and potential function improvement. Planning of long term and short term treatment goals. Application of following approaches to the neurological and orthopaedic problems: Biomechanical, Roods, NDT (for adults), Brunnstrom Approach, Proprioceptive Neuro muscular Facilitation, Motor Relearning Program and Rehabilitative approach, Affolter's approach and Task oriented approach.Identification of residual dysfunction, application of appropriate training in activities of daily living and adaptation to home environment.

MODULE II Injuries to upper limb and hand, including: Peripheral nerve injuries, including appropriate reconstructive surgery & muscle re-education. Shoulder hand syndrome. Leprosy deformities (including appropriate reconstructive surgery and muscle re-education), Volkmam's ischaemic constracture. Brachial plexus injury. Hand injuries

MODULE III Amputations- upper limb treatment and prosthetic training: Fractures, with emphasis on upper limb and complications. Muscular dystrophy. Motor neurone disease. Multiple sclerosis. Parkinson's disease. Cerebellar ataxia. Cerebrovascular Accidents, Intra cranial tumours. Brain injuries. Guillain Barre Syndrome. Spinal Cord Injuries. Poliomyelitis: Post polio residual paralysis and post polio syndromes Low Back Pain. Spondylitis, Spondyloses, spondylolystheses, Total Hip and Knee replacements, Diabetic Neuropathy, Myasthenia gravis

MODULE IV Spinal Orthoses: Principles, goals, classification, specification in application,indications and contraindications . Demonstration of methods of training in the use of spinal orthoses. Hand Splinting: Describe goals of splinting. Explain classification of hand splint and their application to treatment. Identify splint types and materials used. Demonstrate and apply the principles of hand splinting process for preparing splints.

ERGONOMICS

MODULE I Definitions of ergonomics and its history, ergonomics in systems

design, and steps to performing a task analysis. Muscle Use and Anthropometry: Muscular work including dynamic and static work, nervous control of movement, skilled work and ways to improve work efficiency. Workspace Design: Principles of workspace design, including seated work, standing work, work reaches and working heights, the office environment and visual work. Activityrelated soft tissue disorders (ASTDs): Definition of ASTDs, examples of ASTDs, how injuries are adjudicated, pathology of disorders, work-relatedness, psychosocial factors, risk factors (repetition, awkward posture, forceful exertions, hand-arm vibration, etc.) Analysis of Risk of ASTDs in the Workplace: Assessing a workplace for risk of ASTDs- various tools and techniques available qualitative to quantitative. Developing solutions to jobs with ASTD risks. Psychosocial and Organizational Aspects of Work: Discussion of the influence of work organization and psychosocial factors such as control over work, supervisory support and skill discretion in the workplace.

MODULE II Back Injuries: Mechanism of injury for back and shoulder overexertion injuries, compensation for such injuries, major risk factors (eg. manual materials handling, awkward postures, prolonged standing and sitting, whole body vibration, etc). Assessing the Risk of Back Injuries in the Workplace: Assessing a workplace for risk of overexertion injuries - tools and techniques for quantifying injury risk (NIOSH, Snook tables, Mitel tables) - advantages and disadvantages. Developing risk control solutions for overexertion injury risk. Inclass practice with techniques.

MODULE III Skilled Work, Control-Display Design and Mental Activity: Stages of information processing, skilled behaviour, memory, attention, and stereotypes. Analysis of information processing demands and minimizing cognitive overload and under load. Design of systems considering mental workload. Design of controls and displays, including coding and inspection. Shift work: Minimizing the effects of shift work on worker health and safety. Ergonomics Regulations and Developing Ergonomics Programs: Macro-ergonomics and developing successful ergonomics programs in industry. Note: Practical Work includes the following: Pattern and measurement taking, Four splints to be made by student Resting,

(Dynamic-flexor /extensor, short opponens, finger splint), Low temperature mould splints. High temperature splints (demonstration) POP casting. (Demonstration), Carry out check out of splint. Upper extremity splints – including (knowledge of elbow conformer, elbow driven hinge, aeroplane splint, shoulder slings), Lower extremity splints:-Knowledge about AFO, FRO, KAFO, foot drop splintstatic and dynamic. Other splints: - Splint for Microstomia and Facial Nerve Palsy splint,"Checkout of orthosis"

EVALUATION: Internal : Theory , Practical and Oral Tests, Hand splinting file and case study file. University: Theory, Practical and Orals

4th YEAR

1. Clinical Cardio respiratory and Work physiology 2. Rehabilitation Medicine 3. Occupational Therapy in Rehabilitation 4. Group Process in Occupational Therapy 5. Organization and Administration 6. Biostatistics, Research Methodology and Dissertation

401 CLINICAL CARDIORESPIRATORY & WORK PSYCHOLOGY

MODULE I ANATOMY AND PHYSIOLOGY of the lungs, bronchi and bronchopulmonary segments. The relationship of the bony thorax and lungs to each other and to the abdominal contents. Variations in the bony cage in the following conditions: Cervical ribs , Rickets – rickety rosary , Pigeon chest , Funnel chest , Scoliosis , Kyphosis.The movements of the thorax: Bucket handle, pump handle. List the muscles of respirations involved in inspirations and expirations (including accessory muscles that are involved). Describe in brief the anatomy of the heart and its blood supply and briefly outline the electrical activity of the myocardium and normal ECG. Describe the physiological control of

respiration and highlight the function of the medullary and pontine respiratory centres and peripheral chemoreceptors. Describe the mechanisms for maintenance of blood pressure. Describe in detail the cough reflex. List the mechanical factors involved in breathing. Describe briefly factors affecting lung compliance and airway resistance. List the factors affecting diffusion of oxygen and carbon dioxide in the lungs. Explain ventilation, perfusion and their inter relationship. Outline the energy expenditure of various common activity of daily living. Pulmonary function assessment: Briefly describe the pulmonary function tests and their use, briefly outline the basis and value of blood gas analysis. Briefly outline the principles of cardio vascular stress testing.

MODULE II Cardiac conditions requiring closed heart surgery and briefly describe the following: Acquired heart diseases (Mitral stenosis and Aortic stenosis), congenital heart diseases (patent ductus arteriosus, coarctation of aorta.), List the cardiac conditions requiring open heart surgery and briefly describe the following: Congenital (Atrial septal defect, ventricular septal defect, pulmonary stenosis, Tetralogy of Fallot. Transposition of great vessels and A.V. malformation), Acquired (Mitral stenosis, Mitral regurgitation, aortic stenosis, & regurgitation, coronary artery disease).

MODULE III Clinical features and management of the following: Fracture ribs, Flail chest, Stove-in chest, Pneumothorax, Haemothorax, Haemopneumothorx, Lung contusion & laceration, Injury to Heart, Great vessels & Bronchus. List the causes of empyema and its treatment. Describe briefly: Intercostal drainage, Rip resection, Decortication and window operation. Outline briefly the clinical features and management of the following suppurative lesions of the lung; Bronchiectasis, Lung abscess, Bronchopneumonia & Aspergillosis. Outline briefly the clinical features and management of carcinoma lung. Outline the extent, use and complications of the following surgical incisions: Anterolateral thoracotomy, Posterolateral thoracotomy and Median sternotomy. Describe the post-operative management of patients with: Segementectomy, Lobectomy, Bilobectomy, Pneumonectomy, Pleuropneumonectomy & Tracheostomy.

Outline briefly the principles of various ventilators and their use. Describe in detail the preoperative assessment and management of a patient posted for thoracotomy. Describe in detail the following post operative procedures; management of endotracheal/ endonasal tubes, tracheal suction, weaning the patient from the ventilator extubation technique & post extubation care. Describe the principles of Cardio-pulmonary resuscitation; Cardiac massage, artificial respiration, defibrillators and their use. Systemic Hypertension, Pulmonary Hypertension, Syncope and their management. Briefly outline the management of a patient with chronic obstructive airway disease. Ischemic Heart Disease and risk factors and its management. Heart failure, Cardiomyopathies

MODULE IV WORK PHYSIOLOGY: Physiology of exercise, Cardiac output and cardiac work during regulation of exercise. Cardiac rate during exercise. Oxygen consumption of the body at rest and, during exercise and after exercise, Effect of exercise on Caloric intake, Coronary circulation, Metabolism, Renal blood flow, Contractility of Myocardium, Blood pressure, Increase in CO2 tension and mixing venous blood. Increase in pulmonary ventilation, Equipment for Work Physiology: Ergo meter - Cycle type, Hand hook type and treadmill type.

EVALUATION Internal : Theory and viva University : Theory

402 REHABILITATION MEDICINE

MODULE I INTRODUCTION : Define the term rehabilitation. Explain its aims and principles, Methods of EVALUATION for physical dysfunction & management of disabilities with particular reference to: Spinal Cord Injury (paraplegia and tetraplegia), Poliomyelitis, Brain Injury, (including stroke and cerebral palsy), Arthritic conditions, Amputation, Muscular Dystrophy, Hansen's diseases, Peripheral nerve lesions, Fracture disease & chronic cardio – respiratory dysfunction. THERAPEUTIC TECHNIQUES for: Joint mobilization. Reducing spasm

and management of spasticity, assisting weak muscles. Increasing endurance. Muscle re-education following muscle transfer surgery. Strengthening muscles. Increasing co-ordination. Improving balance. Gait training.

MODULE II ELECTRO THERAPY MODALITIES: Brief introduction, indications and contra indications COMMUNICATION PROBLEMS: Identify communication problems, classify these and outline principles of treatment/ training. BEHAVIOURAL PROBLEMS: Identify behavioral problems in the disabled and outline the principles of management. PAIN: Describe the theories of pain and discuss therapeutic management of pain using various modalities. Describe the common myofacial pain syndromes and outline their management.

MODULE III ORTHOTIC DEVICES: Explain the principles involved in prescribing orthotic devices for different parts of the body. Outline the purpose of each type and list major indications & contraindications and demonstrate methods of training in their use. PROSTHETIC DEVICES: Describe types of artificial limbs and their functions. Demonstrate methods of training in their use. MOBILITY AIDS: Demonstrate knowledge of the indications for different types of mobility aids, and their functions, eg. wheel chairs, walkers, crutches. PRE-VOCATIONAL EVALUATION: Discuss methods and team involvement in pre-vocational EVALUATION and training. ARCHITECTURAL BARRIERS: Describe architectural barriers and possible modifications, with reference to Rheumatoid arthritis, Cerebrovascular accident, spinal cord injury, and other disabling conditions. DISABILITY EVALUATION: Outline the principles of disability evaluation and discuss its use.

MODULE IV LEGAL ASPECTS: Outline legal aspects of disability in terms of compensation for disability and benefits available to the disabled. SOCIAL IMPLICATIONS: Outline the social implications of disability for the individual and for the community. COMMUNITY BASED REHABILITATION MODULE: Describe a CBR module and compare this with an Institutional based rehabilitation system.

EVALUATION Internal : Theory University : Theory

403 OCCUPATIONAL THERAPY IN REHABILITATION

MODULE I OT role in medical and surgical conditions, and rehabilitation methods for people with residual disability. Role of O.T. in rehabilitation of Neurology, Orthopaedic and Psychiatric conditions, and habilitation of Paediatric conditions. ADL and functional assessment, training and planning methods of mobility. Removal of architectural barriers, and use of appropriate adaptive devices. Purposes and methodology in home situation evaluation. O.T. objectives and principles and appropriate treatment media for the Arthritis, Burns, Cardiac and Pulmonary disease and rehabilitation, Hansen's disease – early treatment, prevention of deformity, treatment of neuritis reaction, rehabilitation measures for chronic disabilities. Reconstructive surgery and muscle re-education, Sensory compensation Amputation, both upper and lower limb including rehabilitation measures.

MODULE II Cancer, Geriatric conditions, including social implications. Haemophillia (adults), Terminal illness and Hospice care- Adults and Children, OT management for pain, visually and Hearing Impaired – Adults, Cumulative trauma disorder, Plan appropriate hand splint design. Prepare and fit four different hand splints, and explain their use. Disability EVALUATION for physical conditions and mention the legal aspects relating to compensation and insurance.

MODULE III Community Based Rehabilitation: Definition and Models. Discuss steps involved in starting a Community Based Rehabilitation. Role and value of O.T. in Community based Rehabilitation (CBR) with emphasis on rehabilitation of disabled children. Occupational hazards in the community and possible safety precautions. Community reintegration, Vocational Rehabilitation including Work assessments, Prevocational EVALUATION, Vocational EVALUATION, Job analysis,

Work Hardening Observe and interpret psychological reactions in patients with physical disabilities and their relatives, and plan therapeutic approaches and methods for treating such reactions. Understand the principles and use techniques of group dynamics in both psychiatric and physical treatment areas as agents of change in behaviour. Client Centered Therapy; Evidence Based Practice, Introduction to ICF (International classification of function) , Home EVALUATION and adapting a house for different types of people with handicap , include appropriate working levels, accessibility, types of stoves, storage levels. Hygiene and safety measures at home. Starting a vegetable garden at home. Planning a days work for a housewife with physical limitations including use of energy saving techniques Special Assessments and intervention for Activities of Daily living, Hand Function- Adults and Paediatrics, Cognitive Perceptual Functions, Home EVALUATION and Modification, Home Making skills and Child care, Prevocational and Vocational Testing and Training, Leisure, Play, Wheel Chair transfers

MODULE IV BIOENGINEERING: Definition And Principles Of Bio–Engineering., Designing And Construction Of: Upper and lower extremity Orthoses, Spinal Orthoses, Hand orthoses, Upper Extremity And Lower Extremity Prostheses : Prescription, Fitting , Checking , Mobile arm supports and slings, Basic Principles in application of Biofeedback and FES and as adjunct to therapy, Wheel chair prescriptions including adaptations.Electro mechanical mobility aids, motorized wheel chairs. Adaptive devices and assistive technology including reachers, mouse and keyboard adaptations, and mobility impairment. Environmental control units, writing, feeding and toilet aids. Prescription and designing foot wear modifications.

MODULE V

- Geriatric Rehabilitation
- Cancer
- Low vision
- Dysphagia Management

- Long term care
- Hospice care
- Occupational Therapy for person with multiple disabilities
- Role of Occupational Therapy among Jail inhabitants
- Ventilator care including sensory stimulation
- Rehabilitation Engineering and Hand Splinting
- Work Hardening

OCCUPATIONAL THERAPY INTERVENTIONS AT GLOBAL, COMMUNITY, SOCIETAL & SYSTEMS LEVELS

MODULE I Splints, Assistive technology, Home environmental modification and adaptation, Ergonomics, Analysis, Wheelchair selection, Cognitive–Perceptual Impairment, Accessibility, Populations: Population of people with physical disability, Population of people with mental disability, Population of people with cognitive disability, Population of people with developmental disability, Population of people exposed to risk factors

MODULE II Principles of assessment, Role of the OTA in EVALUATION and assessment, Assessment of common clinical and occupational, performance problems in rehabilitation, Assessment in neurological and neuromotor disorders, Assessment of swallowing and feeding, Cognitive assessment, Orthopedic assessment, Return to work EVALUATION, Pain assessment – McGill Pain Questionnaire, unidimensional and multidimensional pain scales, Assessment of low vision, Driving assessment, Evaluation documentation, Establishing intervention goals from assessment results, Assessment of Balance – Berg, Trunk Impairment Scale, Structured clinical observations, Modified Ashworth Scales, Stroke Impact Scale, Test of Visual Perceptual (TVPS), UFOV, BiVABA Rancho Los Amigos Scales, MMSE/MOCA, Occupational Profile, Sensory assessment - monofilaments, 2 point discrimination, sharp/dull, stereognosis, kinesthesia , UE/Fine motor coordination – 9 Hole Peg Test, Minnesota Rate of Manipulation, Purdue Pegboard, Functional Dexterity Test, Jebson, Motor-Activity Log, Box and Blocks, Fugal Meyer , TUG

MODULE III Service delivery models in paediatrics, Pediatric OT process, Documentation of intervention Prematurity and Infant medical Issues, Synactive Theory, Interventions in infancy, Feeding, swallowing and oral motor interventions, IDEA legislation, Individual Education Plans and Family Service Plans, Cognitive development and interventions, Sensory Integration Theory, Sensory integration interventions, Neuromotor interventions, Play interventions, Visual perception interventions, Low vision interventions, Assistive technology, Pediatric psychosocial and pharmacology issues, Classroom and environmental accommodations, Intervention in Learning Disabilities, Pervasive Developmental Disorder, Autism Spectrum disorders, Behavior management, Pediatric orthotics, Amputations and UE congenital anomalies

UTILISING TECHNOLOGY IN OCCUPATIONAL THERAPY PRACTICE Technological Applications: Seating System, Self-care aids, Educational and Vocational aids, Interface switches and mounting aids, Recreational aids, Visual aids, Communication aids, Aids for the tactilely impaired, Pointing and Writing aids, Manipulatory and Mobility aids, Upper, lower extremity and spinal orthoses and upper and lower prostheses, (emphasizing application of CAD/CAM technology), Environmental Controlled units, Service Delivery models, Societal & Professional issues regarding technology service delivery, Mandate to Occupational Therapy Profession and Professionals, Concept of Telemedicine / Rehabilitation and Information Technology, Current practice and recent advances (including material technology), Future of technology and O.T.

RECENT ADVANCES AND EVIDENCE BASED PRACTICES IN REHABILITATION

MODULE I Recent advances in Occupational therapy ; Virtual reality, Assistive and adaptive technology, Robotics, Industrial Rehabilitation, Computer/ I.T Application and Rehabilitation, Adjunctive therapy to O.T (Physical agent modalities, Yoga Therapy, Kinesiotapping, Aquatic Therapy, Myofacial pain Syndrome management and Pain management etc.)

MODULE II Role of a professional Occupational Therapist in the field of disability: How to behave towards disabled persons, How to assess the socio-economic

status of a family, Awareness classes, Ways to integrate children with disabilities into the mainstream society, Government schemes for disabled people.

MODULE III Causes, prevention, cure, need for intervention, therapy, treatment available, tests, management of all physical disability viz Cerebral palsy, Autism, Deaf & hard of Hearing, Speech disorder like Stuttering and others, Learning Disability, Blind, Multiple disability.

MODULE IV Disability laws, Health Laws, Work place laws

MODULE V Occupational Therapy Ethics

EVALUATION: Internals: Theory, Practical and Oral University: Theory, Practical and Oral

404 GROUP PROCESS IN OCCUPATIONAL THERAPY

MODULE I Groups in Occupational Therapy, Groups in society, Groups in therapy, Different approaches to group work

MODULE II Group Dynamics: Group process, Roles, Interaction - verbal & non verbal, Intra-group relationships, Stages of a group, Norms, Group cohesion

MODULE III Managing groups: Planning aims & goals, choosing an activity, The environment, Motivating group members

MODULE IV Leadership roles & styles, developing group leader skills, managing problems within a group. Evaluating groups. Demonstrate ability to plan and organize the following groups: Awareness groups, Task oriented groups, Stress management groups, Self - help groups, Anger management groups, Assertiveness training group, Drama therapy groups, Social skills training groups.

EVALUATION Internal : Theory University : Theory

405 ORGANIZATION & ADMINISTRATION IN OCCUPATIONAL THERAPY

MODULE I Define Organization. Explain aspects of administration in general and in relation to OT work situations. Outline principles of administration. Describe methods of administration in an OT department. Records - their purpose eg. attendance, statistics, inventory, stock. Maintenance of records. eg. methods of community and institutional based departments (CBR & IBR),Referrals – purpose and types of referral. Documentation Store keeping– materials, inventory records, Purchase ordering, Petty cash accounting. General maintenance of equipment, furniture, buildings, costing of splints/ aids/ equipment/ articles/ make in OT. Types of correspondence, Methods of filing. Describe methods for care of equipment and materials. Discuss budgeting–including items for an annual budget.

MODULE II Discuss considerations for construction of a new department, and modification of an old department including: a) Space required b) Allotment of space, eg. Suitability for access, plumbing requirements, & circulation of air. Plan assessment forms eg. pre-vocational. ADL, hand function & higher functions for initial evaluation and progress recording. Outline method of writing OT department annual reports. Calculate monthly and annual statistics. Make plans for future requirements eg. consider staff patient ratio, equipment and staff requirements. Plan to organize picnic or sports programme for patients.

MODULE III Outline legal aspects related to rehabilitation: Medico Legal cases, Workmen's Compensation Act & Insurance facilities. Other financial benefits available for the disabled.

MODULE IV Outline safety precautions in OT Discuss considerations relating to using small hand tools and General safety in the OT department, eg. moving patients, training attenders and "helpers", while using safety machinery, while doing activities outside. Safety precautions in relation to patients with, Leprosy,

Hemiplegia, Paraplegia, Back injuries, Epilepsy, M.R, Suicidal patients, Patients with incoordination, Infection control . EVALUATION Internal : Theory University : Theory

406 BIOSTATICS, RESEARCH METHODOLOGY AND DISSERTATION

MODULE I Stages of research process, Developing ideas and defining a research question, Literature review, Errors in measurement and their control, Reliability and validity, Epidemiological measures of disease frequency

MODULE II Research design: Quantitative (epidemiological), Experiment (clinical, field, community), Observational, Cohort, Case control, Cross sectional study, Ecological study, Qualitative Research Method (Sociological), Developing instruments (Delphi technique), Focus groups, Indepth interview, Key informant interview, Ethical issues, Critical Appraisal of a research report

MODULE III Data Collection, basic statistics and graphs, probability and Probability distribution (Binominal and normal), Sampling and sampling techniques.

MODULE IV Biostatistics: Introduction, Definition, Types, Data, Presentation, Collection methods, Measures of central value: Arithmetic mean, median, mode, relationship between them, Partitioned values-Quatertiles, Deciles, Percentiles, Graphical determination, Measures of Dispersion: Range., Mean Deviation, Standard Deviation, Normal Distribution Curve, Co-relation analysis, Bivariate distribution: Scatter Diagram, Co-efficient of correlation Calculation & interpretation of co-relational co-efficient, T-test, Z-test, P-value , Regression analysis: Lines of regression, Calculation of Regression co-efficient, Sampling: Methods of Sampling, Sampling distribution, Standard error, Type I & II error, Probability (In Brief), Hypothesis Testing, Null Hypothesis, Alternative hypothesis, Acceptance & rejection of null Hypothesis, Level of significance,

Parametric & Non – Parametric tests.

DISSERTATION/PROJECT

Course Objectives: The objective of this course is that at the end of the special study the student will have 1. Developed skills in critical thinking research methods (including review of literature formulation of a problem for study, selection of a research strategy to investigate the problem, implementation of that strategy and the formal presentation of information related to the theory and or practice of physiotherapy and occupational therapy. 2. Gained an interest in research, writing, and publishing material which contributes to the ongoing development of professional therapy both as a science and an art.

In addition the student will be able to fulfil the following objectives of the course

1. Identify problems of relevance to the theory and or practice of therapy in rehabilitation. 2. Undertake enquiry in to a specific problem area. 3. Formally document the stages of such a study, including description of the problem the process of investigation, the findings and their implications for therapy education practice and research.

EVALUATION: Internal : 50 marks will be awarded by internal assessment, which will include the guide. University: 50 marks will be awarded by external examiner during viva.

- **No: of hours per subject**

Sl.No Clinical/	Subject	Theory Hours	Practical Hrs
1st YEAR			
101	Anatomy	250	10
102	Physiology	150	-
103	Sociology	50	-
104	Psychology	55	-
105	Introduction to Occupational therapy, Disability and Integration and Therapeutic activities	60	100
2nd YEAR			
201	Introduction to Pathology and Microbiology	50	-
202	Biochemistry and Pharmacology	35	-
203	Fundamentals of Occupational Therapy	60	40
204	Clinical Orthopedic, Rheumatology and Radio Diagnosis	60	-
205	Clinical Neurology	55	100
206	Biomechanics, Applied Anatomy and Applied Physiology	130	-

207	**General Medicine, General Surgery and Pediatrics**	**140**	**-**
208	**OT Clinical Placements (Peads, Psychiatry, Ortho and Neuro)**	**-**	**600**
3rd YEAR			
301	**Clinical Psychology, Health Psychology and clinical Psychiatry**	**100**	**-**
302	**Community Medicine, Basic Nursing and First Aid**	**75**	**-**
303	**Occupational therapy in Psychiatry**	**75**	**250**
304	**Occupational Therapy in Pediatrics and Developmental Disabilities**	**100**	**250**
305	**Occupational therapy in Orthopedics, Neurology and Ergonomics**	**110**	**250**
4th YEAR			

401	**Clinical Cardiorespiratory , Work Physiology**	**90**	**-**
402	**Rehabilitation Medicine**	**50**	**-**
403	**O.T in Rehabilitation**	**110**	**540**
404	**Group Process in O.T**	**40**	**40**
405	**Organization and Administration in Occupational therapy**	**110**	**30 (Industrial Visit)**
406	**Biostatistics, Research Methodology and Dissertation**	**80**	**170**

- **Practical training-Refer course content**

- **Records-records for.....**

Dissertation: Project work in 4 th year..mandatory...assessed as both IA and in the UTY practical exam by IE and EE(.....marks)

- **Speciality training if any**

No special training

- **Project work to be done if any**

SEE dissertation..

- **Any other requirements [CME, Paper Publishing etc.]**

Not mandatory

- **Prescribed/recommended/reference textbooks for each subject**

ANATOMY

1. SNELL [Richard S], Clinical Anatomy for Medical students: Ed. 5. Little Brown and Company Boston. 1995,

2. B.D CHAURASIA'S HUMAN ANATOMY -REGIONAL AND APPLIED; VOLUME 1, VOLUME II AND VOLUME III.

3. DATTA [A.K], Essentials of human Anatomy: Thorax and Abdomen Ed 2. Vol. I Current. Book International, Calcutta 1994 DATTA..K.J, Essentials of human Anatomy: Head and Neck Ed 2. Vol. II, Current Book International, Culcutta 1995

4. SINGH [Inderbir], Text book of anatomy with color atlas: Introduction, Osteology, upper extremity, lower extremity. Vol I. P Brothers, New Delhi 1996

5. SINGH [Inderbir], Text book of anatomy with colour atlas: Thorax and abdomen. Vol II. JP Brothers, New Delhi 1996 6. SINGH [Inderbir], Text book of anatomy with color atlas: Head and Neck Central Nervous system. Vol III. JP Brothers, New Delhi 1996 7. SINGH [Inderbir],Human Osteology. JP Brothers, New Delhi 1990

PHYSIOLOGY

1. Concise medical physiology - Chaudhuri Sujit K.

2. Human Physiology — Chatterjee C. C.

3. Text book of practical Physiology - Ranade. 4. Text of Physiology-A.K.Jain.

PSYCHOLOGY

1. Morgan et al (2003). Introduction to Psychology. New Delhi: Tata McGraw hill.

2. Mangal S.K (2002) Advanced Educational Psychology. New Delhi: prentice hall.

SOCIOLOGY

1. Sachdeva and Vidyabushan, Introduction to the study of sociology

2. INDRANI T K, Text Books of Sociology for Graduates Nurses and Physiotherapy Students, JP Brothers, New Delhi

INTRODUCTION TO OCCUPATIONAL THERAPY:

1. Muscle Testing & Function by F.P. Kendall

2. Measurement of Joint motion : a Guide to Goniomentry by C.C. Norkin & D.J.White

3. Pedretti's Practice skills for physical dysfunction edited by Heidi McHugh Pendleton, Winifred Schultz Krohn

4. Occupational Therapy for Physical Dysfunction by Mary Vining Radomski, Catherine A Trombly

5. Occupational Therapy and Physical Dysfunction , Principles ,Skills and Practice by Ann Turner, Margaret Foster, Sybil E Johnson

6. Willard & Spackman's Occupational Therapy

7. Principle of Exercise Therapy by Dena Gardiner

8. Therapeutic Exercises by J. Basmajian & Wolf

MICROBIOLGY

1. Short text book of Medical Microbiology by Sathish Gupta

2. Text book of Microbiology by Anantha Narayanan

3. Microbiology by Baveja

PATHOLOGY

1. Text book of pathology by Harshmohan

2. Text book of pathology by Robbins

BIOCHEMISTRY

1. Text of Biochemistry for Medical students by Vasudevan & Sreekumari.

2. Text book of Dietetics by Sreelexmi. B

3. Handbook of food& Nutrition, Dr. Swaminathan M. The Bangalore Printing & Publishing Co, Lts.

4. Food & Nutrition facts & figures, Gupta L C, et al. New Delhi, Jaypee.

5. Text book of Foods, Nutrition & Dietetics, Raheena Beegam. M. A. New Delhi, Sterling Publishers Pvt. Ltd.

FUNDAMENTAL OF OCCUPATIONAL THERAPY

1. Pedretti's Practice skills for physical dysfunction edited by Heidi McHugh Pendleton, Winifred Schultz Krohn

2. Occupational Therapy for Physical Dysfunction by Mary Vining Radomski, Catherine A Trombly

3. Occupational Therapy and Physical Dysfunction, Principles, Skills and Practice by Ann

Turner, Margaret Foster, Sybil E Johnson

4. Introduction to Occupational Therapy by Hussey Subonis, Chafea O Brien

5. Occupational Therapy and Mental Health edited by Jennifer Creek, Lesley Lougher

6. Mental Health Concepts and Techniques for the Occupational Therapy Assistant by Mary Beth Early

7. Frames of Reference in Psychosocial Occupational Therapy by Mary Ann Bruce, Barbara Borg Willard & Spackman's Occupational Therapy

8. Occupational Therapy for children by Jane Case Smith

9. Frames of Reference for Pediatric Occupational Therapy by Paula Kramer, Jim Hinojosa

PHARMACOLOGY

1. Pharmacology in Rehabilitation 4th Edition - Charles D. Ciccone, PT, PhD

2. Pharmacology for the physical therapist-Peter C. Panus, PhD, PT Bertra, latzimg MD,

3. Essential of Medical Pharmacology by Tripathi

4. Text book of Medical Pharmacology by Padmaja Udayakumar

5. Pharmacology by N. Murugesh 6. Pharmacology & Pharmacotherapeutics by Sadoskar.

BIOMECHANICS AND APPLIED PHYSIOLOGY

1. Joint Structure and Function – A comprehensive Analysis, JP Bros Medical Publishers, New Delhi.

CLINICAL ORTHOPEDICS

1. Text book of Orthopedics.—Maheswari.

2. Apley's Orthopedics.

3. Textbook of Orthopedics and Traumatology— M.N.Natarajan

CLINICAL NEUROLOGY

1. Victor Adams-neurology

2. Haerer: Neurological examinations

3. Neurological examination made easy

COMMUNITY MEDICINE

1. Textbook of Preventive & Social Medicine, Dr. J E Park

BASIC NURSING AND FIRST AID 1. First aid in emergency – St. John's Ambulance Association.

2. First aid & management of general injuries & common ailments-Gupta & Gupta

GENERAL MEDICINE & GENERAL SURGERY

1. Davidson's Principles and Practice of Medicine

2. Harrison's Internal Medicine

GENERAL SURGERY

1. General Surgical Operations – by Kirk / Williamson 2. Bailey and Love's – Short Practice of Surgery

OCCUPATIONAL THERAPY IN PEDIATRICS AND DEVELOPMENTAL DISABILITIES

1. Occupational Therapy for children by Jane Case Smith 2. Frames of Reference for Pediatric Occupational Therapy by Paula Kramer , Jim Hinojosa 3. Willard & Spackman's Occupational Therapy

OCCUPATIONAL THERAPY IN PSYCHIATRY

1. Occupational Therapy and Mental Health edited by Jennifer Creek, Lesley Lougher 2. Frames of Reference in Psychosocial Occupational Therapy by Mary Ann Bruce, Barbara Borg 3. Occupational Therapy in short Term Psychiatry by Moya Willson 4. Occupational therapy in Long Term Psychiatry by Moya Willson 5. Willard & Spackman's Occupational Therapy 6. Mental Health Concepts and Techniques for the Occupational Therapy Assistant by Mary Beth Early

REHABILITATION MEDICINE

1. Text book of Rehabilitation by Sunder

2. Text book of Rehabilitation by Delisa

3. Text book of Rehabilitation by Howard Rusk

OT IN ORTHOPEDICS AND NEUROLOGY

1. Pedretti's Practice skills for physical dysfunction edited by Heidi McHugh Pendleton, Winifred Schultz Krohn

2. Occupational Therapy for Physical Dysfunction by Mary Vining Radomski, Catherine A Trombly

3. Occupational Therapy and Physical Dysfunction , Principles ,Skills and Practice by Ann Turner, Margaret Foster, Sybil E Johnson

4. Willard & Spackman's Occupational Therapy

RESEARCH METHODOLOGY AND BIOSTATISTICS

1. Elements of Health Statistics by Rao.N.S.N

2. An introduction of Biostatistics by Sunder Rao. P.S.S.

3. Methods in Bio-Statistics 6th Edn. 1997 by B.K. Mahajan

4. Biostatistics : A manual of Statistics Methods by K. Visweswara Rao

OCCUPATIONAL THERAPY IN GROUP PROCESS

1. Group work in Occupational therapy by Lynda Fainlay

2. Group process and structure in Psycho Social Occupational therapy by Diane Gibson 3. Group Dynamics in Occupational Therapy by Marilyn D Cole

Journals

- **Journals**

  1. Indian Journal of Occupational Therapy 2. Canadian journal of Occupational Therapy 3. Australian Journal of Occupational Therapy 4. American Journal of Occupational Therapy 5. British Journal of Occupational Therapy

- **Logbook-For all practical and clinical subjects-It records the attendance and is assessed for attendance %**

- **EXAMINATIONS**

Eligibility criteria for each exam(year wise)

1.minimum 50% IA marks individually for all subjects(theory/practical /viva).

2.80% attendance for all subjects (theory and practical separate minimum)

- **Schedule of Regular/Supplementary exams-as per KUHS regulations**

- **Scheme of examination showing maximum marks and minimum marks**

1st YEAR

Subject		IA max	practical	oral	Theory max	Theory Min pass	Total marks	Min pass
Code	Name							
101	Anatomy	50 (30T + 20 V))	-	50	100	50	200	100
102	Physiology	50 (30T + 20 V)	-	50	100	50	200	100
103	Sociology	50 T	-	-	100	50	150	75
104	Psychology	50T	-	-	100	50	150	75
105	Introduction to Occupational therapy, Disability and Integration and Therapeutic activities	50 (30T + 20P and V)	100	50	100	50	300	150

2nd YEAR

Subject		IA max	practical	oral	Theory max	Theory Min pass	Total marks	Min pass
Code	**Name**							
201	Introduction to Pathology and Microbiology	50(T)	-	-	100	50	150	75
202	Biochemistry and Pharmacology	50(T)	-	-	100	50	150	75
203	Fundamentals of Occupational Therapy	50 (30T + 20P and V)	100	50	100	50	300	150
204	~~Clinical~~ Orthopedic, Rheumatology and Radio Diagnosis	50 (30T+ 20 V)	-	50	100	50	200	75
205	~~Clinical~~ Neurology	50 (30T+ 20 V)	-	50	100	50	200	75
206	Biomechanics, Applied Anatomy and Applied Physiology	50(30 T + 20 viva)	-	50	100	50	200	75

207	~~General~~ Internal Medicine, ~~General~~ Surgery and Pediatrics	50(T)			100	50	150	75

3rd YEAR

Subject		**IA max**	**practical**	**oral**	**Theory max**	**Theory Min pass**	**Total marks**	**Min pass**
Code	**Name**							
301	Clinical Psychology, Health Psychology and ~~clinical~~ Psychiatry	50 (T)	-	-	100	50	150	75
302	Community Medicine, Basic Nursing and First Aid	50 (T)	-	-	100	50	150	75
303	Occupational therapy in Psychiatry	50 (30T + 20 P and Viva)	100	50	100	50	300	150
304	Occupational Therapy in Pediatrics and Developmental Disabilities	50 (30T + 20P and V)	100	50	100	50	300	150

305	Occupational therapy in Orthopedics, Neurology and Ergonomics	50 (30 T and 20 P and Viva)	100	50	100	50	300	150

4th YEAR

Subject		**IA max**	**practical**	**oral**	**Theory max**	**Theory Min pass**	**Total marks**	**Min pass**
Code	**Name**							
401	~~Clinical~~ Cardiorespiratory, Work Physiology	50 (30T and 20 V)	-	50	100	50	200	100
402	Rehabilitation Medicine	50 (T)	-	-	100	50	150	75
403	O.T in Rehabilitation	50 (30 T and 20 P and V)	100	50	100	50	300	150
404	Group Process in O.T	50 (T)	-	-	100	50	150	75

405	Organization and Administration in Occupational therapy	50 (T)	-	-	100	50	150	75
406	Biostatistics, Research Methodology and Dissertation	50 (viva only)	-	50	-	-	100	50

- **Papers in each year**

Paper	**Subject**
1st YEAR	
101	**Anatomy**
102	**Physiology**
103	**Sociology**
104	**Psychology**
105	**Introduction to Occupational therapy, Disability and Integration and Therapeutic activities**
2nd YEAR	
201	**Introduction to Pathology and Microbiology**
202	**Biochemistry and Pharmacology**
203	**Fundamentals of Occupational Therapy**
204	**Clinical Orthopedic, Rheumatology and Radio Diagnosis**
205	**Clinical Neurology**
206	**Biomechanics, Applied Anatomy and Applied Physiology**
207	**General Medicine, General Surgery and Pediatrics**
208	**OT Clinical Placements (Peads, Psychiatry, Ortho and Neuro)**
3rd YEAR	

301	Clinical Psychology, Health Psychology and clinical Psychiatry
302	Community Medicine, Basic Nursing and First Aid
303	Occupational therapy in Psychiatry
304	Occupational Therapy in Pediatrics and Developmental Disabilities
305	Occupational therapy in Orthopedics, Neurology and Ergonomics
4thYEAR	
401	Clinical Cardiorespiratory, Work Physiology
402	Rehabilitation Medicine
403	O.T in Rehabilitation
404	Group Process in O.T
405	Organization and Administration in Occupational therapy
406	Biostatistics, Research Methodology and Dissertation

- **Details of theory and practical exams-(components)**

- **Model question paper for each subject with question paper pattern**

- **Internal assessment component**

  - There shall be a minimum of 3 periodic assessments, for theory and practical including viva separately, of which the final one will be University model examination and is mandatory to appear.
  - Average of the marks of the best two periodic assessment shall be taken as internal assessment mark of the candidate.
  - The class average of internal assessments mark of theory and practical should not exceed 75% of Maximum marks for regular

examinations and 80% for supplementary examination.

The class average of internal assessment for an exam shall be calculated based on the total number of candidates in a particular batch appearing for that internal assessment examination.

- The candidate must secure the minimum 50%marks for internal assessment in theory and practical separately in each subject in order to be eligible to appear in the university examination of the subject.
- In cases where the candidate is permitted to improve the internal assessment marks, the new marks will be taken as final.
- Each student should maintain a logbook and record the procedures they do and the work patterns they are undergoing. It shall be based on periodical assessment , evaluation of student assignment, preparation for seminar, clinical case presentation, assessment of candidate's performance in the sessional examinations, routine clinical works, logbook and record keeping etc.

- **Details of practical/clinical practicum exams.**

  Present in clause 2.10.

- **Number of examiners (Internal & External) and their qualifications**

Theory valuation: PG in concerned speciality with 3 year teaching experience/UG in the concerned speciality with 5 years teaching experience

IE:PG in concerned speciality with 3 year teaching experience/UG in the concerned speciality with 5 years teaching experience

EE:PG in concerned speciality with 3 year teaching experience/UG in the concerned speciality with 5 years teaching experience

Paper setter: PG in concerned speciality with 3 year teaching experience/UG in the concerned speciality with 5 years teaching experience

1 IE + 1 EE (from Outside zone of KUHS/outside University/State)

No of students per day practical maximum 25

- **Details of viva:**

  Present in clause2. 10 .

- **INTERNSHIP**

- **Eligibility for internship**

  The students who have passed all the subjects in 4 years shall undergo internship for six months during which the candidates will be posted in any related institution approved by the respective college within the State of Kerala or will be asked to do internship in the college of study. The candidates shall abide by the internship program rules framed by the institutes from time to time

- **Model of Internship Mark lists**

  Marks will be awarded for regularity, punctuality, responsibility, dedication, subject knowledge, assessment and treatment skills, interpersonal relationship, leadership skills and ability to function in a multi specialty team(evaluation form attached)

- **Extension rules**

  The interns will be allowed to take leave as per KUHS regulations. However, the candidate should undergo minimum of 180 days of internship. Extension will be applicable for the period of absence

- **Details of training given(see evaluation form)**

- **ANNEXURES**

- **Check Lists for Monitoring:** Log Book, Seminar Assessment etc. to be formulated by the curriculum committee of the concerned Institution

REGULATIONS 2016

REGULATIONS

for Courses affiliated

to the Kerala

University of Health

Sciences

Thrissur
680596

BACHELOR OF

OCCUPATIONAL THERAPY

Abbreviated as

BOT

Course Code:

(2019 admission onwards)

2019

GENERAL REGULATIONS

Name of the course which come under these Regulations include:

" BACHELOR OF OCCUPATIONAL THERAPY"

– abbreviated as BOT

- **1.1 Eligibility for Admission**

  Candidates for admission to the course shall have passed the Higher secondary examination conducted by Board of Higher Secondary Education, Govt. of Kerala or courses recognized equivalent there to by the Kerala University of Health Sciences with 50% marks in Physics, Chemistry and Biology put together and minimum pass mark individually for these subjects.

  - Usual relaxation of marks allowed by Government of Kerala for Scheduled Castes, Scheduled Tribes and SEBC candidates.
  - Students should have completed 17 years of age as on 31 December of the admission year

- **1.2 Mode of selection to the course**

  The selection of students for the BOT course shall be made strictly on merit as decided by the Government of Kerala / Kerala University of Health Sciences.

  The cut of date of admission to the course is as prescribed by Government of Kerala /KUHS.

- **1.3 Number of seats in one unit of admission:**
- Minimum Twenty
- **1.4 Minimum Academic Requirements for conduct of Course:**

  Minimum standard requirements for offering course in terms of land, infrastructure, equipment, clinical materials, teaching facility, faculty and other human

resources etc. shall comply with the minimum standards specified by concerned statutory council as per the sanctioned student strength in addition to norms fixed by university and Government from time to time.

- **1.5 Registration of students to university**

  - Every College/ Institution shall upload, the basic details of the admitted students on or before 12.00 midnight on the cutoff date fixed by Govt. of India/ Kerala / Kerala University of Health Sciences. In case of any technical difficulty or reasons beyond control, the college/institution fails to upload the details as stated above

  the details should be submitted to the university office directly before 4PM on the next day along with a statement of the Principal showing the reasons for not uploading the details within the prescribed time. The Principal will be personally held responsible for the contents in the statements.

A candidate on admission to the course shall apply to the KUHS for student registration through the concerned college by making a formal application in the prescribed format with the following documents within the time specified by KUHS

- Mark lists of qualifying examination.
- Transfer certificate from the previous institution.
- Allotment letter from the competent authority.
- Eligibility certificate and migration certificate (wherever necessary)
    - Original certificate(s) to verify name and date of birth (SSLC/equivalent certificate).
    - The fees prescribed for the registration.
    - In the case of students admitted under NRI quota, as insisted by Government of Kerala, the following documents shall be produced
        - Document(s) to prove willingness of the sponsor and his/her relationship with the candidate.
- Copy of passport of the sponsor attested by a gazetted officer.
    - For students under Socially and Educationally Backward Community(SEBC), non–creamy layer certificate from competent authority issued within six months before the date of admission.
    - Any other documents as prescribed by Government or competent authority from time to time.
- **1.6 Fees:**

As stipulated by the Government and/or KUHS from time to time.

- **1.7 Medium of instruction**

  Medium of instruction and examinations shall be English

- **1.8 Attendance, No: of working days, Progress & Conduct during the course:**

- Number of working days is 240 per academic year (inclusive of examinations).

  - Minimum 80% in theory and Minimum 80% in Practical/ clinical, in each subject separately in each year. This mandatory requirement cannot be reduced under any circumstances, including maternity/ medical leave.

The Head of the institution should submit Attendance Performance Certificate (APC) for each candidate on the satisfactory completion of the course as per KUHS regulations.

- **1.9 Condonation of shortage of Attendance**
  - For BOT Course, condonation of shortage of attendance on genuine grounds, for a subject/subjects (in theory or in practical or both) up to a maximum of 10% can be granted once during the entire course period. The Principals/ Heads of Institutions are empowered for granting condonation for shortage of attendance on recommendation by Head(s) of the Department under intimation to KUHS with the prescribed fee.
  - Along with the application for Registration in the Examination, the Principal/ Heads of the Institution shall give an undertaking that the candidate has not availed this exemption previously.
  - A Register showing the details of Condonation granted shall be maintained in the office of the Principal of the colleges, which shall be subjected to verification by the authorized officers of the University.
- **1.10 Leave, Holidays etc.**

  Only the holidays declared by the Govt. shall be applied**.**
- **1.11 Monitoring Learning Progress:**

  The following General guidelines are suggested for periodical assessment conducted from time to time by the Institution.

  The learning outcome to be assessed may include:

  - Personal Attitudes.
    - Acquisition of Knowledge:
    - Journal Review Meeting (Journal Club):
    - Seminars / Symposia:

- Clinico–pathological conferences:
- Medical Audit
- Practical and Laboratory skills

- Day to Day work
  - Teaching skills
  - Periodic tests
  - Work diary / Log Book
  - Records

- **1.12 Transfer during course & internship.**

Transfer to other institutions within and outside the University under normal circumstances will not be allowed during the course of study / Internship. However in exceptional cases the KUHS can apply discretion subject to KUHS rules.

- **1.13 Duration permitted for completion of the course**

  The duration of the course is four years and 6 months internship. Maximum period permitted to complete the course shall be 9 years including internship. (Double the duration of course period)

- **1.14 Issuance of Mark lists, Consolidated Mark list, Provisional and Degree Certificates**
  - Mark lists for each examination shall be issued after declaring the results (including re–totalling).
  - The Consolidated mark lists shall be issued on request upon remittance of prescribed fee. The number of chances will be mentioned in the mark list.
  - Provisional degree certificates shall be issued by KUHS on successful completion of course and passing all the examinations. This will be valid till the issue of Degree Certificate.
  - The Degree Certificates shall be issued only after successful completion of course, passing all the examinations and completing the internship successfully.
- The Degree certificate shall be issued only after the KUHS convocation.
- **1.15 Internal assessment [Conducted by College]**
  - There shall be a minimum of 3 periodic assessments, for theory and practical including viva separately, of

which the final one will be University model examination and is mandatory to appear.

- Average of the marks of the best two periodic assessment shall be taken as internal assessment mark of the candidate.
- The class average of internal assessments mark of theory and practical should not exceed 75% of Maximum marks for regular examinations and 80% for supplementary examination.

The class average of internal assessment for an exam shall be calculated based on the total number of candidates in a particular batch appearing for that internal assessment examination.

- The candidate must secure the minimum 50%marks for internal assessment in theory and practical separately in each subject in order to be eligible to appear in the university examination of the subject.
- In cases where the candidate is permitted to improve the internal assessment marks, the new marks will be taken as final.
- Each student should maintain a logbook and record the procedures they do and the work patterns they are undergoing. It shall be based on periodical assessment , evaluation of student assignment, preparation for seminar, clinical case presentation, assessment of candidate's performance in the sessional examinations, routine clinical works, logbook and record keeping etc.

- **1.16 Criteria for pass**
  - A candidate shall obtain minimum 50% of marks in each subject in University theory and University

practical including viva voce examinations separately.

- The candidate must secure a minimum 50%marks for internal assessment in theory and practical including viva voce separately in each subject
- A candidate shall also secure a minimum aggregate of 50% marks in theory section which includes university theory examination and internal assessment.
- In the practical section a candidate shall secure 50% aggregate marks which includes university practical, viva voce and internal assessment taken together.
- A candidate failing in one or more subject(s) shall appear for the subject(s) as a whole in the next appearance (i.e. Theory, Practical, and Viva)

- **1.17 Moderation / Grace Mark**
  - For BOT the University may grant a maximum of 5 marks or as per University regulations as moderation, either in a subject alone or distribute it among subjects (theory/ practical/viva/internal assessment) so as to make the candidate eligible for a pass of a subject/subjects.
  - The granting of moderation is at the discretion of the concerned pass board constituted by the Controller of Examinations and will not be the right of the candidate.
- **1.18 Criteria for promotion to next year**

A candidate having 80% attendance in theory and practical in all the subjects and minimum required internal assessment marks and registered for examination are eligible for ***promotion*** to next higher class up to final year.

- The candidates shall be eligible to write the fourth year examination only after clearing all the papers of the first, second and third year examinations.
- The candidates shall be eligible for internship only after clearing the final year examinations.

- **1.19 Carry over benefit**
  - A candidate having 80% attendance in theory and practical in all the subjects and minimum required internal assessment marks and registered for examination are eligible for ***promotion*** to next higher class up to third year.
  - The candidate shall be eligible to write the final year examination only after clearing all the papers of the first year, second year and third year examinations.
  - The candidates shall be eligible for internship only after clearing the final year examinations.
- **1.20 Declaration of class**

The Class/Distinction will be declared based on the total marks obtained for the first, second, third and fourth BOT examination.

Below 50%	Failed
50% to below 60%	Passed with Second Class
60 % to below 75%	Passed with First Class
75 % and above	First Class with Distinction

First Class/ Distinction may be awarded irrespective of whether the candidate has appeared for regular/supplementary examinations.

- **1.21 Declaration of rank**

- Ranks shall be on the basis of aggregate marks of all the university regular examinations of the course

A candidate who fails in one or more subjects during the course shall not be eligible for the award of rank. The candidate should have completed the course in the prescribed minimum period.

- Students with partial appearance will not be considered for rank.
- **1.22 Attempt/ Chance**

  If a student registers for an examination and fails to attend the whole examination, that appearance will not be considered as an attempt/ chance.

- **1.23 Partial Appearance of Examinations**

  Partial appearance is permitted in all the University Examinations, provided the candidate should satisfy 80% attendance in all subjects of the respective examination, including the subjects in which the candidate is not appearing.

- **1.24 Condonation of Break of Study**

  If a candidate is not attending the course for more than 6 months, he / she, on the recommendation of the Head of the Institution should get permission from the University for condonation of break of study to continue the course with the junior batch. Condonation of break of study will be considered strictly as per the KUHS regulation

- **1.25 Internship**

  Six months Compulsory Rotating Internship

- **1.26 Transcript**

  The official transcript shall be issued by the Head of the Institution in the model format approved by the University or the requesting agency. The University will endorse the same only if specifically requested.

- **1.27 Stipend**

  Not applicable.

- **1.28 Eligibility for award of Degree**

  A candidate who passes entire subjects of the course

and complete internship successfully will be eligible for the award of degree during the ensuing convocation. Degree is awarded by the concerned Faculty of the University.