NAGALAND UNIVERSITY

Regulation and Syllabus for

Bachelor of Occupational Therapy (BOT)

(4 years + 6 months) Degree Course

2024

Regulations for the Allied Health Sciences Bachelor Programs of the Nagaland University

The Regulations & syllabus are subject to modifications by the University from time to time.

1. Eligibility for Admission:

(i) The candidate should have passed the Higher Secondary (10+2) from CBSE or State Education Board or any Govt. recognized Board with at least 50% marks for general candidates (UR) and 45% for SC/ST/OBC/NCL candidates in Physics, Chemistry, and Biology.

(ii) For B.Sc. (Health Information Management) course, candidates with Physics, Chemistry, and Mathematics in 10+2 may also be considered.

(iii) The candidate should have attained the minimum age of 17 years during the admission.

(iv) **Lateral Entry:**

Candidates who have completed a two-year diploma programme in the concerned subject from Boards recognized by Central / State Government(s) / State / Central University with at least 50% marks in aggregate for (UR) candidates and 45% marks in aggregate for SC / ST / OBC / NCL candidates shall be eligible for Lateral Entry to the second year (3rd Semester) of Bachelor Programme in Allied Health Sciences.

2. Duration of the Course:

(i) Group A: 4 years, i.e., 3 years or 6 semesters of academic studies and one year of internship (B.Sc.HIM, B.Sc.DTT, B.Sc.AOTT, BSc RTT, BSc. MRIT).
Group B: 4 and a half years, i.e., 4 years or 8 semesters of academic studies and six months of internship (BPT, BOT courses).
Group C: 4 years, i.e., 3 and a half year or 7 Semesters of academic studies and six months of internship (BMLS) during the 8th semester.

(ii) The maximum duration of the Bachelor Programme for Group A, B & C above shall be N+2 where N is the normal duration of the programme. No student shall be allowed to continue beyond the maximum duration.

3. Medium of Instruction:

The medium of instruction for all the Allied Health Sciences courses shall be English.

4. Working Days Per Semester:

Each Semester consists of 90 working days, with eight hours of work per day and 40 hours per week, totalling 720 hours per Semester.

5. Internship Hours:

One-year Internship programs will include 1440 hours of practical training and Six Months Internship will include 720 hours of practical training.

6. **Attendance**:

(i) A candidate must secure a minimum of 80% attendance in theory classes. Students who fail to meet the requirement due to illness may be eligible for a 5% condonation, provided they submit a medical certificate from a registered medical practitioner.

(ii) 100% in skills training (practical/internship) to qualify for the award of degree. In case of insufficient attendance, the candidate's internship period will be extended accordingly. There are no other exceptions to these rules under any circumstances.

7. **Submission of Log Books:**

a. At the time of practical examination, each candidate shall submit to the examiners his / her Log book duly certified by the Head of the Department as a bonafide record of the work done by the candidate.

b. The practical record shall be evaluated by the concerned Head of the Department (Internal Evaluator) and the practical record marks shall be submitted to the University 15 days prior to the commencement of the theory Examinations.

c. In respect of failed candidates, the marks awarded for record at previous examination will be carried over for the subsequent examination. The candidates shall have the option to improve his performance by submission of fresh records.

8. **Revaluation / Scrutiny of Answer Papers:**

(i) There is no provision for candidate to request for revaluation of the answer papers of failed candidates in any examination. However, the failed candidates can apply for scrutiny.

(ii) Nagaland University shall constitute a Result Moderation Committee of 3 members.

9. **Pattern of Question Paper for University Examination:**

Descriptive type Questions	=30%
Descriptive Short Notes	=30%
Short Answer questions	=20%
MCQ Type	=20%

10. **Assessment**:

(i) Assessment for theory and practical examinations: - Students must attain at least 50% marks in each theory and practical component, both in internal assessments and in the final University examinations to pass the course. The final marks will be 75% from the University examination and 25% will be from the internal assessment.

(ii) The distribution of marks between theory and practical shall be provided in the **Curriculum and Syllabi** of each course.

(iii) Assessment for internship: - During the internship, students gain clinical experience and learn to document patient care effectively. Each student must maintain a logbook and a portfolio.

Activity	Marks %	Assessor
Log book	20	Supervisor
Portfolio*	20	Supervisor
Practical	40	Examiners
Viva voce	20	Examiners

*The portfolio provides one with an opportunity to demonstrate the breadth and depth of your knowledge on certain topics

The portfolio incorporates the follow documents:

- Curriculum vitae
- Progress reports
- "Summary of Competency Achievement" demonstrating the level of competency achieved in each sub-module.
- Samples of work prepared by the intern from at least 5 of the modules of internship training guide.

A presentation delivered covering key aspects of the module

The clinical supervisor will examine the portfolio at regular (at least once in three months) intervals and provide feedback to the Intern.

(iv) Mode of Evaluation: -

Evaluation for Theory papers during Odd End Semester Examination shall be internally done by the colleges and Theory papers during Even End Semester Examinations shall be externally evaluated or as notified by the University.

11. Internship Project:

As part of the internship, students are required to choose a relevant subject and prepare an in-depth project report, which should include the objective, scope of the project, and a detailed report.

12. Advancement to the Next Semester:

Advancement to the next semester is contingent upon meeting the following conditions and clearing any backlogs as described: -

A student may not fail in more than two papers in the preceding semester to be eligible to advance to the next semester.

13. Repeat examination for failed candidates:

Failed papers in odd semesters can be repeated during the exams of the subsequent odd semester. Similarly, failed papers in even semesters exams can be repeated during the subsequent even semester exams.

14. Vacation:

Maximum of 15 days including Saturdays and Sundays

15. Re-Admission after Break of Study:

Students shall be allowed to continue after break in studies provided the maximum duration as given in Clause- 2 (ii) is not exceeded.

16. Award of the Degree:

a. Candidates who have passed all written examinations and successfully completed the compulsory internship as per the university's requirements will be awarded the degree.
b. Final Consolidated Mark sheet shall be issued by the Nagaland University to the candidate after submission of his/her Internship Completion Certificate by the College.

17. Academic Calendar:

a. Odd semester shall be from July to December, and Even semester shall be from January to June.
b. The odd semester and even semester university (end) examinations shall be conducted in the months of December and June respectively.

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Bachelor of Occupational Therapy (BOT)

Semester Wise Distribution of Subjects

Total Credits= 160; Total Marks = 5950.

Semester	Code	Subject	Credits		Total	MARKS					Total Hours	
						Internal (50)		Semester (150)		Total		
			Theory	Practical		Theory	Practical	Theory	Practical		Theory	Practical
1st Semester	BOT-101	Human Anatomy-I	3	1	4	30	20	100	50	200	54	36
	BOT-102	Human Physiology-I	3	1	4	30	20	100	50	200	54	36
	BOT-103	Biochemistry	3	-	3	25	-	75	-	100	54	-
	BOT-104	Fundamentals of Occupational Therapy -I	4	1	5	30	20	100	50	200	72	36
	BOT-105	Sociology	2	-	2	30	20	100	50	200	36	-
	BOT-106	Medical terminology, Computer, English	1	1	2	50	-	-	-	50	54	36
			Total		20					950	324	144
2nd Semester	BOT-201	Human Anatomy-II	3	1	4	30	20	100	50	200	54	36
	BOT-202	Human Physiology- II	3	1	4	30	20	100	50	200	54	36
	BOT-203	Psychology	2	0	2	25		75	-	100	36	-
	BOT-204	Introduction to Biomechanics	2	1	3	30	20	100	50	200	36	36
	BOT-205	Fundamentals of Occupational Therapy -II	4	1	5	30	20	100	50	200	72	36
	BOT-206	Basic nursing and first aid	1	1	2	25	-	75	-	100	18	36
			Total		20					1000	270	180
		Clinical Posting	-	-	-	-	-	-	-	-	-	72
3rd Semester	BOT- 301	Pathology & Microbiology	5	0	5	25	0	75	0	100	90	0
	BOT- 302	Pharmacology	3	0	3	25	0	75	0	100	54	0
	BOT- 303	Biomechanics & Kinesiology	4	1	5	30	20	100	50	200	72	36
	BOT- 304	Therapeutics-I	5	2	7	30	20	100	50	200	90	72
			Total		20					600	306	108
		Clinical Posting	-	-	-	-	-	-	-	-	-	72

Semester	Code	Subject	Credits		Total	MARKS					Total Hours	
						Internal (50)		Semester (150)		Total		
			Theory	Practical		Theory	Practical	Theory	Practical		Theory	Practical
4th Semester	BOT-401	Therapeutics 2	5	2	7	30	20	100	50	200	90	72
	BOT-402	Clinical Psychology and Health Psychology	5	2	7	25		75		100	90	72
	BOT-403	Assistive Technology/Ergonomics	4	1	5	30	20	100	50	200	72	36
	BOT-404	Introduction to quality & patient safety	1	-	1	25	-	75	-	100	18	-
			Total		**20**					**600**	**270**	**180**
		Clinical Posting	-	-	-	-	-	-	-	-	-	90
5th Semester	BOT- 501	Clinical Orthopedics	3	1	4	25	-	75	-	100	54	36
	BOT-502	Clinical Neurology	3	1	4	25	-	75	-	100	54	36
	BOT-503	General Surgery and Obstetrics & Gynecology	4	1	5	25	-	75	-	100	72	36
	BOT-504	General Medicine, Pediatrics, & Psychiatry	4	1	5	25	-	75	-	100	72	36
	BOT-505	Biostatistics & Research methodology	2	0	2	25	-	75	-	100	36	-
			Total		**20**					**500**	**288**	**144**
		Clinical Posting	-	-	-	-	-	-	-	-	-	72
6th Semester	BOT-601	Occupational Therapy in Orthopedic conditions	4	1	5	30	20	100	50	200	72	36
	BOT-602	Occupational therapy in surgical conditions	4	1	5	30	20	100	50	200	72	36
	BOT-603	Occupational therapy in Medical conditions	4	1	5	30	20	100	50	200	72	36
	BOT-604	Group process in Occupational Therapy	4	1	5	25		75		100	72	36
			Total		**20**					**700**	**288**	**144**
		Clinical Posting	-	-	-	-	-	-	-	-	-	90
7th Semester	BOT-701	Occupational Therapy in Mental Health	4	1	5	30	20	100	50	200	72	36
	BOT-702	Occupational Therapy in Neurological Conditions	4	1	5	30	20	100	50	200	72	36
	BOT-703	Occupational Therapy in Pediatric conditions	4	1	5	30	20	100	50	200	72	36
	BOT-704	Community Medicine	2	1	3	30	20	100	50	200	36	36
	BOT-705	Clinical cardio-respiratory & OT in work physiology	2	-	2	25		75		100	36	-
			Total		**20**					**900**	**288**	**144**
		Clinical Posting	-	-	-	-	-	-	-	-	-	72
	BOT-801	Rehabilitation Medicine	4	-	4	25	-	75	-	100	72	-

8th semester	BOT-802	**Advances in OT**	4	-	4	30	20	100	50	200	72	
	BOT-803	**Organization, administration and leadership**	4	1	5	25	-	75	-	100	72	36
	BOT-804	**Occupational therapy in Rehabilitation**	4	1	5	30	20	100	50	200	72	36
	BOT-805	**Research Project**	1	1	2	-	-	100	-	100	18	36
			Total		**20**					**700**	**306**	**108**
		Clinical Posting	-	-	-	-	-	-	-	-	-	72

	Course Titles	Hours			Weekly class hours
		Theory	Practical	Total	
9th Semester	**Internships**		720 (minimum)	**720**	NA
	Total			**720**	

INTERNSHIP – Minimum 960 hours (calculated based on 8 hours per day, if 120 working days in six-month span)

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DETAIL SYLLABUS FOR BACHELOR OF OCCUPATIONALTHERAPY (BOT), COURSE

SEMESTER-1: 20 CREDITS

BOT-101: HUMAN ANATOMY- 1

COURSE DESCRIPTION: Human anatomy- I is designed to provide students with the working knowledge of the structure of the human body which is essential foundation for their clinical studies. It will include identification of all the gross anatomical structures. Particular emphasis will be placed on description of bones, joints, muscle.

COURSE OBJECTIVE: The objective of this course is that after 90 hours of lectures, demonstrations and practical's the students will be able to demonstrate the knowledge in human anatomy as needed for the study and practice of occupational therapy.

COURSE OUTCOME:

- To understand the bones, joints, muscles, vascular and nerve supply of upper limb
- To understand the anatomical knowledge of boundaries and contents of thoracic cavity

THEORY

A. **Introduction to anatomy-** definition, subdivisions, anatomical positions, anatomical terms & planes. Cell, tissue, bones, joints, axis & movements of synovial joints, muscle, nerve, and Define origin, insertion, muscle work, types of muscle work, group action- agonist, antagonist, synergist, fixator, shunt and spurt muscle, levers with e.g.

B. **Upper limb-** Osteology, arthrology, myology, neurology, angiology, axilla, scapula thoracic rhythm, cubital fossa

C. **Lower Limb-** Osteology, arthrology, myology, neurology, angiology, femoral triangle, popliteal fossa, arch of foot.

D. **Thorax & abdomen-** Osteology of vertebral column, Identify and classify vertebrae – typical & atypical, Parts and features of typical vertebrae, Features of thoracic, lumbar, sacral, coccyx, Intervertebral joint – articulating surface, movements, stability, mobility, Curvatures of vertebral column, Contents of vertebral canal, Sternum – parts, features (borders, surfaces, muscle attachments), Define true, false, floating ribs, Mention parts and

features of atypical rib, Type and formation of joint between rib and vertebrae, between costal cartilage, costal cartilage and sternum, between parts of sternum, Sternal angle, Intercostal space and its contents, Intercostal nerve – course and its branches, Intercostal muscle – origin, insertion, nerve supply, action, Diaphragm – origin, insertion, nerve supply, action, orifice, structures passing through Diaphragm, Movements of ribs – pump handle and bucket handle movement, Normal position, external features of heart and parts of heart, internal features of Chambers of heart, blood supply, venous supply, conductive system Normal position, parts, relation, blood supply of URT & LRT, pleura and its reflection, nerve supply, bronchopulmonary segment, mechanics of respiration.

References:

a) Textbook of Anatomy Vol. 1,2,3 by Inderbir Singh

b) Textbook of Anatomy Vol. 1,2,3 by B.D. Chaurasia

BOT-102: HUMAN PHYSIOLOGY-1

COURSE DESCRIPTION: The course in Physiology over the first year is designed to give the student an in-depth knowledge of fundamental reactions of living organisms, particularly in the human body. The course helps the students understand the basis of human physiology of various systems and understand the alternation in physiology in disease and practice of occupational therapy.

COURSE OBJECTIVES: The objective of the course is that after 90 hours of lectures, demonstrations, practical, the students will be able to demonstrate an understanding of elementary human physiology

COURSE OUTCOMES:

- To understand the cell physiology
- To understand the interaction and integration of different organ systems in health and diseases special nerve-muscle physiology
- To describe the physiology of respiratory system which include mechanics of breathing, spirometer, transport of gases and the common disorders of the respiratory systems

THEORY

A. CELL

1. Basic concepts of cell structure, components, functions, transport across cell membrane
2. Functional morphology of the cell
3. Intercellular communication

B. SKIN

1. Structure, functions, temperature regulation
2. Physiological basis of Pyrexia and Hypothermia

C. BLOOD

1. Composition and function of blood
2. RBC-morphology, formation, normal count, functions, physiological & pathological
3. Variation
4. WBC- morphology, formation, normal count, functions, physiological & pathological
5. Variation
6. Blood Platelets-Morphology, normal count, formation, function, variation
7. Hemoglobin-Basic chemistry, function, fate of hemoglobin

8. Blood Clotting-Definition, clotting factor, theories of clotting
9. Blood group-ABO system, Rh System
10. Blood volume and regulation
11. Blood transfusion

D. DIGESTION

1. Structure and function of GI system
2. Mastication and Deglutition
3. Saliva – composition, function, regulation
4. Gastric secretions – composition, phases of secretion, function
5. Pancreatic secretions – composition, function, regulation
6. Bile – composition and function
7. Movements of small and large intestine
8. Digestion in mouth, stomach, intestine
9. Defecation

E. RESPIRATION

1. Structure and function of respiratory system
2. Mechanics of breathing – Muscles of respiration, Lung & Chest wall compliance, V/Q Ratio, Surfactant
3. Transport of gases- O2 & CO2, O2 dissociation curve
4. Nervous and Chemical regulation of respiration
5. Hypoxia, Cyanosis, Dyspnea
6. Acid Base Balance
7. Principles of Lung Function Test – Spiro meter, Lung volumes and capacities
8. Artificial respiration
9. Effect of exercise on respiratory system
10. Defense mechanism

F. REPRODUCTION

1. Male reproductive system
2. Female reproductive system
3. Pregnancy, function of placenta, parturition, lactation, contraception
4. Puberty and Menopause
5. Spermatogenesis and Oogenesis
6. Menstrual cycle

G. NERVOUS SYSTEM

1. General organization of nervous system
2. Structure, type and function of neuron
3. Properties of neurons
4. Synapse and synaptic transmission
5. Neurotransmitters
6. Reflex – Properties and types
7. Sensory – Receptors, sensory pathway, pain pathway, referred pain, modulation of pain, coding of sensory information, functional organization of ascending sensory pathways; Thalamus; Sensory cortex; Perception of sensory stimuli
8. Motor – Motor cortex, Basal ganglia, Cerebellum, Cortex, Basal ganglia, Equilibrium and posture, Localizing the level of lesion in neurological disease
9. Ascending and Descending pathway
10. Posture and Equilibrium
11. Muscle tone
12. ANS – organization, function of SNS & PSNS
13. CSF – composition, formation, circulation, function
14. LMN & UMN lesion

References:

a) Textbook of Physiology by A.K. Jain

b) Textbook of Physiology by Chaudhuri Sujit K

c) Essentials of medical physiology by K. Sembulingam

d) A.K. Jain, Human Physiology and Biochemistry for physical therapy and occupational Therapy

e) A.K. Jain, Text book of Physiology for medical students (reference book)

f) Guyton (Arthur) Text Book of Physiology. (reference book)

g) Ghai's textbook of practical physiology by VP Varshney & Mona Bedi

BOT-103: BIOCHEMISTRY

COURSE DESCRIPTION: Biochemistry is the study of the chemical processes that drive biological systems. This course explores the basic principles of biochemistry and develops the student's appreciation and understanding of biological networks. The course describes the structures & functions of cells in brief; normal functions of different components of food, enzymes, defining Basal metabolic rate, nutritional aspect of carbohydrate, lipids, proteins and vitamins, define enzymes in brief.

COURSE OBJECTIVE: The student will be able to understand the biochemical change of the various elements of the body at cellular and extra cellular level after 54 hours of lecture.

COURSE OUTCOME:

- The understand the importance of nutrition.
- To identify the different types of biomolecules, maintaining health
- To understand the importance of enzymes, nucleic acid and digestion biomolecules
- To understand the importance of vitamin, minerals, cell biology

THEORY:

1. Nutrition –

a. Introduction, Importance of nutrition Calorific values, Respiratory quotient – Definition, and its significance Energy requirement of a person - Basal metabolic rate: Definition, Normal values, factor affecting BMR Special dynamic action of food.
b. Physical activities - Energy expenditure for various activities. Calculation of energy requirement of a person
c. Balanced diet
    i. Recommended dietary allowances
    ii. Role of carbohydrates in diet: Digestible carbohydrates and dietary fibers
    iii. Role of lipids in diet
    iv. Role of proteins in diet: Quality of proteins - Biological value, net protein utilization, Nutritional aspects of proteins-essential and non- essential amino acids. Nitrogen balance
    v. Nutritional disorders
    vi. Nutritional disorders: Protein calorie malnutrition, kwashiorkor, marasmus, obesity

2. Carbohydrate Chemistry –

a. Definition, general classification with examples, Glycosidic bond
b. Structures, composition, sources, properties and functions of Monosaccharides, Disaccharides, Oligosaccharides and Polysaccharides.
c. Glycosaminoglycan (mucopolysaccharides), Glycolysis, & Gluconeogenesis
d. Blood glucose level and its maintenance, mechanism of action of insulin, glucagon, growth hormone, Diabetes Mellitus, biochemical basis of symptoms and complications

3. Lipid Chemistry –

a. Definition, general classification
b. Definition, classification, properties and functions of Fatty acids, Triacylglycerol, Phospholipids, Cholesterol
c. Essential fatty acids and their importance
d. Lipoproteins: Definition, classification, properties, Sources and function Ketone bodies

4. Amino-acid Chemistry –

a. Amino acid chemistry: Definition, Classification, Peptide bonds
b. Peptides: Definition, biologically important peptides
c. Protein chemistry: Definition, Classification, Functions of proteins,

5. Enzymes –

a. Definition, Active site, Cofactor (Coenzyme, Activator), Proenzyme. Classification with examples, Factors effecting enzyme activity, Enzyme inhibition and significance, Isoenzymes, Diagnostic enzymology (clinical significance of enzymes)

6. Nucleotide and Nucleic Acid Chemistry -

a. Nucleotide chemistry: Nucleotide composition, functions of free nucleotides in body.
b. Nucleic acid (DNA and RNA) chemistry: Difference between DNA and RNA, Structure of DNA (Watson and Crick model), Functions of DNA. Structure and functions of tRNA, rRNA, mRNA.

7. Vitamins -

a. Definition, classification according to solubility,
b. Individual vitamins - Sources, Coenzyme forms, functions, RDA, digestion, absorption and transport, deficiency and toxicity.

8. Mineral Metabolism-

a. Definition, Sources, RDA, Digestion, absorption, transport, excretion, functions, disorder of Individual minerals - Calcium, phosphate, iron, Magnesium.

9. Clinical Biochemistry –

Normal levels of blood and urine constituents, Relevance of blood and urine levels of Glucose, Urea, Uric acid, Creatinine, Calcium, Phosphates, pH and Bicarbonate. Liver function tests, Renal function tests.

References:

a) Textbook of Biochemistry for Medical Students 6th Edition, DM Vasudevan , Sreekumari S ,Kannan Vaidyanathan.

BOT-104: FUNDAMENTALS OF OCCUPATIONAL THERAPY-I

COURSE DESCRIPTION: In this course the students will have a better understanding of the principles of Fundamental of OT, both basic and advanced as well as assessment techniques. The student's skill will be enhanced through hands on training provided during the practical hours.

COURSE OBJECTIVES: The objective of the course is that after 108 hours of lectures the students will be able to describe the basic concept of fundamental of OT- theory of occupation, therapeutic modalities, assessments used in occupational therapy. The students will also gain knowledge and practical skills in assessing patients with physical, psychiatric and pediatric conditions.

COURSE OUTCOMES:

- To describe the basics of fundamental of OT and principles and methods of assessment
- To describe and demonstrate active, passive and resisted movements.
- Describe the various assessment techniques needed.

Theory –

1. Definition and evolution of Occupational Therapy (15 hours)

    - History and development of OT
    - History of OT in India
    - Roots of Occupational therapy – moral treatment, Arts and crafts, scientific management
    - Expansion and specialization – the rehabilitation model
    - Moral treatment vs medical model, rehabilitation model vs social model

2. Theory of Occupation (10 hours)

    - Form of occupation
    - Occupation as evolutionary trait, Occupation as evolutionary trait, biologic dimensions, social dimensions, psychological dimensions of occupation, occupation and therapy

3. Introduction to ICF (International Classification of Functioning, Disability and Health)

    - Introduction
    - Need for ICF
    - Who will use ICF
    - How to use ICF
    - Model of ICF
    - Domains of ICF

4. Occupational Therapy Practice Framework

- History of the evolution of OTPF
- Need for OTPF
- Fit between the OTPF and ICF
- OTPF (4^{th} edition) – domain (Occupations, Contexts, Performance patterns, Performance skills and client factors) and process (overview of process, evaluation, intervention and outcomes)

5. Methods of client profile development - overview of methods and importance of history taking.

6. Activity Analysis: Principles, Biomechanical & Sensory motor, Adapting and grading activity, Selection of grading

7. Principles of Therapeutic exercise:

- Generalized and specific principles
- Types of movements, muscle contraction
- Exercise classification & application to activity
- Objective to develop power, endurance, coordination, ROM
- Breathing Exercise

8. The Occupational Therapy Process (application of OTPF to physical dysfunction

- Referral, Screening, evaluation, Intervention process, intervention implementation,intervention review, overview
- Clinical reasoning in intervention process
- Clinical reasoning in context
- Client centered practice

9. Basic evaluation - Principals and methods of Assessment

- Muscle tone
    1. Definition of tone
    2. Normal muscle tone
    3. Abnormal muscle tone
    4. Muscle assessment
    5. Modified Ashworth scale
- Coordination
    1. Definition
    2. Characteristics of coordinated movement
    3. Incoordination, Cerebellar signs, Extra pyramidal signs
    4. Assessment of coordination
- Sensation

1. Definition
2. Classification of sensation
3. Techniques and methods of sensory evaluation

- Perception
    1. Definition
    2. Assessments
- Endurance
    1. Definition
    2. Importance of Endurance in performance
    3. Factors affecting endurance
    4. Relation to activity tolerance
- Cognition
    1. Definition
    2. Evaluation of cognitive skills: attention
    3. Memory, orientation
    4. Problem solving and executive function
- Range of motion
    1. Definition and types of ROM
    2. Methods of joint measurement
    3. Goniometer
    4. End feels
    5. Precautions and contraindications
    6. Principles and procedure of ROM measurement
    7. Recording range of motion

- Muscle strength
    1. Definition
    2. Causes of muscle weakness
    3. Screening tests
    4. Manual muscle test (MMT)– Purposes, methods of assessment, muscle grade
    5. Relationship between Joint range of motion and muscle weakness
    6. Limitations of MMT
    7. Contraindications and precautions
    8. General principles of MMT- preparation, gravity influencing muscle function, grades, substitutions, procedure for testing

Practical –

1. Learning format of patient history taking
2. Assessment of Joint ROM of UE and LE on normal subjects
3. Assessment of group muscle strength of UE and LE on normal subjects
4. Assessment of sensation, coordination, cognition and perception

Recommended text books-

a. Willard & Spackman's Occupational Therapy
b. O.T. Practice skills for Physical Dysfunction by L.V. Pedretti
c. Occupational Therapy for Physical Dysfunction by C.A. Trombly
d. Therapeutic exercise: Foundation and techniques by Carolyn Kisner and Lynn Allen Colby
e. Muscle Testing & function by F.P. Kendall
f. Daniel's & Worthingham's Muscle testing.

BOT-105: SOCIOLOGY

COURSE DESCRIPTION - Sociology will introduce student to the basic sociology concepts, principles and social process, social institutions in relation to the individual, family and community and the various social factors affecting the family in rural and urban communities in India. The course will also introduce the student, to the basic sociological concepts, principles and social processes.

COURSE OBJECTIVE: The objective of the course is that after 36 hours of lectures, the students will be able to demonstrate an understanding of the role of socio-cultural factors as determinants of health and behavior in health and sickness. They will be able to relate this to therapeutic situations in the practice of Occupational Therapy. In addition, the student will be able to show their proficiency based on written and internal evaluation.

COURSE OUTCOMES:

- To recognize and help with the sociological factors involved in perception of illness, social consciousness and socialization of rehabilitation of patients
- To understand the elementary principles of social groups, role of primary groups and secondary groups

THEORY

A. Introduction

1. Definition of Sociology
2. Nature and Scope of the discipline
3. Importance and application of Sociology in Nursing

B. Individual & Society

1. Society and Community
2. Nature of Society
3. Difference between Society and Community
4. Process of Socialization and individualization
5. Personal disorganization

C. Culture

1. Nature of culture

2. Evolution of culture
3. Diversity and uniformity of culture
4. Culture and socialization
5. Transcultural society
6. Influence on health and disease

D. Social groups and Processes The meaning and classification of groups Primary & Secondary Group In-group V/s. Out-group, Class Tribe, Caste Economic, Political, Religious groups, Mob, Crowd, Public and Audience Interaction & Social Processes Co-operation, Competition, Conflict Accommodation, Assimilation & Isolation

E. Population

1. Society and population
2. Population distribution in India-Demographic characteristics
3. Malthusian theory of Populations
4. Population explosion in India and its impact on health status
5. Family welfare Program

F. Family and Marriage

1. Family-Functions
2. Types-Joint, Nuclear, Blended and extended family: Characteristics
3. The Modern Family —Changes, Problems-Dowry etc., welfare Services
4. Changes & legislations on family and marriage in India -marriage acts
5. Marriage: Forms and functions of marriage,
6. Marriage and family problems in India
7. Family, marriage and their influence on health and health practices

G. Social Stratification

1. Meaning & types of social stratification
2. The Indian Caste System-origin & features
3. Features of Caste in India Today
4. Social Class system and status
5. Social Mobility-Meaning & Types
6. Race as a biological concept, criteria of racial classification
7. Salient features of Primary Races-Racism
8. Influence of Class, Caste and Race on health and health practices

H. Types of Communities in India (Rural, Urban and Regional)

1. Features of village community& Characteristics of Indian Villages-Panchayat system, social

dynamics Community Development project & planning

2. Changes in Indian Rural Life
3. Availability of health facilities in rural and its impact on health and health practices
4. Urban Community features
5. The growth of cities: Urbanization and its impact on health and health practices
6. Major Urban Problems-Urban Slums
7. Region: Problems and impact on Health

I. Social Change

1. Nature and process of Social Change
2. Factors influencing Social change: cultural change, Cultural lag.
3. Introduction to Theories of social change: Linear, Cyclical, Marxian, Functional

J. Social organization and social system

1. Social organization: elements, types
2. Democratic and authoritarian modes of participation
3. Voluntary associations
4. Social system: Definition and Types of social system
5. Role and Status as structural elements of social system Inter-relationship of institutions

K. Social Control

1. Nature and process of social control
2. Political, Legal, Religious, Educational, Economic, Industrial and Technological systems, Norms & Values-Folkways & Mores Customs, Laws and Fashion

L. Social Problems

1. Social disorganization
2. Control & planning: poverty, housing, illiteracy, food supplies, prostitution, rights of women & children, vulnerable groups: Elderly, handicapped, minority groups and other marginalized groups, child labor, child abuse, delinquency and crime, substance abuse, HIV/AIDS.
3. Social Welfare Program in India

References

a) An introduction to sociology by Vidya Bhushan and D.R. Sachdeva
b) Text book of sociology for physiotherapy students by KP Neeraja
c) Sociology for health professionals by Niraj Pandit

BOT- 106: MEDICAL TERMINOLOGY, COMPUTER & ENGLISH

a) MEDICAL TERMINOLOGY:

COURSE DESCRIPTION: This course introduces the elements of medical terminology. Emphasis is placed on building familiarity with medical words through knowledge of roots, prefixes, and suffixes. Topics include: origin, word building, abbreviations and symbols, terminology related to the human anatomy, reading medical orders and reports, and terminology specific to the student's field of study.

COURSE OBJECTIVE: The students will be able apply and use terms related to health science.

Theory:

Orientation to medical terminology, terms related to sympathetology, causation investigations and treatment of condition within medicine, surgery, Obstetrics and Gynecology, all specialties including terms related to biological disorders (skin and breast, Musculo-skeletal, Neurological and Psychiatric, Cerebro & Cardiovascular disorders, and Common diseases affecting each of the above system).

Define word roots, prefixes, and suffixes.

Basic medical terms in health care and occupational therapy

Reference:

a. Hand book of Medical Terminology- IR Asher
b. Medical diagnostic & procedural Terminology- Asher
c. Medical Dictionary-Oxford & IBH

b) BASIC COMPUTER

COURSE DESCRIPTION: The students will be able to appreciate the role of computer technology. The course has focus on computer organization, computer operating system and software, and MS windows, Word processing, Excel data worksheet and PowerPoint presentation

COURSE OBJECTIVE: The students will be able to demonstrate the use of basic computer skills to aid in documentation, assignments and research in the long run

Course Content:

1. Introduction to computer – I/O devices – memories – RAM and ROM – Different kinds of ROM

Networking – LAN, WAN, MAN (only basic ideas)

2. MS word, MS-Excel, MS-POWERPOINT,
3. Explorer and Navigator – Uploading and Download of files and images – E-mail ID creation – Sending messages – Attaching files in E-mail – Introduction to "C" language –

Practical:

1. Creating a worksheet using MS-Excel with data and use of functions Using MS-Excel prepare a worksheet with text, date time and data Preparing a chart and pie diagrams using MS-Excel
2. Using Internet for searching, uploading files, downloading files creating e-mail ID Using C language writing programs using functions
3. Computer application of statistical data

Reference: a) Computer Fundamentals: Pearl Software

b) Fundamentals of Computers: E. Balagurusamy

c) ENGLISH COMMUNICATION SKILLS

COURSE DESCRIPTION: To develop the potential for language use to perform communicative functions, meeting the demands in the student's academic and professional set-ups. The subject covers the aspects of oral communication, Grammar, Reading and Writing.

COURSE OBJECTIVE: The students will develop. ability to speak and write grammatically correct English. Effective skill in reading and understanding the English language. Skill in reporting.

COURSE OUTCOMES:

- To become fluent in speaking and enhance the ability to communicate effectively with colleagues, doctors, patients and writing official letters, writing patients reports and summarize scientific sessions
- To handle difficult situations with grace style and professionalism

Theory:

A. Writing Skills

1. Objectives- Difference between spoken and written form
2. How words are formed into phrases and clauses

3. Tenses, Abbreviations, Punctuations
4. Writing Sentences
5. Writing Paragraphs: The Development of a Paragraph
6. Cohesion, Coherence
7. Summary, essay writing, précis writing
8. Formal Letters – personal, applications, bio-data,
9. Official correspondence: Outgoing correspondence, replying incoming correspondence, writing circulars, notices, charge memos
10. Writing Reports
11. Informal letters

B. Basics of Communication:

1. Process and models of communications
2. Types of communications:
    - Oral communication (Verbal, telephonic, face-to-face)
    - Written Communication
3. Non-verbal communication & Body language
4. Barriers to communications
5. How to improve communication and spoken skills

C. Reading Skills:

1. Sources of Information
2. Types of readings: Skimming, Scanning, intensive / loud / silent reading, oral, extensive, map reading
3. Understanding what to read- Part played by propositions
4. Techniques of reading 3Q3R
5. Sample passages for reading with comprehension exercises 6. Tables and Graphic Organizers

Reference:

a. Manipal Academy of higher education; English book for Nurse by Selva Rose, 3rd Edition
b. Oxford advanced Leaiiers Dictionary, 1996. Quirk, Randolph and (Jreenbaum Sidney, 1987)
c. Thomson A. J. and Maitüiet A. V. 1987, A 1icticl English Grammar, Delhi: Oxford University Press

SEMESTER-2: 20 CREDITS

BOT-201: HUMAN ANATOMY-II

COURSE DESCRIPTION – Anatomy of the head & neck and pelvis are studied with particular reference to topics of importance to occupational therapists. Particular attention is paid to the muscles, bones and joints of the regions.

COURSE OBJECTIVES The objective of this course is that after 90 hours of lectures, demonstrations and practicals the students will be able to demonstrate the knowledge in human anatomy as needed for the study and practice of occupational therapy

COURSE OUTCOME:

- Identify and describe the various parts of the nervous system
- Gain knowledge of greater vessels, muscles and structural and functional importance of muscles, joints, long and short nerves and different spaces in the upper limb, lower limb, trunk and pelvis including the applied aspect

THEORY:

A. Head & Neck- Skull (features, joints of skull bone, parts). Identify internal and external auditory meat us, foramen magnum, stylomastoid foramen and structures passing through them. Anterior and posterior triangles of neck (boundaries and contents). Muscles of the face (origin, insertion, action, nerve supply, applied anatomy). Cranial nerve (origin, course, relation, innervations). Trigeminal nerve (origin, course, relation, innervations). General features of typical cervical vertebrae, atlas, axis, seventh cervical vertebrae. Cervical plexus (formation, distribution, root values). Sternomastoid, erector spinae, scalene. Atlantoaxial joint (articular surface, muscles, movements, ligaments, blood supply, NS). Atlantooccipital joint (articular surface, muscles, movements, ligaments, blood supply, NS). Position and extent of subclavian, vertebral, carotid arteries. Components of circle of Willis and its supply, applied importance. Internal jugular and subclavian vein (position, formation, and termination). ANS. Parts of brain and its function, applied importance. Eye (parts, retina, optic pathway, nerve supply, muscles of eye). Nose (parts, boundaries of nose, nasal cavity, sinuses). Tempero mandibular joint (type, articular surfaces, ligaments, movements, muscle responsible, nerve supply). Ear (parts, organ of corti, nerve of hearing and its applied importance)

B. Pelvis- Formation and subdivision of bony pelvis. List features of male and female bony pelvis. Type, articular surface, ligaments, movements of joints of pelvis. Abdominal cavity and layers of abdominal wall (ant & post), (O, I, NS, ACT). Rectus sheath. Inguinal canal (position, extent, formation, content). Branches and distribution of abdominal aorta and iliac arteries. Mention features of pubic symphysis and Sacro-iliac joint. Muscles of pelvic floor (attachment, action, nerve supply). Structures of urogenital diaphragm. Position, extent, parts, relation, blood supply, nerve supply, lymph drainage of kidney, ureter, urinary bladder, urethra. Innervations of urinary bladder**.**

References:

a. Textbook of Anatomy Vol. 1,2,3 by Inderbir Singh
b. Gray`s Anatomy by Susan Standring (reference book)
c. Clinical Anatomy by regions by Snell RS
d. Textbook of Anatomy Vol. 1,2,3 by B.D. Churasia
e. Practical Anatomy workbook by Krishna Garg & Medha Joshi

BOT-202: HUMAN PHYSIOLOGY- II

COURSE DESCRIPTION - The course in Physiology over the first year is designed to give the student an in-depth knowledge of fundamental reactions of living organisms, particularly in the human body.

COURSE OBJECTIVE: The objectives of the course is that after 90 hours of lectures, demonstrations, practical, the students will be able to demonstrate an understanding of elementary human physiology.

COURSE OUTCOMES:

- To demonstrate a brief knowledge of pathway of vision, auditory, taste, smell, balance along with their disorders
- To understand the peripheral and central nervous system and their functions
- To understand the endocrine, male and female reproductive system with reference to hormones, puberty, contraception, pregnancy and lactation

THEORY:

A. ENDOCRINE

1. General organization of endocrine glands
2. General metabolism – Carbohydrate, Fat, Protein
3. Physiological action, regulation, disorder of hormones – Adrenal, Pancreatic, Parathyroid, Thyroid.

B. SPECIAL SENSE

1. Vision – rods and cones, retina and its function, visual pathway
2. Hearing – organ of corti, auditory pathway
3. Olfaction
4. Taste – taste buds

C. MUSCLE

1. Structure of muscle – Macroscopic & Microscopic (Myofibril, Myoneural junction)
2. Properties of skeletal muscle
3. Cardiac and smooth muscle
4. Chemical process involved in muscle contraction
5. Motor unit, EMG

6. Effect of exercise on muscular system
7. Exercise metabolism – O2 dept., respiratory quotient

D. CARDIOVASCULAR

1. Structure and properties of cardiac muscle
2. Cardiac cycle, Conductive system, ECG
3. Heart sounds
4. Heart rate and regulation
5. Cardiac output and regulation
6. Blood pressure and regulation
7. Regional circulation- coronary, pulmonary, renal, cerebral
8. Effect of exercise in CVS system
9. Cardio-vascular homeostasis in health and disease

E. EXCRETION

1. Structure and function of kidney
2. Structure and function of nephron
3. Formation of urine – Filtration, Reabsorption, Secretion
4. Micturition
5. Renal function test, body fluid regulation, acid-base balance

APPLIED PHYSIOLOGY: More detailed study of the physiology and practical applications of the following selected topics with emphasis on aspects, which should help in understanding the nature and treatment of common clinical situations of interest in Physiotherapy.

1. **THE HEART AND CIRCULATION**

   Structures and properties of heart muscle, action of heart, Normal ECG, Maintenance of Blood pressure, cardiac arrest and heart failure, hypertension, edema, central and peripheral venous pressure.

2. **NERVOUS SYSTEM AND MUSCLES**

   Outline the structure and function of central nervous system, Outline the ANS, Types of nerve cells, electrical properties of nerve cells, properties of mixed nerves, Reflex action, degeneration and regeneration of nerve, control of posture, outline of Voluntary movement, cutaneous, deep, and superficial sensation, synaptic transmission, neuromuscular junction, properties of muscles, contractile response, types of contraction.

3. RESPIRATION

Mechanics of respiration, breath sounds, exchange of gases, lung volumes, lung compliance, nervous and chemical control of respiration, oxygen and carbon dioxide transport, acid base balance, artificial respiration.

References:

a) Textbook of Physiology by A.K. Jain

b) Textbook of Physiology by Chaudhuri Sujit K

c) Ghai's textbook of practical physiology by VP Varshney & Mona Bedi

BOT-203: PSYCHOLOGY

COURSE DESCRIPTION -

This course will enable the student to understand specific psychological factors and effects in physical illness and thus help them have a holistic approach in their dealings with patients during admission, treatment, rehabilitation and discharge.

COURSE OBJECIVES: The students after 100 hours of lectures will be able understand their clients while assessment and while planning appropriate treatment methods. The student will be able to recognize and help with the psychological factors involved in disability, pain, disfigurement, unconscious patients, chronic illness, death, bereavement and medical-surgical patients/conditions. They should also understand the elementary principles of behavior for applying in the therapeutic environment

COURSE OUTCOMES:

- To understand the steps of memory, perceptual process and emotions
- To describe the methods of studying child development and applied psychology

THEORY

1. **Introduction to Psychology**
    a. Schools: Structuralism, functionalism, behaviorism, Psychoanalysis.
    b. Methods: Introspection, observation, inventory and experimental method.
    c. Branches: pure psychology and applied psychology
    d. Psychology and physiotherapy
2. **Growth and Development**
    a. Life span: Different stages of development (Infancy, childhood, adolescence, adulthood, middle age, old age).
    b. Heredity and environment: role of heredity and environment in physical and psychological development, "Nature v/s Nurture controversy".
3. **Sensation, attention and perception**
    a. Sensation: Vision, Hearing, Olfactory, Gustatory and Cutaneous sensation, movement, equilibrium and visceral sense.
    b. Attention: Types of attention, Determinants of attention (subjective determinants and objective determinants).
    c. Perception: Gestalt principles of organization of perception (principle of figure ground and principles of

grouping), factors influencing perception (past experience and context).

d. Illusion and hallucination: different types.

4. Motivation

a. Motivation cycle (need, drive, incentive, reward).

b. Classification of motives

c. Abraham Maslow's theory of need hierarchy

5. Frustration and conflict

a. Frustration: sources of frustration.

b. Conflict: types of conflict.

c. Management of frustration and conflict

6. Emotions

a. Three levels of analysis of emotion (physiological level, subjective state, and overt behavior).

b. Theories of emotional Stress and management of stress.

7. Intelligence

a. Theories of intelligence.

b. Distribution of intelligence.

c. Assessment of intelligence

8. Thinking

a. Reasoning: deductive and inductive reasoning

b. Problem solving: rules in problem solving (algorithm and heuristic)

c. Creative thinking: steps in creative thinking, traits of creative people

9. Learning

a. Forms of learning

b. Factors effecting learning.

c. Theories of learning: trial and error learning, classical conditioning, Operant conditioning, insight learning, social learning theory.

d. Theories of motor learning

e. Skill acquisition

f. The effective ways to learn: Massed/Spaced, Whole/Part, Recitation/Reading, Serial/Free recall, Incidental/Intentional learning, Knowledge of results, association, organization, and mnemonic methods.

10. Personality

a. Approaches to personality: type & trait, behavioristic, psychoanalytic and humanistic approach.

b. Personality assessment: observation, situational test, questionnaire, rating scale, interview, and projective techniques.

c. Defense Mechanisms: denial of reality, rationalization, projection, reaction formation, identification, repression, regression, intellectualization, undoing, introjection, acting out.

11. Social psychology

a. Leadership: Different types of leaders. Different theoretical approaches to leadership.

b. Attitude: development of attitude. Change of attitude.

12. Clinical psychology –Models of training, abnormal behavior assessment, clinical judgement, psychotherapy, self- management methods, physiotherapist patient interaction, aggression, self-imaging, stress management, assertive training, Group therapy, Body awareness, Pediatric, child and geriatric clinical psychology.

References: a) Understanding Psychology Feldman R.H (1996) New Delhi: Tata McGraw hill

b) Psychology for physiotherapists by Thangamani Ramalingam A

BOT-204: INTRODUCTION TO BIOMECHANICS

COURSE DESCRIPTION: Biomechanics involves the study of basic concepts of human movement, and application of various biomechanical principles in the evaluation and treatment of disorders of musculoskeletal system. Students are taught to understand the various quantitative and qualitative methods of movement. Mechanical principles of various treatment methods are studied.

COURSE OBJECTIVES: The objectives of this course is that after 72 hours of lectures, demonstrations and practical the student will be able to demonstrate an understanding of the principles of Biomechanics and Kinesiology and their application in health and disease

COURSE OUTOMES:

- To understand the basics of mechanics of force system, equilibrium, lever and pulley
- To describe the joint structure, classification and function of joints and biomechanics of connective tissue
- To describe the muscle structure and function of muscles, types of muscles, contractions and factors effecting muscles recruitment and functions

THEORY

1. Basic Concepts in Biomechanics: Kinematics and Kinetics

a. Types of Motion
b. Location of Motion
c. Direction of Motion
d. Magnitude of Motion
e. Definition of Forces
f. Force of Gravity
g. Reaction forces
h. Equilibrium
i. Objects in Motion
j. Force of friction
k. Concurrent force systems
l. Parallel force system
m. Work

n. Moment arm of force
o. Force components
p. Equilibrium of levers

2. Joint structure & function

a. Joint design
b. Materials used in human joints
c. General properties of connective tissues
d. Human joint design
e. Joint function
f. Joint motion
g. General effects of disease, injury and immobilization.

3. Muscle structure and function –

a. Mobility and stability functions of muscles
b. Elements of muscle structure
c. Muscle function
d. Effects of immobilization, injury and aging

4. Biomechanics of the Thorax and Chest wall –

a. General structure and function
b. Rib cage and the muscles associated with the rib cage
c. Ventilatory motions: its coordination and integration
d. Developmental aspects of structure and function
e. Changes in normal structure and function relation to pregnancy, scoliosis and COPD

5. The Temporomandibular Joint-

a. General features, structure, function and dysfunction

References: a) Basics of Biomechanics by Ajay Bahl, Sharad Ranga, Rajnish Sharma

b) Basic Biomechanics of the musculoskeletal system by Margareta Nordin & Victor H Frankel

c) Joint structure & function, a comprehensive analysis- Pamela K. Levangie & Cynthia C Norkin

d) Clinical Kinesiology for Physical Therapist Assistants- Lynn Lippert

BOT-205: FUNDAMENTALS OF OCCUPATIONAL THERAPY- II

COURSE DESCRIPTION: The course provides the students a better understanding of human development, classification of ADL and designing adaptive devices. The student's skills will be enhanced through hands on training provided during the practical hours

COURSE OBJECTIVES: The objectives of this course are that after 108 hours of lectures, demonstrations and practical's, the students will gain knowledge and skill in the Models, Approaches, Frames of reference and Assessments used in Occupational Therapy. The students will also gain knowledge and practical skills in Assessing patients with Physical, Psychiatric and Pediatric condition

COURSE OUTCOMES:

- To analyze motor, cognitive principles
- To describe motor maturation
- To describe the diagnostic and prognostic procedures and preparing for return to work
- To describe the hand function and evaluation methods

Theory:

(1) **Human Development**:

(a) Theories of development

(b) Overview of motor, cognitive, psychosocial, language & Play development

(c) Principal of maturation

(2) **Activities of daily living** -

(a) Definition

(b) Classification

(c) Evaluation of ADL

(d) Various scales used in ADL. (FIM, Barthel, Katz, Home management checklist)

(e) Principles & specific techniques in ADL training for:

1. Weakness
2. Low endurance
3. Limited ROM
4. In co-ordination
5. Loss of use of one side of body

6. Limited vision

7. Decreased sensation

(f) Achieving access to home, community & work place.

1. Environment modification
2. Driver Rehab

(g) Adaptation:

1. Adaptation process
2. Principal of adaptation
3. Introduction to adapted devices
4. Designing of adaptive devices: Explain design and fabrication of common adaptive devices with knowledge of material and equipment used for the same. Briefly explain application of the same in occupational therapy-

(h) Cultural & socio-economical deviations in ADL

(3) **Occupational Therapy as diagnostic & prognostic procedure** -

(a) Definition of evaluation

(b) Types of evaluation

(c) Steps involved in evaluation

(4) **Preparing for return to work -**

(a) Prevocational capacity evaluation i.

a) Work capacity evaluation
b) Physical capacity evaluation
c) Functional capacity evaluation
d) Discharge plan

(5) **Crafts:** Knowledge of tools, equipment, materials, their therapeutic values & uses

(6) **Hand function & evaluation methods**:

a) Functional anatomy of hand
b) Prehension and grasp patterns.
c) Grip & pinch strength.

(7) **Introduction to hand splints**: Definition. Classification, principles. material used in designing & fabrication.

(8) **Recreational Activities**: Outline the use of the following recreational activities as a therapeutic medium. Plan the following activities for various patient groups

a) Sports

b) Games
c) Picnic
d) Drama
e) Leisure & hobbies
f) Music
g) Play

Practical

1. Identify tool & equipment, their parts, uses & therapeutic uses.
2. Design a paper model of following hand splints
    a) Finger gutter
    b) Resting pan
    c) Long opponens
    d) Short opponens
    e) Radial cock up

References:

a. Therapeutic exercise – Foundations and Techniques – C. Kisner. L. A. & Colby
b. Occupational Therapy: Practice skills for Physical Dysfunction by L.V. Pedretti
c. Occupational Therapy for Physical Dysfunction by C.A. Trombly.
d. Willard & Spackman's Occupational Therapy

BOT- 206: BASIC NURSING AND FIRST AID

COURSE DESCRIPTION: This course enables a student to have a better understanding and development of skill in giving first aid treatment in emergencies in either the hospital or the community.

COURSE OBJECTIVES: The objectives of this course is that after 72 hours of lectures, demonstrations, practical and clinics, the student will be able to demonstrate an understanding of the principles of first aid and demonstrate skill in giving first aid treatment in emergencies that may be met in the community and in their practice as therapists

COURSE OUTCOMES

- To examine the vital signs
- To provide appropriate first aid for minor injuries (including small cuts, grazes and bruises, minor burns and scalds, small splinters)
- To understand the importance of preventing cross infections
- To understand the need for recording incidents and actions

THEORY:

1. Examination of vital signs
2. First aid in cardiac arrest & respiratory failure
3. First aid in burns & electric shock
4. First aid in drowning
5. First aid in spinal cord injury
6. First aid in hypovolemic shock
7. First aid in poisoning
8. First aid in RTA
9. Tools used in first aid
10. Indication, assessment & technique of CPR

REFERENCES:

a) First aid in emergency- St. John ambulance association
b) First Aid Manual for Nurses by Sanju Sira
c) First Aid (Handbook of St. John Ambulance Association, Karnataka State Centre)
d) First aid & management of general injuries & common ailments- Gupta & Gupta

SEMESTER-3: 20 CREDITS

BOT- 301: PATHOLOGY AND MICROBIOLOGY

PATHOLOGY:

COURSE DESCRIPTION: Pathology involves the study of causes and mechanisms of diseases. The knowledge and understanding of Pathology of diseases is essential to institute appropriate treatment or suggest preventive measures to the patient.

COURSE OBJECTIVE: The objective of this course is that after 90 hours of lectures, demonstrations and practical the student will be able to demonstrate an understanding of the pathology and microbiology of common diseases that therapists would encounter in their daily practice. The course will also help therapists to understand how to protect themselves and their patients from infections during their interactions.

COURSE OUTCOMES:

- To recall etiology pathogenesis and clinical pathological correlation of common infections and non-infectious diseases
- To illustrate the knowledge of cell injury and its healing process
- To describe the normal and altered different organ system in different diseases and their clinical significance

THEORY:

A. Introduction

1. General pathology – cell injury, causes
2. Reversible injury – Types, morphology, swelling, hyaline, fatty change
3. Irreversible injury – Types of necrosis, apoptosis, calcification, dystrophic, Metastasis
4. Concepts of disease

B. Inflammation and repair

1. Acute inflammation – causes, features, examples
2. Inflammatory cell and mediators
3. Chronic inflammation – causes, features, examples
4. wound healing
5. Regeneration and repair.

C. Circulatory disturbance

1. Edema
2. Chronic venous congestion

3. Thrombosis
4. Embolism
5. Infarction
6. Gangrene
7. Shock

D. Growth disturbance

1. Atrophy
2. Neoplasia – benign & malignant

E. Specific pathology

1. CVS – atherosclerosis, IHD, MI, HT, CCF, RHD, peripheral vascular diseases.
2. RS – COPD, Bronchiectasis, pneumonia – lobar, Broncho, viral, acquired, TB – prim & sec, Atelectasis, asthma, ca of lung
3. Skin – leprosy, psoriasis, dermatomyositis, scleroderma
4. NS – CNS tumors (brief outline), CVA, meningitis, encephalitis, coma, Parkinsonism, myasthenia gravis, polyneuritis, peripheral neuropathy, polio
5. Bone and joint – osteoarthritis, osteomyelitis, septic arthritis, spondylosis, Osteomalacia, GOUT, ankylosing spondylitis, Bone tumors (brief)- osteosarcoma, Ewing sarcoma, giant cell tumors
6. Muscle – Volkmann's ischemic contracture, myopathies.

F. Transfusion and hematology- Blood bank: screening of donors, collection of blood sample, blood grouping, component making, storage, mandatory tests and disposal of positive blood.

References: a) Text book of pathology: Harsh Mohan

b) Text book of pathology: Robbin

MICROBIOLOGY

COURSE DESCRIPTION: Microbiology involves the study of common organisms causing diseases including nosocomial infections and precautionary measures to protect one from acquiring infections. The knowledge and understanding of Microbiology of diseases is essential to institute appropriate treatment or suggest preventive measures to the patient.

COURSE OBJECTIVES: The objective of this course is that after 90 hours of lectures, demonstrations and practical the student will be able to demonstrate an understanding of the pathology and microbiology of common diseases that therapists would encounter in their daily practice. The course will also help therapists to understand how to protect themselves and their patients from infections during their interactions.

COURSE OUTCOMES:

- To know about prevalent communicable diseases
- To describe the agents responsible for causing clinical infection to CNS, musculoskeletal, respiratory and Genitourinary system
- To illustrate the best method to prevent the development of infection

THEORY:

A. Introduction

B. Classification, Shape and arrangement

C. Disinfection and antiseptic

D. Sterilization and asepsis

E. Allergy & hypersensitivity

F. Immunology – Definition, antigen, antibody reaction, autoimmunity, natural and Acquired immunity

G. Infection – Definition, source of infection, portal of entry, spread of infection, type.

H. Bacteriology– Infection caused by

1. Gram Positive bacteria – clostridium tetani & coryne bacterium diphtheria
2. Gram negative bacteria – klebsiella, pseudomonas, salmonella, v.cholera
3. Mycobacterium – M.tuberculosis, M.leprae, atypical mycobacteria

I. Outline the bacteria causing the following diseases

1. RTI
2. Meningitis

3. Enteric infection
4. Anaerobic infection
5. UTI
6. Leprosy, TB
7. STD
8. Wound infection
9. Hospital acquired infection

J. Viruses – Definition, size, shape, structure, classification, cultivation, diagnosis of Viral infection.

K. Outline the virus causing the following diseases

1. HIV
2. Hepatitis
3. Polio
4. Measles
5. Rubella
6. Herpes.

References:

a. Text book of Medical Microbiology by Ananthanarayana and Jayaram Paniker
b. Essentials of medical Pharmacology by KD Tripathi
c. Pharmacology by Gaddum
d. Medical Pharmacology by Drill
e. Pharmacology principle of Medical practice – by Krantx, & Carr
f. Pharmacological basis of Therapeutics – by Goodman, L.S. Gilman A

BOT-302: PHARMACOLOGY

COURSE DESCRIPTION - This course introduces the student to basic pharmacology of common drugs used, their importance in the overall treatment including Occupational therapy. The student after completing the course will be able to understand the general principles of drug action and the handling of drugs by the body. The student will be aware of the contribution of both drug and physiotherapy factors in the outcome of treatment

COURSE OBJECTIVES: The objective of this course is that after 54 hours of lectures, demonstrations the student will be able to demonstrate an understanding of the basic pharmacology of common medication used and its effect on patient's treatment on ailment of cardiovascular system, GIT, endocrine system, by drugs

COURSE OUTCOMES:

- To understand the various routes of drug administration, pharmacodynamics and pharmacokinetics of drugs
- To understand the various drugs used for the treatment of ANS, PNS and CNS conditions with their mechanisms and adverse effects

THEORY:

A. General Pharmacology –

1. Introduction, Definitions, Classification of drugs, Sources of drugs, Routes of drug administration, Distribution of drugs, Metabolism and Excretion of drugs Pharmacokinetics, Pharmacodynamics, Factors modifying drug response, Adverse effects.

B. Autonomic Nervous system –

1. General considerations – The Sympathetic and Parasympathetic Systems, Receptors, Somatic Nervous System
2. Cholinergic and Anti-Cholinergic drugs, Adrenergic and Adrenergic blocking drugs, Peripheral muscle relaxants.

C. Cardiovascular Pharmacology –

3. Drugs used in the treatment of heart failure: Digitalis, Diuretics, Vasodilators, ACE inhibitors Antihypertensive Drugs: Diuretics, Beta Blockers, Calcium Channel Blockers, ACE Inhibitors, Central Acting Alpha Agonists, Peripheral Alpha Antagonists, Direct acting Vasodilators

4. Antiarrhythmic Drugs
5. Drugs used in the treatment of vascular disease and tissue ischemia: Vascular Disease, Hemostasis Lipid-Lowering agents, Antithrombotic, Anticoagulants and Thrombolytic Ischemic Heart Disease – Nitrates, Beta-Blockers, Calcium Channel Blockers, Cerebral Ischemia Peripheral Vascular Disease.

D. Neuropharmacology –

1. Sedative-Hypnotic Drugs: Barbiturates, Benzodiazepines
2. Antianxiety Drugs: Benzodiazepines, Other Anxiolytics
3. Drugs Used in Treatment of Mood Disorders: Monoamine Oxidase Inhibitors, Tricyclic Antidepressants, Atypical Antidepressants, Lithium
4. Antipsychotic drugs

E. Disorders of Movement -

1. Drugs used in Treatment of Parkinson ’s disease
2. Antiepileptic Drugs
3. Spasticity and Skeletal Muscle Relaxants

F. Inflammatory/Immune Diseases -

1. Non-narcotic Analgesics and Nonsteroidal Anti-Inflammatory Drugs: Acetaminophen, NSAIDs, Aspirin, Nonaspirin NSAIDs, drug Interactins with NSAIDs
2. Glucocorticoids: Pharmacological Uses of Glucocorticoids, adverse effects, Physiologic Use of Glucocorticoids
3. Drugs Used in Treatment of Arthritic Diseases: Rheumatoid Arthritis, Osteoarthritis, Gout
4. Drugs Used in the Treatment of Neuromuscular Immune/Inflammatory Diseases: Myasthenia gravis, Idiopathic Inflammatory Myopathies, systemic lupus Erythematous, Scleroderma, Demyelinating Disease
5. Respiratory Pharmacology: Obstructive Airway Diseases, Drugs used in Treatment of Obstructive Airway Diseases, Allergic Rhinitis

G. Digestion and Metabolism -

1. Gastrointestinal Pharmacology: Peptic Ulcer Disease, Constipation, Diarrhea Drugs Used in Treatment of Diabetes Mellitus: Insulin, Oral Hypoglycemic

H. Geriatrics -

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

References: a) Undergraduate Pharmacology for students of Pharmacy & Allied health sciences by K Mukhopadhyay

b) Pharmacology for Physiotherapist by KV Ramesh & K Ashok Shenoy

c) Pharmacology for Physiotherapy students by Padmaja Udaykumar

BOT-303: BIOMECHANICS & KINESIOLOGY

COURSE DESCRIPTION - Biomechanics involves the study of basic concepts of human movement, and application of various biomechanical principles in the evaluation and treatment of disorders of musculoskeletal system. Students are taught to understand the various quantitative and qualitative methods of movement. Mechanical principles of various treatment methods are studied. Study of posture and gait are also included.

COURSE OBJECTIVES: The objectives of this course is that after 108 hours of lectures, demonstrations and practical the student will be able to demonstrate an understanding of the principles of Biomechanics and Kinesiology and their application in health and disease

COURSE OUTCOMES:

- To understand the basics of mechanics, muscle structure and contraction, factors effecting muscle contraction and recruitment
- To analyze normal mechanics of posture and gait in various planes and axis
- To analyze the path mechanics associated with abnormal posture and gait
- Describe the biomechanics of shoulder, elbow, wrist, hip, knee, ankle joint, vertebral column

THEORY:

1. **Biomechanics of the vertebral column –**
    a. General structure and function
    b. Regional structure and function –Cervical region, thoracic region, lumbar region, sacral region
    c. Muscles of the vertebral column
    d. General effects of injury and aging
2. **Biomechanics of the peripheral joints –**
    a. The shoulder complex: Structure and components of the shoulder complex and their integrated function
    b. The elbow complex: Structure and function of the elbow joint –humeroulnar and humeroradial articulations, superior and inferior radioulnar joints; mobility and stability of the elbow complex; the effects of immobilization and injury.
    c. The wrist and hand complex: Structural components and functions of the wrist complex; structure of the hand complex; functional position of the wrist and hand.

d. The hip complex: structure and function of the hip joint; hip joint pathology-arthrosis, fracture, bony abnormalities of the femur
e. The knee complex: structure and function of the knee joint –tibio femoral joint and patellofemoral joint; effects of injury and disease.
f. The ankle and foot complex.: structure and function of the ankle joint, subtalar joint, talocalcaneonavicular joint, transverse tarsal joint, tarsometatarsal joints, metatarsophalangeal joints, interphalangeal joints, structure and function of the plantar arches, muscles of the ankle and foot, deviations from normal structure and function –Pes Planus and Pes Cavus

3. Analysis of Posture and Gait –Static and dynamic posture, postural control, kinetics and kinematics of posture, ideal posture analysis of posture, effects of posture on age, pregnancy, occupation and recreation; general features of gait, gait initiation, kinematics and kinetics of gait, energy requirements, kinematics and kinetics of the trunk and upper extremities in relation to gait, stair case climbing and running, effects of age, gender, assistive devices, disease, muscle weakness, paralysis, asymmetries of the lower extremities, injuries and malalignments in gait; Movement Analysis: ADL activities like sitting –to standing, lifting, various grips, pinches.

4. Task analysis- Movement Analysis: ADL activities like sitting –to standing, lifting, various grips, pinches.

References: Joint structure & function, a comprehensive analysis- Pamela K. Levangie & Cynthia C Norkin

BOT-304: THERAPEUTICS-I

COURSE DESCRIPTION: In this subject, the students will have a better understanding of the principles of ergo therapy both basic and advanced as well as assessment techniques. The student's skill will be enhanced through hands on training provided during the practical hour

COURSE OBJECTIVES: The objective of this course is that after 162 hours of lectures, demonstrations the student will be able to demonstrate an understanding of the basic concepts of industrial rehabilitation.

COURSE OUTOMES:

- To analyze evaluation and assessment of work process
- To describe the occupational injuries of back and evaluation
- To describe the job analysis
- To acquire the skill of assessment of work conditioning and work hardening prevocational and vocational assessment

THEORY:

Industrial Rehabilitation;

(a) Evaluation and assessment of work process & factor that might bias assessment result
(b) Occupational injuries of back, upper limb and evaluation and prevention of injuries.
(c) Return to work
(d) Job simulation
(e) Work conditioning and work hardening
(f) Job site analysis
(g) On site therapy
(h) Pre-vocational and vocation assessment
(i) Employment and types of employment
(j) Human engineering
(k) Decision making
(I) Laws: OSHA

(m) Work samples: TOWER, WEST, BTE, VALPARA PRACTICALS

PRACTICALS:

1. Design & fabricate adaptive devices viz. universal cuff, writing device, long handled scrubber, enlarged handle spoon, tap opener.
2. Demonstration of standardized procedure of Hand function test viz.
3. Jebson Taylor, Crawford small part Dexterity test, Purdue Peg board, Complete Minnesota Dexterity Test.
4. Transfers techniques.
5. Orientation file.

REFERENCES:

a. Joint Structure and Function – A Comprehensive Analysis by C.C. Norking, P.K, Levangie
b. Physiology of joint & joint motion by Kapanji I. A.
c. Willard & Spackman's Occupational Therapy
d. Measurement of joint motion: a guide to goniometry by C.C. Norkin & D.J. White
e. Therapeutic exercise – Foundations and Techniques – C. Kisner. L. A. & Colby
f. Muscle testing and function by F.P. Kendall • Daniel's & Worthingham's Muscle testing.
g. Occupational Therapy: Practice skills for Physical Dysfunction by L.V. Pedretti
h. Occupational Therapy for Physical Dysfunction by C.A. Trombly.

SEMESTER-4: 20 CREDITS

BOT-401: THERAPEUTICS-II

COURSE DESCRIPTION: Acquire the knowledge of human development process, acquire the knowledge of posture and movement, cognitive theory of Jean Piaget where occupational therapy plays a vital role in the rehabilitation.

COURSE OBJECTIVES: The objective of this course is that after 126 hours of lectures, demonstrations the student will be able to demonstrate an understanding of the basic concepts of industrial rehabilitation.

COURSE OUTCOMES:

- To understand Brunnstrom approach, PNF
- To understand cerebral palsy and stroke
- To understand growth development and maturation pathophysiological changes in burn and oncology with treatment

THEORY:

1. Human Development process
    - Posture and movement
    - Growth, Development and maturation
    - At Reflex and reaction maturation
        a) Learning Theory
        b) Behavior Theory
        c) Social Learning Theory
        d) Psychoanalytic theory of Freud and Erikson
        e) Cognitive theory of Jean Piaget
        f) Maturation theory of Gessel
2. Frame of references (Organizing system for Occupational Therapy practice)
3. Neurophysiology of sensory- motor approaches to the treatment.
4. Sensory-motor approaches

a. Roods Approaches

b. Bobath Approach

c. Brunnstrom Approach- Movement Therapy

d. Proprioceptive neuromuscular facilitation (PNF)

5. Work Hardening

6. Cerebral Palsy and Stroke

a) Causes

b) Risk factors

c) Classification

Section-II (Evaluation Methods)

1. Evaluation of Muscle Strength

2. Evaluation of Muscle tone

3. Evaluation of Reflexes and reactions

References:

a. Occupational Therapy: Practice skills for Physical Dysfunction by L.V. Pedretti

b. Occupational Therapy for Physical Dysfunction by C.A. Trombly.

BOT-402 CLINICAL PSYCHOLOGY AND HEALTH PSYCHOLOGY

CLINICAL PSYCHOLOGY

COURSE DESCRIPTION: This field of psychology covers the application of psychological principles in the etiology, pathology, assessment and management of abnormal conditions of all age groups. This course runs concurrently with Psychiatry for Occupational Therapy students. The basic foundation of general psychology would have been covered in 1st year.

COURSE OBJECTIVES: The objective of this course is that after 126 hours of lectures, demonstrations, seminars and clinics the students will be able to demonstrate ability to apply their knowledge of psychology in clinical situations for assessing, understanding, and treating their patients. They will learn to understand themselves, their feelings, attitudes and behavior

COURSE OUTCOME:

A. To evaluate attention, concentration, perception and briefly mention the related abnormalities.
B. To understand and explain behavioral aspects of learning, maturation, and appropriately use behavioral techniques in therapy
C. To evaluate memory, thinking & intelligence and briefly mention the related disorders.
D. To evaluate motivation, emotion and personality and assess their pathological manifestations.
E. With the concepts of conscious and unconscious mind to explain frustration and conflicts, and to study the role of defense mechanisms in normal and abnormal conditions.

THEORY

A. Definition of Clinical Psychology. : General and historical introduction to Abnormal Psychology, Psychology in relation to medicine, different schools. Methods of Clinical Psychology: Case History method, Interview Techniques, Clinical observation, Situational tests, Questionnaires
B. Concepts of normality and abnormality: Causes of abnormality, Criteria for abnormality. Broad classification of Current model of abnormal behavior – Medical model, Psychodynamic model, Behavioristic model & Humanistic model, and Cognitive model
C. Functional units of mind: Id, ego and super ego - their functions and interactions. Role of Defense mechanisms in normal and abnormal behavior.
D. Evaluation of attention and concentration, perception, memory, thinking etc
E. Intelligence and Mental Retardation: Intelligence test -. Measurement of intelligence - children & adults (demonstrations)
F. Mental Retardation and its psychosocial management
G. Personality Assessment: Questionnaires, inventories, projective techniques.
H. Behavior techniques in Therapy –application of learning principles to modify behavior
I. Counselling: Definition, Aim, Difference between counselling and guidance, principles in counselling, personality qualities of counsellors
J. Psychotherapy: Basic Principles. Different types of Psychotherapy: Psychodynamic (including Brief psychotherapy), Humanistic (client-centered) and Cognitive Behavioral Therapy

HEALTH PSYCHOLOGY

THEORY:

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 pediatric patients.

I. SUBSTANCE ABUSE

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

J. PERSONALITY STYLES

Different personality styles of patients.

References: a) Understanding Psychology Feldman (1996) New Delhi: Tata McGraw hill

b) Psychology for physiotherapists by Thangamani Ramalingam A

BOT-403: ASSISTIVE TECHNOLOGY & ERGONOMICS

ASSISTIVE TECHNOLOGY

COURSE DESCRIPTION- The Subject serves to integrate the knowledge gained by the students in assistive technology with Occupational Therapy skills to apply these in clinical situations.

COURSE OBJECTIVES: The objective of this course is that after 108 hours of lectures, demonstrations the student will be able to identify and analyze the need for assistive devices and correlate the same for providing assistive devices to patients

COURSE OUTCOMES:

- To understand the requirement for assistive devices in various conditions
- To use the principals of orthosis for designing assistive devices
- To select assistive devices for prevention, adopt restorative and rehabilitative measure for maximum possible functional independence of patient at home, workplace and community

THEORY-

1. **Assistive technology at home**

a. Eating and drinking

b. Preparing meals

c. Self-care

2. Assistive Technology at School

a. Low technology helps

• Lap trays, adapted desks, book holders, Slant board

• Pencil grips, Typing Aids, Hand held magnifiers and splints

• Reacher's, mouth sticks and head or chins pointers

• Raised line papers, Bold line papers and writing guides

b. Learning Aids

• Educational apps for IOS and android services

• Curricula for dyslexia, dysgraphia and dyscalculia

• Digital voice recorder. MP 3 players, and play back equipment

• An abacus and manipulatives for learning Math concept

3. Assistive technology at work

a. Computer use

• Tactile, low vision and left-handed key boards

• Infrared products like eye gaze systems for navigating the computer screen

• Talking word processors and texts to voice software programs

Video magnifiers and portable note takers

4. Assistive technology in ADL

Seating and positioning devices, transfer devices, Visual Aids, communication aids, Mobility aids, pointing and writing aids

REFERENCES

a. Occupational Therapy practice skills for physical dysfunction – L. Pedretti.
b. Occupational Therapy for Physical Dysfunctions – C. Trombly

ERGONOMICS

COURSE DECRIPTION: - In this course the student will learn the definitions of ergonomics, principles of work space design and assessing a work place for risk of activity related soft tissue disorders (ASTDs**.)**

COURSE OBJECTIVE: - The objective of the course is that the student will be able to understand the principles of ergonomics and definition of ASTDs. Students' skill will be enhanced through learning skilled work control display, Design and mental activity.

COURSE OUTCOMES: -

- Acquire knowledge of muscle use and anthropometry.
- Acquire knowledge of how injuries are adjudicated, pathology of disorders.
- To learn the Ergonomic regulations and developing programs in industries**.**

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.
- Activity related 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 (e.g. 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. In class practice with techniques

MODULE III

- Skilled Work, Control-Display Design and Mental Activity: Stages of information processing, skilled behavior, 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, 60 (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, aero plane splint, shoulder slings), Lower extremity splints: -Knowledge about AFO, FRO. KAFO, foot drop splint static and dynamic. Other splints: - Splint for Microstomia and Facial Nerve Palsy splint,
- Checkout of orthosis

References:

i. Hand and Upper Extremity Splinting: principles and methods 3rd edition – Fess, Gettle,Philips, Janson
ii. Occupational Therapy practice skills for physical dysfunction – L. Pedretti.
iii. Occupational Therapy for Physical Dysfunctions – C. Trombly

BOT- 404: INTRODUCTION TO QUALITY & PATIENT SAFETY

1. Quality assurance and management - The objective of the course is to help students understand the basic concepts of quality in health Care and develop skills to implement sustainable quality assurance program in the health system.

a. Concepts of Quality of Care
b. Quality Improvement Approaches
c. Standards and Norms
d. Quality Improvement Tools
e. Introduction to NABH guidelines

2. Basics of emergency care and life support skills - Basic life support (BLS) is the foundation for saving lives following cardiac arrest. Fundamental aspects of BLS include immediate recognition of sudden cardiac arrest (SCA) and activation of the emergency response system, early cardiopulmonary resuscitation (CPR), and rapid defibrillation with an automated external defibrillator (AED). Initial recognition and response to heart attack and stroke are also considered part of BLS. The student is also expected to learn

about basic emergency care including first aid and triage. Topics to be covered under the subject are as follows:

a. Vital signs and primary assessment
b. Basic emergency care – first aid and triage
c. Ventilations including use of bag-valve-masks (BVMs)
d. Choking, rescue breathing methods
e. One- and Two-rescuer CPR
f. Using an AED (Automated external defibrillator).
g. Managing an emergency including moving a patient
h. At the end of this topic, focus should be to teach the students to perform the maneuvers in simulation lab and to test their skills with focus on airways management and chest compressions. At the end of the foundation course, each student should be able to perform and execute/operate on the above-mentioned modalities.

3. Bio medical waste management and environment safety- The aim of this section will be to help prevent harm to workers, property, the environment and the general public. Topics to be covered under the subject are as follows:

a. Definition of Biomedical Waste
b. Waste minimization
c. BMW – Segregation, collection, transportation, treatment and disposal (including color coding)

d. Liquid BMW, Radioactive waste, Metals / Chemicals / Drug waste
e. BMW Management & methods of disinfection
f. Modern technology for handling BMW
g. Use of Personal protective equipment (PPE)
h. Monitoring & controlling of cross infection (Protective devices)

4. Infection prevention and control - The objective of this section will be to provide a broad understanding of the core subject areas of infection prevention and control and to equip AHPs with the fundamental skills required to reduce the incidence of hospital acquired infections and improve health outcomes. Concepts taught should include–

a. Evidence-based infection control principles and practices [such as sterilization, disinfection, effective hand hygiene and use of Personal protective equipment (PPE)],
b. Prevention & control of common healthcare associated infections,
c. Components of an effective infection control program, and
d. Guidelines (NABH and JCI) for Hospital Infection Control

6. Disaster preparedness and management- The objective of this section will be to provide knowledge on the principles of on-site disaster management. Concepts to be taught should include-

a. Fundamentals of emergency management,
b. Psychological impact management,
c. Resource management,
d. Preparedness and risk reduction
e. Key response functions (including public health, logistics and governance, recovery, rehabilitation and reconstruction), information management, incident command and institutional mechanisms.

SEMESTER-5: 20 CREDITS

BOT- 501: CLINICAL ORTHOPEDICS

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

COURSE OBJECTIVE: The objectives of this course is that after 90 hours of lectures, demonstrations, practical and clinics the student will be able to demonstrate an understanding of evaluation and therapy techniques used in Occupational Therapy for orthopedic conditions.

COURSE OUTCOME

- To understand the traumatology of upper and lower limb fractures with their management
- To understand the pathophysiology of various musculoskeletal conditions, congenital and acquired anomalies with its treatment protocol
- To understand the management of various orthopedic surgeries
- To understand various injuries, fractures and deformities of musculoskeletal system with its treatment protocol

THEORY:

A. INTRODUCTION TO ORTHOPAEDICS

1. 1 Introduction to orthopedic terminology
2. 2 Clinical examinations
3. 3 Common investigations
4. 4 Principles of management

B. PRINCIPLES OF OPERATIVE TREATMENT

1. Indications
2. Contraindications
3. Outline principles of: arthrodesis, Arthroplasty, Osteotomy, Bone grafting, Tendon transfers.

C. SOFT TISSUE LESIONS

1. Sprains and Muscle strains
2. Capsulitis
3. Bursitis
4. Tenosynovitis

5. Fasciitis
6. Tendonitis

D. FRACTURES AND DISLOCATIONS

1. Types of fractures including patterns, open and closed fractures – dislocations.
2. Difference between dislocation and subluxation
3. General and local signs & symptoms of fractures, dislocations
4. Principles of management of fracture, dislocations
5. Prevention and treatment of complication – VIC, Sudecks atrophy, carpal tunnel syndrome, myositis ossificans, shoulder-hand syndrome
6. Fracture healing

E. UPPER LIMB FRACTURES

1. Enumerate major long bone fracture and joint injuries
2. Briefly describe their clinical features, principles of management, complications.

F. LOWER LIMB FRACTURES

1. Enumerate major long bone fracture and joint injuries
2. Briefly describe their clinical features, principles of management, complications.

G. SPINAL FRACTURES

Outline the mechanism, clinical features, principles of management, complications.

H. DISLOCATIONS

Outline the mechanism, clinical features, principles of management and complications of recurrent dislocation of the shoulder and patella.

I. AMPUTATIONS

1. Classify amputations, list indication of surgery
2. Principles of amputation
3. Principles of management
4. Complications and management

J. BONE AND JOINT INFECTIONS

Outline the etiology, clinical features, management, complications – septic arthritis, osteomyelitis, tuberculosis – including spinal TB.

K. BONE AND JOINT TUMORS

Classify and outline the clinical features, management and complications of the following: Benign and malignant bone tumor, osteoma, osteosarcoma, osteoclastoma,
Ewing sarcoma, multiple myeloma.

L. CHRONIC ARTHRITIS

Outline the pathology, clinical features, mechanism of deformities, management and Complications of – RA, OA, AS.

M. LOW BACK PAIN

Definition, causes of low back ache, clinical findings, assessment, management

N. SPINAL DEFORMITIES

Classify spinal deformities and outline the salient clinical features, management and complication

O. POLIOMYELITIS

1. Describe the pathology, clinical features, pathology, prevention, management,
2. Residual problems of polio, treatment of residual paralysis,
3. Principles of muscle transfers

P. CONGENITAL DEFORMITIES

Outline the clinical features and management of CTEV, CDH, Flat foot, vertical talus, limb deficiency – radial club hand, femoral, tibial, fibular deficiency, meningomyelocele, arthrogryposis multiplex congenital, osteogenesis imperfecta.

Q. PERIPHERAL NERVE INJURIES

Outline the clinical features, management, and reconstructive surgery of

1. Radial, median and ulnar nerve lesions
2. Sciatic and lateral popliteal nerve lesions
3. Brachial plexus injuries including Erbs palsy, Klumpke palsy, crutch palsy.

R. HAND INJURIES

Outline the clinical features, management and complications of tendon, bone, and joint Injury.

S. LEPROSY

Outline clinical features, management and complications of neuritis, muscle paralysis, Tropic ulcer of hand and feet deformities.

References: a) Outline of Fractures by John Crawford Adams

b) Outline of Orthopedics by John Crawford Adams

c) Text book of Orthopedics by Maheswari & Mhaskar

d) Text book of Orthopedics by John Ebenezer & Rakesh John

e) Manipal manual of Orthopedics by Vivek Pandey

DIAGNOSTIC IMAGING FOR OCCUPATIONAL THERAPISTS

COURSE DESCRIPTION- This course covers the study of common diagnostic and therapeutic imaging tests. At the end of the course students will be aware of the indications and implications of commonly used diagnostic imaging tests as they pertain to patient's management. The course will cover that how X-Ray, CT, MRI, Ultrasound and Other Medical Images are created and how they help the health professionals to save lives.

1. **IMAGE INTERPRETATION**
    a. History
    b. A New Kind of Ray
    c. How a Medical Image helps?
    d. What Imaging Studies Reveal
    e. Radiography (x-rays)
    f. Fluoroscopy
    g. Computed Tomography (CT)
    h. Magnetic Resonance Imaging (MRI)
    i. Ultrasound
    j. Endoscopy.
2. **RADIOGRAPHY AND MAMMOGRAPHY**
    a. Equipment components
    b. Procedures for Radiography & Mammography
    c. Benefits versus Risks and Costs
    d. Indications and contraindications.
3. **FLUOROSCOPY**
    a. What is Fluoroscopy?
    b. Equipment used for fluoroscopy

c. Indications and Contra indications
d. How it helps in diagnosis
e. The Findings in Fluoroscopy
f. Benefits versus Risks and Costs.

4. COMPUTED TOMOGRAPHY (CT)

a. What is Computed Tomography?
b. Equipment used for Computed Tomography
c. Indications and Contra indications
d. How it helps in diagnosis
e. The Findings in Computed Tomography
f. Benefits versus Risks and Costs.

5. MAGNETIC RESONANCE IMAGING (MRI)

a. What is MRI?
b. Equipment used for MRI
c. Indications and Contra indications
d. How it helps in diagnosis
e. The Findings in MRI
f. Benefits versus Risks and Costs
g. Functional MRI.

6. ULTRASOUND

a. What is Ultrasound?
b. Equipment used for Ultrasound
c. Indications and Contra indications
d. How it helps in diagnosis
e. The Findings in Ultrasound
f. Benefits versus Risks and Costs.

7. ENDOSCOPY

a. What is Endoscopy?
b. Equipment used for Endoscopy
c. Indications and Contra indications
d. How it helps in diagnosis
e. The Findings in Endoscopy
f. Benefits versus Risks and Costs.

8. NUCLEAR MEDICINE

a. What is Nuclear Medicine?
b. Equipment used for Nuclear Medicine
c. Indications and Contra indications
d. How it helps in diagnosis.
e. Benefits versus Risks and Costs.

References: a) Diagnostic imaging for physiotherapists by James's swain and Kenneth W. bush

b) Fundamentals of musculoskeletal imaging by Lynn N. McKinnis

BOT- 502: CLINICAL NEUROLOGY

COURSE DESCRIPTION: Following the basic science and clinical science course this course introduces the student to the neurological conditions which commonly cause disability. Particular effort is made in this course to avoid burdening the student with any detail pertaining to diagnosis which will not contribute to their understanding of the limitations imposed by neurological pathology on the functioning of the individual.

COURSE OBJECTIVIES: The objective of this course is that after 55 hours of lectures, demonstrations, and seminars along with clinical practice the student will be able to demonstrate an understanding of neurological conditions causing disability and their management to understand the limitation imposed by the disease on any therapy that may be prescribed

COURSE OUTCOMES:

- To understand pathophysiological changes in neurological disorders with their assessment
- To understand the management of various neurological disorders
- To develop clinical decision-making ability and management expertise
- To plan a better rehabilitation care for patients pre and post neurosurgery
- To understand the medical and surgical management of various neurological condition.

THEORY:

A. 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.

B. NEUROPHYSIOLOGY

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

C.CLINICAL FEATURES & MANAGEMENT

Briefly outline the clinical features and management of the following Neurological Disorders:
1. Congenital and childhood disorders, Cerebral Palsy. Hydrocephalus. Spinal Bifida.

2. Cerebrovascular accidents. General classification: thrombotic, embolic, hemorrhagic & "vasculitis/ arteritis - infectious and inflammatory strokes. Gross localization and sequelae. Detailed rehabilitative program.
3. Trauma - broad localization, first aid and management of sequelae of head injury and spinal cord injury.
4. Diseases of the spinal cord. Craniovertebral junction anomalies Syringomyelia Cervical and lumbar disc disease. Tumors, Spinal arachnoiditis.
5. Demyelinating diseases (central and peripheral) Guillain - Barre syndrome. Acute disseminated encephalomyelitis. Transverse myelitis. Multiple sclerosis.
6. Degenerative disorders. Parkinson's disease. Dementia.
7. Infections Pyogenic Meningitis sequelae. Tuberculous infection of central nervous system. Poliomyelitis.
8. Disease of the muscle -classification, signs, symptoms, progression and management.
9. Peripheral nerve disorders. Peripheral nerve injuries: localization and management. Entrapment neuropathies. Peripheral neuropathies.

10. Miscellaneous.

- Epilepsy: Definition, classification and management.
- Myasthenia Gravis: Definition, course and management.
- Intracranial tumors: Broad classification, signs and symptoms
- Motor neuron disease.

C. ASSESSMENT

Clinical assessment of neurological function to be taught through, bedside or demonstration clinics spread out over at least:

1. Basic history taking to determine whether the brain spinal cord or peripheral nerve is involved.
2. Assessment of higher cortical functions such as orientation, Memory, attention, speech and language, agnosia, apraxia
3. Assessment of Cranial Nerves.
4. Assessment of Motor Power.
5. Assessment of sensory function, touch, pain and position.
6. Assessment of tone- spasticity, rigidity, hypotonia.
7. Assessment of cerebellar function.
8. Assessment of gait abnormalities.

REFERENCE

Neurology and Neurosurgery illustrated – Kenneth Lindsay. Ian bone

BOT- 503: GENERAL SURGERY & OBSTETRICS & GYNECOLOGY

GENERAL SURGERY

COURSE DESCRIPTION: This subject follows the basic science subjects to provide the knowledge about relevant aspects of general surgery. The student will have a general understanding of the surgical conditions the therapist would encounter in their practice. The objective of this course is that after the lectures and discussion the student will be able to list the indications for surgery, etiology, clinical features and surgical methods for various conditions.

COURSE OBJECTIVES: The objectives of this course is that after 108 hours of lectures, demonstrations, practical and clinics the student will be able to demonstrate an understanding of the surgery that the therapist would encounter in their practice. This would help the students to understand the limitation imposed by the disease on any therapy that may be prescribed

COURSE OUTCOMES:

- To understand fluid and electrolyte changes in surgical patient
- To understand the changes in respiratory and cardiovascular parameters in surgical patients
- To understand the complications of surgery
- To understand investigation and management of common surgical conditions

THEORY:

1. **Fluid, Electrolyte and Acid-Base disturbances –** Diagnosis and management; Nutrition in the surgical patient; Wound healing –basic process involved in wound repair, basic phases in the healing process, clinical management of wounds, factors affecting wound healing, Scars –types and treatment. Hemostasis –components, hemostatic disorders, factors affecting bleeding during surgery. Transfusion therapy in surgery –blood components, complications of transfusion; Surgical Infections; General Post –Operative Complications and its management.
2. **Reasons for Surgery**- Types of anesthesia and its effects on the patient; Types of Incisions; Clips Ligatures and Sutures; General Thoracic Procedures –Radiologic Diagnostic procedures, Endoscopy –types, Biopsy –uses and types. Overview and Drainage systems and tubes used in Surgery.
3. **Causes Clinical Presentation, Diagnosis and treatment of the following Thoracic Trauma situations –** Airway obstruction, Pneumothorax, Hemothorax, Cardiac Tamponade, Tracheobronchial disruption, Aortic disruption, Diaphragmatic disruption, Esophageal disruption, Cardiac and Pulmonary Contusions.

4. **Thoracic surgeries–**Thoracotomy –Definition, Types of Incisions with emphasis to the site of incision, muscles cut and complications. Lung surgeries: Pneumonectomy, Lobectomy, segmentectomy –Indications, Physiological changes and Complications; Thoracoplasty, Pleurectomy, Pleurodesis and Decortication of the Lung. Cardiac surgeries –An overview of the Cardio-Pulmonary Bypass Machine –Extracardiac Operations, Closed Heart surgery, Open Heart surgery. Transplant Surgery –Heart, Lung and Kidney –Indications, Physiological changes and Complications.
5. **Diseases of the Arteries and Veins-** Definition, Etiology, Clinical features, signs and symptoms, complications, management and treatment of following diseases: Arteriosclerosis, Atherosclerosis, Aneurysm, Buerger's disease, Raynaud's Disease, Thrombophlebitis, Deep Vein Thrombosis, Pulmonary Embolism, Varicose Veins.
6. **Definition Indication, Incision, Physiological changes and Complications following Common operations**- Thyroidectomy, Adrenalectomy, Cholecystectomy, Colostomy, Ileostomy, Gastrectomy, Herniorrhaphy, Appendectomy, Mastectomy, Nephrectomy, Prostectomy.
7. **Surgical Oncology** –Cancer –definition, types, clinical manifestations of cancer, Staging of Cancer, surgical procedures involved in the management of cancer.
8. **Burns and Plastic Surgery-**
   Burn- Definition, Classification, Causes, Prevention, Pathological changes, Complications, Clinical Features and Management.
   Skin Grafts –Types, Grafting Procedures, Survival of Skin Graft; Flaps –Types and uses of Flaps.

References: a) Bailey & Love's short textbook of surgery

b) Manipal manual of Surgery by K Raj Gopal Shenoy

c) A manual on clinical surgery by S Das

OBSTETRICS & GYNECOLOGY:

1. **Hormonal disorders of females-** Obesity and female hormones
2. **Pregnancy**
   a. Diagnosis of pregnancy
   b. Abortion
   c. Physiological changes during pregnancy
   d. Importance of antenatal care exercise
   e. High risk pregnancy, prenatal common complications – investigation and management
   f. Musculoskeletal disorders during pregnancy

g. Multiple childbirth

h. Normal labor

3. **Childbirth complications, investigation and management**
4. **Normal puerperium, lactation, and importance of post-natal exercises**
5. **Family planning.**
6. **Medical termination of pregnancy**
7. **Infection of female genital tract including sexually transmitted diseases, low backache**
8. **Prolapse of uterus and vagina**
9. **Principle of common gynecological operations & procedures** – hysterectomy, D&C, D&E, pep smear
10. **Menopause**: Its effect on emotions and musculoskeletal system
11. **Urogenital dysfunction –** pre- and post-natal condition
12. **Sterility:** Pathophysiology, investigations, management, Malnutrition and deficiencies in females.
13. **Surgical procedures involving child birth:** Definition, Indications and Management of the following surgical procedures – pelvic repair, caesarian section, Dilatation and Curettage, Laparoscopy, Colposcopy.
14. **Incontinence –** Types, Causes, Assessment and Management

References: a) Textbook of Obstetrics & Gynecology by D.C Dutta's

BOT-504: GENERAL MEDICINE, PEDIATRICS AND PSYCHIATRY

COURSE DESCRIPTION - This subject follows the basic science subjects to provide the knowledge about relevant aspects of general medicine, pediatric, geriatric, & psychiatry. The student will have a general understanding of the diseases the therapist would encounter in their practice. The objective of this course is that after the discussion, the student will be able to list the etiology, pathology, clinical features and treatment methods for various conditions.

COURSE OBJECTIVES: The objectives of this course is that after 108 hours of lectures, demonstrations, practical and clinics the student will be able to list the etiology, pathology, clinical features and treatment methods for various medical, pediatric and psychiatric conditions.

COURSE OUTCOME

- To understand pathophysiological changes in infectious and metabolic disorders with their treatment
- To understand pathophysiological changes in respiratory and skin disorders with their treatment
- To understand pathophysiological changes in cardiovascular and hematological disorders with their treatment
- The student will be able to differentiate pediatric cases and handling the cases will become easier as they can relate theoretical knowledge with practical learning
- To understand the growth and development of child
- Recognize and help with the role of defense mechanisms in normal and abnormal behavior.
- Understand the elementary principles and causes of mental disturbances

GENERAL MEDICINE:

1. **Infection:** Effects of Infection on the body –Pathology –source and spread of infection –vaccinations –generalized infections –rashes and infection –food poisoning and gastroenteritis –sexually transmitted diseases –HIV infections and Aids.
2. **Poisoning:** Clinical features –general management –common agents in poisoning –pharmaceutical agents –drugs of misuse –chemical pesticides –Envenomation.
3. **Food and Nutrition**: Assessment–Nutritional and Energy requirements; Deficiency diseases –clinical features and treatment; Protein –Energy Malnutrition: Clinical features and treatment; Obesity and its related disorders: Causes –Complications –benefits of weight loss –management of Obesity –diet, exercise and medications.
4. **Endocrine diseases:** Common presenting symptoms of endocrine disease –common classical disease

presentations, clinical features and its management; Diabetes Mellitus: Etiology and pathogenesis of diabetes – clinical manifestations of the disease –management of the disease –Complications of diabetes.

5. **Diseases of the Blood:** Examinations of blood disorders –Clinical manifestations of blood disease; Anemia – signs and symptoms –types and management; Hemophilia -Cause –clinical features severity of disease – management –complications due to repeated hemorrhages –complications due to therapy.
6. **Diseases of the Digestive system:** Clinical manifestations of gastrointestinal disease –Etiology, clinical features, diagnosis, complications and treatment of the following conditions: Reflux esophagitis, Achalasia Cardia, Carcinoma of Esophagus, GI bleeding, Peptic Ulcer disease, Carcinoma of Stomach, Pancreatitis, Malabsorption Syndrome, Ulcerative Colitis, Peritonitis, Infections of Alimentary Tract; Clinical manifestations of liver diseases -Etiology, clinical features, diagnosis, complications and treatment of the following conditions : Viral Hepatitis, Wilson's Disease, Alpha1-antitrypsin deficiency, Tumors of the Liver, Gall stones, Cholecystitis.
7. **Diseases of the Skin:** Examination and clinical manifestations of skin diseases; Causes, clinical features and management of the following skin conditions: Leprosy, Psoriasis, Pigmentary Anomalies, Vasomotor disorders, Dermatitis, Coccal and Fungal Parasitic and Viral infections.
8. **Renal disease:** Acute and Chronic renal failure and Urinary tract infection - common clinical conditions complicated by UTI.

References: a) Davidson's Principles and Practice of Medicine

b) Manipal manual of clinical Medicine by BA Shastry

c) Harrison's Principles of Internal Medicine

d) Manual of practical medicine by R Alagappan

PEDIATRICS:

Problems and management of LBW infants, Perinatal problems and management, Congenital abnormalities and management, Respiratory conditions of childhood, Cerebral Palsy –causes, complications, clinical manifestations, treatment ; Spina Bifida –management and treatment, Epilepsies –types, diagnosis and treatment; Recognizing developmental delay, common causes of delay ; Orthopedic and Neuromuscular disorders in childhood, clinical features and management ; Sensory disorders –problems resulting from loss of vision and hearing ; Learning and behavioral problems – Autism, Specific learning disability, Intellectual disability; Malnutrition, rickets, & vitamin D deficiency.

References: a) Manipal manual of clinical Pediatrics by Kafeel Ahmed Khan

b) Essential of Pediatrics OP Ghai

PSYCHIATRY:

1. Classifications, Causes, Clinical manifestations and treatment methods used in Psychiatry. Modalities of psychiatric treatment, Psychiatric illness and physiotherapy, Brief description of Etio-pathogenesis, manifestations, and management of
2. Psychiatric illnesses -. Anxiety neurosis, Depression, Obsessive compulsive neurosis, Psychosis, Maniac-depressive psychosis, post-traumatic stress disorder, Psychosomatic reactions: Stress and Health, theories of Stress –Illness. Etio-pathogenesis, manifestations, and management of psychiatric illness.

    a. Drug dependence and alcoholism
    b. Somatoform and Dissociate Disorders –conversion reactions, Somatization, Dissociate Amnesia, and Dissociate Fugue
    c. Personality disorders
    d. Child psychiatry -manifestations, and management of childhood disorders -attention deficit syndrome and behavioral disorders.
    e. Geriatric psychiatry

References: a) Textbook of Psychiatry by Neeraj Ahuja

BOT-505: BIOSTATISTICS AND RESEARCH METHODOLOGY

COURSE DESCRIPTION - The objective of this module is to help the students understand the basic principles of statistics & methods applied to analyze from the data collection to draw the inferences from the research findings.

COURSE OBJECTIVES: The objectives of this course is that after 36 hours of lectures, demonstrations, practical and clinics the student should acquire the knowledge of principles of scientific methods of enquiry and basic statistical methods of enquiry and basic statistical concepts, be initiated to skills of information searching, identification, retrieval and evaluation, principles of measurement and experimental design. The students should be able to use the above knowledge to carry out a study

COURSE OUTCOMES

- Interpret differences in data distributions via visual displays. Calculate standard normal scores and resulting probabilities
- Calculate and interpret confidence intervals for population means and proportions.

THEORY:

I. Research Methodology: -

1. Stages of research process
2. Developing ideas and defining a research question
3. Literature review
4. Errors in measurement and their control
5. Reliability and validity
6. Epidemiological measures of disease frequency
7. Research design:

I. **Quantitative(epidemiological)** a. Experiment (clinical, field, community) b. Observational i. Cohort ii. Case control iii. Cross sectional study iv. Ecological study

II. **Qualitative Research Method** (Sociological) Developing instruments (Delphi technique) Focus groups In-depth Interview Key informant interview

8. Ethical issues
9. Critical Appraisal of a research report
10. Selecting and Critiquing Assessments: • Theoretical Construct • Clinical Utility • Validation-Reliability and Validity • Cultural Relevance • Norm referenced and criterion referenced tool

II. Biostatistics

1. Data Collection, basic statistics and graphs
2. Probability and Non-Probability distribution (Binominal and normal)
3. Sampling and sampling techniques.
4. Confidence interval
5. Parametric and Non-parametric tests
6. Correlation and Regression
7. Scales- Nominal, ordinal, interval and ratio

References: a) Introduction to Biostatistics and Research Methods P.S.S. Sundar Rao & J. Richard

b) Principles & practice of Biostatistics by Belavendra Antonisamy, Premkumar & Christopher

c) Methods in Biostatistics by BK Mahajan

d) Research methodology & Biostatistics by Suresh K Sharma

RESEARCH METHODOLOGY

Research in medicine and healthcare

1. Clinical research and clinical trials
2. Research models
3. Research process
4. Testing of hypothesis
5. Selecting an instrument
6. Gathering data
7. Analyzing the data
8. Presenting results
9. Publishing research
10. Search techniques
11. Research's relationship with the professional body of knowledge

References: a) An introduction to Biostatistics & research methods by P.S.S Sunder Rao J Richard

b) Research methodology & Biostatistics by Suresh K Sharma

c) Research Methodology by C.R. Kothari

SEMESTER-6: 20 CREDITS

BOT-601: OCCUPATIONAL THERAPY IN ORTHOPEDICS CONDITIONS

COURSE DESCRIPTION - The subject serves to integrate the knowledge gained by the students in orthopedics and traumatology with skills to apply in clinical situations of dysfunction and musculoskeletal pathology.

COURSE OBJECTIVE: The objective of the course is that after the 108 hours of lectures and demonstrations the student will be able to do functional diagnosis and identify disabilities due to musculoskeletal dysfunction, plan and set treatment goals and apply the skills gained in occupational therapy in these clinical situations to restore musculoskeletal function.

COURSE OUTCOME:

- To understand traumatology of Upper and lower limb fractures, with their treatment protocols**.**
- Assess the patients with musculoskeletal conditions.
- To understand the pathophysiology of various inflammatory and infective conditions of musculoskeletal system with its treatment protocol.
- To understand OT evaluation of Orthopedics conditions.
- To understand OT management of Orthopedics conditions.

1) Introduction- Brief review of orthopedic conditions.
(2) Application of occupational therapy principles and techniques in evaluation and treatment of the following orthopedic conditions to include: -
(a) Fracture, dislocations and soft tissue injuries -
Upper extremity, lower Extremity and spine.
(b) Deformities - Congenital and acquired deformities of Upper extremity, lower
Extremity and spine.
(c) Inflammatory condition of joints and bones.
- R.A., Ankylosing spondylitis & other major conditions.
(d) Metabolic diseases - Rickets, Osteomalacia Osteoporosis,
gout etc.
(e) Amputations - Pre & Post-operative occupational therapy treatment.

Application of occupational therapy principles and techniques in evaluation and treatment of the following orthopedic conditions to include: -

(1) Degenerative & Infective Conditions-Osteoarthritis of major joints, Spondylosis, Spondylolisthesis, PID, periarthritis Shoulder, T.B. Spine Bone & Major joints, Perthe's disease, Cumulative Trauma Disorder.

(2) supportive and corrective appliances in the rehabilitation of orthopedic cases.

(3) Adapted devices in the rehabilitation of orthopedic case.

(4) Activities of daily living, testing and training in A.D.L.

(5) Poliomyelitis: Post-polio residual paralysis and post-polio syndromes.

(6) Cerebral palsy reconstructive surgeries including limb lengthening procedure and orthotic management.

(7) Total Hip and Knee replacements occupational therapy treatment.

(8) Pain Management in Occupational Therapy.

(9) Functional bracing: Definition, concept of functional bracing, objectives and scientific basis of functional fracture bracing, importance in healing of fracture

REFERENCES:

a. Occupational Therapy practice skills for physical dysfunction – L. Pedretti, B Zoltan.
b. Occupational Therapy for Physical Dysfunctions – C. Trombly
c. Therapeutic exercise – Foundations and Techniques – Kisner
d. Willard and Spackman's Occupational Therapy
e. Treatment and Rehabilitation of Fractures- S. Hoppenfield and V.L. Murthy
f. Rehabilitation of the Hand by Wynn parry CB Published by Butterworths
g. Orthopedic Physical Assessment – David Magee Published by WB Saunders
h. Clinical Orthopedic Rehabilitation – Brent Brotzman Published by Mosby

BOT-602: OCCUPATIONAL THERAPY IN SURGICAL CONDITIONS

COURSE DESCRIPTION- Acquire the knowledge of evaluation and OT treatment for surgical conditions. Acquire the knowledge of various conditions where occupational therapy plays a vital role in the rehabilitation.

COURSE OBJECTIVES: The objective of the course is that after the 108 hours of lectures and demonstrations the student will be able to identify discuss and analyze cardiovascular and pulmonary dysfunction. Acquire knowledge of rational of basic investigative approaches in the surgical intervention

COURSE OUTCOMES:

- To understand pathophysiological changes during antenatal and infectious and metabolic disorders with their OT treatment
- To understand pathophysiological changes in respiratory and cardiovascular disorders with their OT treatment
- To understand pathophysiological changes in burn and oncology with their OT
- treatment
- Diagnose condition from history taking, clinical evaluation and investigation in patients with skin disorders and wound.
- To understand various injuries with its treatment Protocol

THEORY:

OT IN SURGICAL CONDITIONS

(1) Introduction - Brief review of surgical conditions

(2) Methods of evaluation in Occupational Therapy.

a) Role of Occupational Therapy

b) Hand injures - emphasis or rehabilitation of Hand and reconstruction.

c) Thoracic surgery - Pre and postoperative management in respect of rehabilitation.

d) Plastic surgery - basic principle and applications.

e) Radical Mastectomy & Role of Occupational Therapy in Obstetrics & Gynecology

f) Supportive and corrective application in the rehabilitation of surgical case.

g) Adaptive devices in the rehabilitation of surgical cases.

h) Activities of daily living testing and training in A.D.L.

i) Burns: Define the term "Burns", classify burns depending on various aspect, describe stage of burns explain role of O.T. in burns patients including assessment, describe O.T. treatment in pre graft, post graft & rehab phase.

j) Cancer rehabilitation: Describe preventive, restorative, supportive and palliative aspects in radical mastectomy and head and neck cancer. Explain the concept of hospice, family systems and the need for treatment of the family as the unit care.

k) Vascular Condition: Explain peripheral vascular diseases their complications & role of O.T. in their management

REFERENCES:

a) Occupational Therapy – Willard & Spackman's

b) O.T. Practice Skills for Physical Dysfunction – Pedretti

c) O.T. in physical Dysfunction – Trombly & Scott

d) Therapeutic Exercise – Kisner

e) Pulmonary rehabilitation, guidelines to success – Hodgkin T.E.

f) Physical rehabilitation, assessment, treatment – O'Sullivan.

BOT-603: OCCUPATIONAL THERAPY IN MEDICAL CONDITIONS

COURSE DESCRIPTION- Acquire the knowledge of evaluation and OT treatment for medical conditions. Acquire the knowledge of various conditions where occupational therapy plays a vital role in the rehabilitation.

COURSE OBJECTIVES: The objective of the course is that after the 108 hours of lectures and demonstrations the student will be able to identify discuss and analyze cardiovascular and pulmonary dysfunction. Acquire knowledge of rational of basic investigative approaches in the medical intervention.

COURSE OUTCOMES:

- To understand pathophysiological changes during antenatal and infectious and metabolic disorders with their OT treatment
- To understand pathophysiological changes in respiratory and cardiovascular disorders with their OT treatment
- To understand pathophysiological changes in burn and oncology with their OT treatment
- Diagnose condition from history taking, clinical evaluation and investigation in patients with skin disorders and wound
- To understand various injuries with its treatment Protocol

THEORY:

OT IN MEDICAL CONDITIONS

(1) Introduction - Brief review of medical condition and treatment and role of Occupational Therapy in the rehabilitation of patient with various diseases.
(2) Methods of evaluation in Occupational Therapy.
(3) Therapeutic activities techniques & Frame of reference in Occupational Therapy.
(4) Aims and Principal of Occupational Therapy.

(5) Developmental aspects of childhood.

(a) Physical, emotional intellectual and social development of the child.

(b) Guide for development testing.

(c) Average development achievement. (From birth to 10-year age)

(d) Objective and function of Occupational Therapy in

- Arthritic conditions
- Leprosy
- Cerebro-Vascular accidents.
- Cardiac - diseases (congenital and acquired)
- Geriatric condition
- Cerebral palsy, minimal cerebral dysfunction - perceptual motor dysfunctions in a brain - damaged child
- HIV
- Pulmonary condition.
- Hemophilia.

(6) Assessment and diagnostic functions of Occupational Therapy: Home care program in severely disabled and A.D.L. in adults.

REFERENCES:

a. Occupational Therapy – Willard & Spackman's

b. O.T. Practice Skills for Physical Dysfunction – Pedretti

c. O.T. in physical Dysfunction – Trombly & Scott

d. Therapeutic Exercise – Kisner

e. Pulmonary rehabilitation, guidelines to success – Hodgkin T.E.

f. Physical rehabilitation, assessment, treatment – O'Sullivan.

BOT- 604: GROUP PROCESS IN OCCUPATIONAL THERAPY

COURSE DESCRIPTION: This course applies general group theory as well as occupation-based group theories to Occupational Therapy practice. The students should gain practical experience in conducting various types of groups in the clinical setting.

COURSE OBJECTIVES: The objective of this course is that after at least 108 hours of lectures and practical, the student will be able to demonstrate an understanding of theory and practical aspects of therapeutic groupwork in Occupational Therapy.

COURSE OUTCOMES:

1. Discuss the rationale, types and theoretical framework underlying group therapy
2. Discuss the group process from evolution to conclusion
3. Demonstrate the ability to plan, conduct, evaluate and report on various therapeutic groups

THEORY:

Section A: Introduction to Group Therapy

1. Theoretical rationale for groups- Yalom's curative factors
2. Classification of groups in occupational therapy- task, social, communication and psychotherapy groups
3. Frames of references and theoretical approaches underlying group therapy
 a. Occupation based approaches- specific focus on MOHO
 b. Developmental approaches- specific focus on Mosey's adaptive skill
 c. Humanistic and client centered approaches- specific focus on Rogers', Maslow's concepts and the OTPF
d. Behavioral cognitive approaches- specific focus on cognitive rehabilitation, cognitive disabilities, Cognitive behavioral frame of reference
 e. Sensory motor approaches- specific focus on adults with physical disabilities and movement therapy groups for children

Section B: Understanding group dynamics

1. Building a group- selection of members, selection methods, norms, temporal variables
2. Group evolution- stages of group formation, norms and cohesion of a group
3. Group process- roles and intra group relationships, verbal and non- verbal interaction, decision making in groups

Section C: Acquiring group skills

1. Group leadership- leadership styles, responsibilities, co- leadership
2. Planning a group
a. Identifying target population- goals of group, membership decisions, motivating members and gaining referrals
b. Selecting a frame of reference- choosing activity, grading and adapting activity, structuring session and the environment

c. Managing problems within a group- specific member as well as group in conflict

Section D: Recording and reporting groups

1. Writing a group treatment plan protocol
2. Group process evaluation
3. Leadership evaluation
4. Evaluation of roles/ sociogram

Section E: Practical demonstration:

Students should have ability to plan and organize group treatment based on frames of references mentioned under Section A. 3

a. Occupation based approaches- e.g. vocational readiness, scheduling day, leisure activities groups
b. Developmental approaches- e.g. social skills, task groups
c. Humanistic and client centered approaches- e.g. self-awareness, purpose in life, values in life focused group
d. Behavioral cognitive approaches- exercise, memory/ attention retraining, relaxation, psycho education groups, anger management, assertiveness training
e. Sensory motor approaches- parachute play, music, movement, exercise groups
f. Psychoanalytic approach – Drama therapy, caregiver support groups

References:

1. Essentials of Group Therapy by Virginia A. Brabender, April.E. Fallon, Andrew I. Smolar
2. Group Dynamics in Occupational Therapy by Marilyn B. Cole
3. Groupwork in Occupational Therapy by Linda Finlay EVALUATION: Internal: Theory University: Theory

SEMESTER- 7: 20 CREDITS

BOT-701: OCCUPATIONAL THERAPY IN MENTAL HEALTH

COURSE DESCRIPTION - This course parallels the study of clinical psychology and psychiatry. It follows the study of application of Occupational Therapy approaches & techniques to Psychiatric conditions.

COURSE OBJECTIVES: The objective of this course is that after at least 108 hours of lectures, demonstrations, practical and clinics the student will be able to demonstrate an understanding of evaluation and therapy techniques used in Occupational Therapy for psychiatric conditions.

COURSE OUTCOMES:

1. Discuss the role of occupational therapy and treatment media in psychiatric conditions
2. Demonstrate appropriate evaluation procedures and approaches for patients with psychiatric conditions
3. Outline the principles of psychosocial rehabilitation with respect to various treatment settings

THEORY:

A. Describe the history of Psychiatric Occupational Therapy, and its development up to the present day.

B. Define OT in relation to psychiatry, and the role of an Occupational Therapist in the psychiatric team

C. Discuss the treatment media used in Psychiatry including the role of activities. Analyze activities with reference to Psychiatry.

D. Discuss Frames of Reference in the treatment of psychiatric conditions:

- Occupation Based Approaches
- Occupational Behavior and Model of Human Occupation
- Occupational Adaptation Approaches based on Development
- Developmental groups and Developmental approach.

- Acquisitional Frame of Reference Approaches based on psychoanalytic school
- Psychodynamic Frames of Reference Approaches based on performance components
- Sensory Integrative approach
- Cognitive Disability Frame of Reference Approaches based on behavioristic school
- Behavioral
- Cognitive Behavioral Trans theoretical approaches
- Transtheoretical model of behavioral change Recovery model
- Client-centered approach

E. Discuss therapeutic use of self and ethics.

F. Describe in detail the assessment of a client including specific method used in the following: (using observation, interviews & specialized assessments) a. Mental status examination b. Assessment of cognitive skills c. Interpersonal skills d. ADL skills e. Vocational Skills f. Academic skills

G. Identify psychopathology (client factors) in relation to the practical situations observed in therapy.

H. Discuss OT assessment, treatment aims, plan and treatment approaches for the following conditions: • Schizophrenia and other primary psychotic disorders • Mood disorders • Obsessive Compulsive or related disorders • Anxiety or fear related disorders • Disorders specifically associated with stress • Disorders of bodily distress or bodily experience • Dissociative & Factitious disorders • Eating and sleep-wake disorders • Personality disorders & related traits • Disorders due to substance use or addictive behaviors • Neurocognitive disorders • Organic Brain Syndrome • Gender incongruence disorders Neurodevelopmental Disorders- disorders of intellectual development, Autism spectrum disorder, developmental speech or language disorders, developmental Learning Disorder, developmental motor coordination Disorder, Attention Deficit/Hyperactivity Disorder Conduct-dissocial disorder, oppositional defiant disorder

I. 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.

J. Outline the following psychiatric setups and the role of OT in each. a. Therapeutic community b. Halfway Homes c. Geriatric units d. Sheltered workshops e. Day care centers f. Government mental hospitals and psychiatric institutions g. Family therapy units

K. Psychosocial Rehabilitation 1. Cognitive remediation 2. Social skills training 3. Life skills training 4. Supported employment 5. Assertive community care 6. Family oriented care

L. Observation of various therapeutic groups in psychiatry (Not for theory examinations).

EVALUATION Internal: Theory, Practical and Oral Tests and case study file (four case study to be submitted).
University: Theory, Practical and Orals

REFERENCES:

a. Willard and Spackman's Occupational Therapy
b. Occupational Therapy in Short Term Psychiatry by M. Wilson
c. Occupational Therapy in Long Term Psychiatry by M. Wilson.
d. Occupational Therapy a communication process by G.S. Fidler and J.W. Fidler
e. Quick reference to Occupational Therapy by K. Reed.
f. Occupational therapy and Mental Health by J. Creek
g. Mental Health concepts and techniques for occupational therapy assistant by M. B. Early
h. Occupational therapy in Psychiatry and Mental Health by Rosemary Crouch and Vivyan Alers

BOT-702: OCCUPATIONAL THERAPY IN NEUROLOGICAL CONDITIONS

COURSE DESCRIPTION - – to introduce students to various assessments and treatment planning for cases related to neurological disorders which are referred for Occupational therapy management

COURSE OBJECTIVES: The objective of this course is that after at least 108 hours of lectures, demonstrations, clinical placements and case presentations, the student will be able to demonstrate an understanding of evaluation and therapy techniques used in occupational therapy for neurological conditions.

COURSE OUTCOMES:

- Practically apply basic principles of Kinesiology and functional anatomy to the evaluation and treatment of orthopedic and neurological conditions.
- Demonstrate appropriate evaluation procedures for patients with conditions commonly referred from neurology.
- Application of occupations & activities appropriately for clients with neurological conditions
- Outline the principles and goals in design, indications, and fitting of hand splints, prostheses, calipers and mobility aids.

Theory –

1**. Overview of sensory motor approaches**

• Development of motor control, Assumptions of neurophysiological approaches, Reflex Hierarchical model of motor control, Theory of motor development, motor dysfunction caused by CNS lesions, View of recovery after CNS lesions

• Sensory-motor-sensory processing

• Rood's approach

• Bobath approach

• Brunnstom's approach

• Sensory integrative approach

• Motor relearning program

• Proprioceptive neuromuscular facilitation approach

2. **Cognitive perceptual skills- evaluations, scales used and therapy**

3. **Occupational therapy assessment and intervention planning for common neurological conditions**

• Stroke

• Traumatic head injury

• Parkinsons's disease

• Amyotrophic lateral sclerosis

• Multiple sclerosis

• Huntington's disease

• Alzheimer's disease

• Motor neuron disease

• Myasthenia gravis

• Cerebellar dysfunctions

4. **Dysphagia**

Normal physiology of swallowing, disease process resulting into dysphagia, guidelines for assessment and treatment

5. Occupational Therapy in blind:

- Definition and Classification, mobility techniques, communication skills, sensory re-education, emotional and psychological aspects of blindness facilities for blind, prevention of blindness

Practical –

1. History taking, evaluations related to neurological disorders and treatment planning

2. Presentations of short and long cases related to medical or neurological conditions with emphasis on evaluation and planning of therapy goals

References:

a. Occupational Therapy – Willard & Spackman
b. O.T. Practice Skills for Physical Dysfunction – Pedretti
c. Occupational therapy for physical dysfunction by Catherine Trombly
d. Physical rehabilitation, assessment & treatment – Suzan O' Sullivan
e. A manual for evaluation and treatment of perceptual and cognitive deficits by B. Zoltan, E Siev, B Frieishtat
f. Neurological Rehabilitation by A U Darcy

BOT-703: OCCUPATIONAL THERAPY IN PEDIATRIC CONDITION

COURSE DESCRIPTION: This course covers the application of the principles of occupational therapy to physical, mental and emotional disorders of childhood.

COURSE OBJECTIVES: The objective of this course is that after at least 108 hours of lectures, demonstrations, practical's and clinics, the student will be able to demonstrate an understanding of: 1. Areas of abnormal and delayed development in children from birth to5 years 2. Psychological reactions of children to hospitalization and to disability 3. Appropriate therapeutic approaches and techniques for the physical, mental, and emotional disorders of childhood 4. Treatment plans appropriate to the child's condition and stage of development, Psychological Aspects

COURSE OUTCOMES:

- To be able to develop skills to implement timely and appropriate Occupational Therapy assessment tools/ techniques to ensure holistic approach to patient evaluation to prioritize patient's problems.
- To be able to select timely Occupational Therapy interventions to reduce morbidity and occupational Therapy management strategies, Suitable for patient's problems and indicator conditions based on the best available evidence.

THEORY

A. NORMAL DEVELOPMENT FROM BIRTH TO FIVE YEARS

1. Physical development- Gross and fine motor
2. Reflex development
3. Perceptual, cognitive, social, emotional, language, self-care and play development
4. Practical's (e.g. perceptual testing, reflex testing)

B. PSYCHOLOGICAL ASPECTS

(1) Psychological reactions to disability in childhood and Occupational Therapy role.

(2) Psychological aspects of hospitalization, and Occupational therapy role.

Treatment Media

(1) Play Therapy.

(2) Creative activities.

Frames of References and Treatment approaches

(1) Bobath NDT.

(2) Rood's neuromuscular facilitation.

(3) Ayre's Sensory Integration Approach.

(4) Biomechanical frame of reference

(5) Developmental FOR

(6) Peto's - conductive Education.

(7) PNF

Occupational Therapy Application

(1) Cardio respiratory conditions of childhood.

(2) Cerebral palsy

(3) Visuo- perceptual and Visuo- motor dysfunction

(4) Muscular dystrophy

(5) Erb's palsy

(6) Poliomyelitis

(7) Spina bifida and hydrocephalus.

(8) Arthrogryposis and other congenital orthopedic disorders

(9) Stills disease.

(10) Early intervention for congenital neurological disorders (High risk infants)

(11) Nutritional disorders,

(12) Mental retardation and Down's syndrome.

(13) Congenital Syndromes and Chromosomal abnormalities

(14) Specific learning disabilities

(15) Pervasive Developmental Disorder

(16) Attention Deficit Hyperactivity Disorder

(17) Behavior disorders

(18) Visual / auditory loss.

(19) Speech and communication disorders.

(20) Acquired Immuno Deficiency Syndrome.

(21) Seizure disorders

(22) Hemophilia

(23) NICU

Occupational Therapy Intervention for specific areas of dysfunction

- Oromotor dysfunction
- Pre writing and writing skills
- Psychosocial dysfunction
- Postural Control

OT Evaluation- level of participation, assessment of performance: motor, sensory perceptual, cognitive, psychosocial, school environment, teacher curriculum expectation b. Individualized Education Program: Development and components c. Intervention- academic and functional goals d. Integrated therapy

Pediatric Splinting and Adaptive Devices:

Including, seating devices, Adaptations for feeding, Mobility and Ambulatory devices, Indication and use of splint for correction of CDH

References:

a. Occupational Therapy and Physical Dysfunction: Principles, Skills and Practice by A. Turner
b. Willard and Spackman's Occupational Therapy • Neurological Rehabilitation- A. U. Darcy
c. Occupational Therapy for children: J. Case-Smith and A Pratt
d. Occupational Therapy practice skills for physical dysfunction – L. Pedretti, B Zoltan.
e. Occupational Therapy for Physical Dysfunctions – C. Trombly
f. Treatment for Cerebral palsy and motor delay by Sophie Levi

BOT-704: COMMUNITY MEDICINE

COURSE DESCRIPTION: This course will enable students to understand the effects of the environment and the community dynamics on the health of the individual.

COURSE OBJECTIVES: The objective of this course is that after 72 hours of lectures, demonstrations, practical and clinics, the student will be able to demonstrate an understanding of the influence of social and environmental factors on the health of the individual and society.

COURSE OUTCOMES:

- To recognize general concepts of health diseases, role of socio- economic and cultural environment in health and disease.
- To understand health problems of vulnerable groups pregnant and lactating women, Infants, School Children.
- To recognize family planning and its objectives.
- To know about public health administration
-

THEORY:

A. Outline the natural history of diseases and the influence of social, economic and cultural aspects of health and diseases.
B. Outline the various measures of prevention and methods of intervention especially for diseases with disability.
C. Outline the natural care delivery system and the public health administration system at central and state government level- primary health care, school health, health team at district hospitals and PHC, voluntary and international agencies in health care.

D. Outline selective national health schemes.

E. Define occupational health and list methods of prevention of occupational hazards.

F. Outline the Employees State Insurance scheme and its benefit

G. Describe the social security measures for protection from
occupational hazards, Accidents, diseases and
workman compensation act.

H. Define community-based rehabilitation, institution-based rehabilitation. Describe the advantages and disadvantages of institution based and community-based Rehabilitation.

I. Describe the following communicable diseases with reference to water reservoir, Mode of transmission, route of entry and levels of prevention

1. Poliomyelitis
2. Meningitis
3. Encephalitis
4. Tuberculosis
5. Filariasis
6. Leprosy
7. Tetanus
8. Measles

J. Describe the epidemiology of Rheumatic heart disease, cancer, chronic Degenerative disease, cerebrovascular accident

K. Outline the influence of nutritional factors such as protein energy malnutrition, Anemia, vitamin deficiency and minerals on disability, nutritional programs, Balanced diet, nutritional requirement and source, food adulteration.

L. List the principles of health education, methods of communication and role of Health education in rehabilitation service-AV aids, planning a health education Program.

M. Define the role of community leaders and health professional in health education.

N. Outline the role of international health agencies in rehabilitation of the disabled.

Practical: Community orientation & clinical visit-

1. The community orientation and clinical visit will include visit to the entire chain of healthcare delivery system -Sub center, PHC, CHC, SDH, DH and Medical college, private hospitals, dispensaries and clinics.

2. The student will also be briefed regarding governance at village level including interaction and group discussion with village panchayat and front-line health workers.

3. Clinical visit to their respective professional department within the hospital.

REFERENCES:

a) Textbook of community medicine by Sunder Lal, Adarsh & Pankaj

b) Textbook of preventive & social medicine by Dr. JE Park

BOT-705: CLINICAL CARDIO-RESPIRATORY & OT IN WORK PHYSIOLOGY

CLINICAL CARDIO-RESPIRATORY

COURSE DESCRIPTION: Following the basic science and clinical science courses this course introduces the student to the cardio-thoracic conditions which commonly cause disability. Particular effort is made in this course to avoid burdening the student with any detail pertaining to diagnosis which will not contribute to their understanding of the limitation imposed by cardio-thoracic pathology on the functioning of the individual.

COURSE OBJECTIVES: The objective of this course is that after 36 hours of lectures, clinics and seminars, the student will be able to demonstrate an understanding of cardio-thoracic conditions causing disability and their management

THEORY:

A. ANATOMY AND PHYSIOLOGY 1. Describe in detail the anatomy of the lungs, bronchi and bronchopulmonary segments. 2. List the relationship of the bony thorax and lungs to each other and to the abdominal contents. 3. Briefly describe the variations in the bony cage in the following conditions: a. Cervical ribs b. Rickets – rickety rosary c. Pigeon chest d. Funnel chest e. Scoliosis f. Kyphosis 4. Describe the movements of the thorax: Bucket handle, pump handle.

5. List the muscles of respirations involved in inspirations and expirations (including accessory muscles that are involved). 6. Describe in brief the anatomy of the heart and its blood supply and briefly outline the electrical activity of the myocardium and normal ECG. 7. Describe the physiological control of respiration and highlight the function of the medullary and pontine respiratory centers and peripheral chemoreceptors. 8. Describe the mechanisms for maintenance of blood pressure. 9. Describe in detail the cough reflex. 10. List the mechanical factors involved in breathing. Describe briefly factors affecting lung compliance and airway resistance. 11. List the factors affecting diffusion of oxygen and carbon dioxide in the lungs. Explain ventilation, perfusion and their inter relationship. 12. Outline the energy expenditure of various common activity of daily living. 13. Pulmonary function assessment: Briefly describe the pulmonary function tests and their use; briefly outline the basis and value of blood gas analysis. 14. Briefly outline the principles of cardio vascular stress testing.

B. CARDIAC SURGERY 1. List the 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.) 2. 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)

C. THORACIC SURGERY 1. Describe very briefly the clinical features and management of the following: Fracture ribs, Flail chest, Stove-in chest, Pneumothorax, Hemothorax, Hemopneumothorax, Lung contusion & laceration, Injury to Heart, Great vessels & Bronchus. 2. List the causes of empyema and its treatment. Describe briefly: Intercostal drainage, Rip resection, Decortication and window operation. 3. Outline briefly the clinical features and management of the following suppurative lesions of the lung; Bronchiectasis, Lung abscess, Bronchopneumonia & Aspergillosis. 4. Outline briefly the clinical features and management of carcinoma lung. 5. Outline the extent, use and complications of the following surgical incisions: Anterolateral thoracotomy, Posterolateral thoracotomy and Median sternotomy. 6. Describe the post operative management of patients with: Segmentectomy, Lobectomy, Bilobectomy, Pneumonectomy, Pleuropneumonectomy & Tracheostomy. 7. Outline briefly the principles of various ventilators and their use. 8. Describe in detail the preoperative assessment and management of a patient posted for thoracotomy. 9. 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. 10. Describe the principles of Cardio-pulmonary resuscitation; Cardiac massage, artificial respiration, defibrillators and their use

D. MISCELLANEOUS 1. Systemic Hypertension, Pulmonary Hypertension, Syncope and their management. 2. Briefly outline the management of a patient with chronic obstructive airway disease. 3. ischemic heart disease and risk factors and its management. 4. Heart failure, Cardiomyopathies EVALUATION Internal: Theory University: Theory and Oral

WORK PHYSIOLOGY

COURSE DESCRIPTION – To understand the principles of work physiology both basic and advanced as well as assessment techniques.

COURSE OBJECTIVES: The objective of this course is that after 36 hours of lectures, demonstrations the student will be able to demonstrate an understanding of the basic concepts of work physiology effects of exercises on human body

COURSE OUTCOMES:

To understand normal cardiac output and cardiac work during regulation of exercise

To describe the effects of exercises on blood pressure, renal blood flow, coronary circulation etc.

THEORY:

A. Physiology of exercise

- Define exercise
- Recognize the two types of muscle contraction – (a) Isotonic (b) Isometric
- Define and give examples of (a)Aerobic/Endurance exercise and (b)Anaerobic/Strengthening/Glycolytic/Resistance exercise • Differentiate between Aerobic/Endurance exercise and Anaerobic/Resistance exercise
- State the formula for computing the maximal heart rate of an individual
- Define metabolic equivalents or METs. Explain the relationship between METs, oxygen consumption and energy expenditure • Express the level of exercise/physical activity in terms of % of Maximal heart rate, % of VO2 max, power output and energy expenditure in METs
- Recognize the classification of physical activity/exercise based on intensity of exercise (example: light, moderate, heavy etc. exercise)
- Describe the benefits of exercise

B. Acute effects of exercise on different systems: Specific learning objectives:

1. Cardiovascular system:
    - Describe the acute changes in heart rate, cardiac output, systolic and diastolic blood pressures with different levels of exercise
    - Describe the changes in the distribution of blood (muscle, renal, gut, brain, heart circulations etc.) with exercise
    - Recognize the difference in the effects of upper limb alone, lower limb alone and whole-body exercise on the cardiovascular system
    - Recognize the difference in the effects of aerobic and anaerobic exercise on the cardiovascular system
    - Recognize the limitations to exercise in patients with cardiac failure and myocardial infarction

2. Respiratory system: Describe the acute changes in respiratory rate, pulmonary ventilation, and pulmonary blood flow with exercise

3. Neuro-muscular system: Recognize the immediate effect of exercise on neural circuits and muscle strength

4. Metabolism:

i. List the sources of energy for different intensities and duration of exercise
ii. Describe oxygen consumption during exercise and during recovery
iii, Define oxygen deficit and oxygen debt
iv. Explain what is meant by maximal oxygen consumption/VO2 max /maximal aerobic capacity and discuss its importance

D. Long term effect of exercise on different systems:

1. Circulatory adaptations to exercise training:

i. Describe the effects of exercise training on heart rate, stroke volume, cardiac output, blood pressure, microcirculation of skeletal muscle and cardiac muscle ii. Differentiate between the training effects of aerobic and anaerobic exercise on the cardiovascular system

2. Biochemical adaptations to exercise training:

i. List the skeletal muscle metabolic adaptations with aerobic and anaerobic exercise training

3. Morphological adaptations to exercise training

i. Describe the adaptations in skeletal muscle structure, fiber type and blood supply
ii. List the adaptations in tendons and ligaments, bones, cardiac muscle and body composition
iii. Differentiate between adaptations due to aerobic training and anaerobic training

REFERENCES:

a. A.K. Jain, Text book of Physiology for medical students)
Guyton (Arthur) Text Book of Physiology.

SEMESTER-8: 20 CREDITS

BOT-801: REHABILITATION MEDICINE

COURSE DESCRIPTION: The subject serves to integrate the knowledge gained by the students in rehabilitation medicine and other areas with skills to apply these in clinical situations of health and disease and its prevention. The objective of the course is that after the specified hours of lectures and demonstrations the student will be able to identify rehabilitation methods to prevent disabilities and dysfunctions due to various disease conditions and plan and set treatment goals and apply the skills gained in rehabilitating and restoring functions.

COURSE OBJECTIVES: The objectives of this course are that after 72 hours of lectures and seminars and clinics the student will be able to:

A. Understand the concept of team approach in rehabilitation through practical demonstrations, with contributions from all members of the team.

B. Develop skills in identification of diagnostic features in various clinical conditions leading to disability.

C. Understand the role of medical and surgical aspects in a rehabilitation program

D. Understand role of each member of the Rehabilitation team in maximizing the residual potential of persons

with disability.

E. Formulation of appropriate goals (long &short term) in treatment and rehabilitation of individuals with disability

COURSE OUTCOMES:

- To understand the team approach in rehabilitation of disability. To understand the role of community and other institutions for rehabilitation.
- To identify the residual potentials in patients with partial or total disability (temporary or permanent). Formulation of appropriate goals (long & short term) in treatment & rehabilitation will be discussed.
- Application of various orthosis, prosthesis, wheelchairs and other assistive devices for different medical and physical conditions.
- To understand the importance of administration in setting of department.
- To understand the organizational structure of a department

THEORY

A. INTRODUCTION: Define the term rehabilitation. Explain its aims and principles.

B. PRINCIPLES AND MANAGEMENT OF THE FOLLOWING CONDITIONS:

Demonstrate methods of evaluation and management for physical, cognitive, and behavioral dysfunction following: Spinal Cord Injury (paraplegia and tetraplegia), Poliomyelitis, Acquired Brain Injury (including stroke, traumatic brain injury and cerebral palsy), Arthritic conditions, Amputation, Neuro-muscular disorders, Hansen's disease, Peripheral nerve lesions, Fracture disease & Chronic cardio – respiratory dysfunction

C. THERAPEUTIC TECHNIQUES: Explain the theory and mechanisms of therapeutic techniques, and relevant precautions, for the following: 1. Joint mobilization. 2. Reducing spasm and management of spasticity 3. Assisting weak muscles. 4. Increasing endurance. 5. Muscle re-education following muscle transfer surgery. 6. Strengthening muscles. 7. Increasing co-ordination. 8. Improving balance. 9. Gait training.

D. Therapeutic Agent Modalities: 1. Superficial thermal agents: Hydrotherapy/Whirl pool, cryotherapy, fluidotherapy, hot packs, paraffin, water, infrared and other heating and cooling technologies 2. Deep thermal agents: Therapeutic ultra sound, phonophoresis, short wave diathermy 3. Electro-therapeutic agents: Biofeedback, Neuro-muscular electrical stimulation (NMES), Functional Electrical Stimulation (FES), Transcutaneous Electrical Nerve Stimulation (TENS) 4. Mechanical devices: Vaso-pneumatic devices and

Continuous passive motion devices (CPM)

E. Communication problems: Identify communication problems, classify these and outline principles of treatment / training.

F**. Behavioral problems:** Identify behavioral problems in the disabled and outline the principles of management
G. Pain: Describe the theories of pain and discuss therapeutic management of pain using various modalities. Describe the common myo-facial pain syndromes and outline their management.

H. Orthotic devices: Explain the principals 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. Brief overview of the following: • Upper and lower extremity Orthoses • Spinal Orthoses • Hand orthoses

I. Prosthetic devices: Describe types, prescription, fitting and checking of Upper Extremity and Lower Extremity Prostheses. Demonstrate methods of training in their use. Prescription and designing footwear modifications.

J. DISABILITY EVALUATION: Outline the principles of disability evaluation and discuss its use.

K. ICF: Introduction to International classification of functioning, disability, and health (ICF)

L. Legal Aspects: Outline legal aspects of disability in terms of compensation for disability and benefits available to the persons with special needs.

M. Social Implications: Outline the social implications of disability for the individual and for the community.

N. Community Based Rehabilitation Module: Describe a CBR module and compare this with an Institutional based rehabilitation system.

O. Bio-engineering: Define and describe role of bioengineering in rehabilitation.

EVALUATION Internals: Theory University: Theory

References:

a. Occupational therapy in Community based practice settings by Marjorie E. Scaffa and Maggie Reitz
b. Occupational Therapy for Physical Dysfunctions by I. Trombley.
c. Willard and Spackman's Occupational Therapy by Hopkins & H. Smiths

d. National Health programs in India Kishor J

BOT-802: ADVANCES IN OCCUPATIONAL THERAPY

COURSE DESCRIPTION: The subject serves to integrate the knowledge gained by the students in advances in Occupational Therapy with Occupational Therapy skills to apply these in various clinical situations.

COURSE OBJECTIVES: The objective of the course is that after 72 hours of lectures and demonstrations the student will be able to do to identify, discuss and analyze the various advances in Occupational Therapy such as Bio feedback, virtual reality and environment, Robotics, Kinesio-taping.

COURSE OUTCOMES: -

- To develop the skills to execute different advance techniques, related to Occupational Therapy and Rehabilitation.
- To be able to execute the advance technology with appropriate clinical reasoning to improve functions in patients.

THEORY:

1) Ethics in occupational therapy
(2) Quality assurance and quality control
(3) Fiscal management
(4) Service program
(5) Service delivery model
(6) Hospice care.
(7) Occupational therapy in health promotion and programme.
(8) Occupational therapy management in stress.
(9) Occupational therapy role in cardiopulmonary dysfunction
(10) Adjunctive therapy,
(a) Biofeedback.
(b) Physical agent modalities.
(c) Virtual reality & environment
(d) Robotics

(e) Functional electrical stimulation

(11) Tele Rehabilitation

(12) Role of occupational therapy in sports medicine.

(13) Occupational Therapy in Blind: Describe the role that the senses play in person's life & in the process of rehabilitation, define the term blindness, refute common misconception about blindness, describe the emotional, physical & psychological needs of blind person and explain preventive measures.

(14) Occupational Therapy in deaf, dumb: Explain development of auditory perception, define and classify deafness, enumerate causes of deafness, types of hearing aids, communication skills, Facilities for the deaf-mute, functional and vocational rehabilitation, explain preventive measures, describe vestibular affections and re-training.

(15) Setting of Rehabilitation Centre

(16) Discuss how occupational therapy & theory & sociopolitical climate influence practice.

(17) Evidence Based Practice

(18) Aquatic Therapy

(a) Properties water and principles of aquatic therapy. Definition, Goals,

(b) Indications.

Precautions & Contraindications of aquatic therapy.

(c) Types of aquatic exercises and clinical application

(19) Kinesio-taping

(a) Introduction, basic functional concepts of Kinesio- taping and description of Kinesio- tape.

(b) Types of tapes and taping. Kinesio-taping application technique, indications, precautions and contraindications of Kinesio- taping technique and its clinical applications.

(20) Myo-fascial Release.

(a) Introduction, concepts, anatomy and physiology of the fascia.

(b) Structural and Physiological effects of Myo-fascial release techniques.

(c) Various techniques of Myo- fascial release and interventions for the treatment of contractures, body posture and balance.

(21) Marketing:

(a) Marketing plan.

(b) Consumer research

REFERENCES:

a. Occupational Therapy practice skills for physical dysfunction – L. Pedretti.
b. Occupational Therapy for Physical Dysfunctions – C. Trombly

BOT- 803: ORGANIZATION, ADMINISTRATION AND LEADERSHIP

COURSE DESCRIPTION - Acquire the knowledge of Organization, Administration and leadership, where Occupational therapy plays a vital role for O.T delivery system and to patient treatment and training.

COURSE OBJECTIVES: The objective of this course is that after 108 hours of lectures, demonstrations, practical and clinics, the student will be able to demonstrate an understanding of the principles and methods of organization, administration and work study as appropriate to the OT healthcare delivery system, patient treatment and training.

COURSE OUTCOMES:

- To understand Administration and organization.
- Explain aspect of administration in general and relation to O.T work situations.
- To understand, Construction of new department and modification as old department.
- To understand legal aspects related to rehabilitation, Medico legal cases and workmen's compensation Act.

THEORY

A. An introduction to organization and Administration in OT

Define Organization, Administration and Management. Outline Principles of administration Describe four major functions of management: Planning, Organizing and staffing, Directing and Controlling Outline the purpose of organization, administration, and management in relation to OT.

B. Describe the following aspects of administration in general and in relation to OT work situations.

1. Referrals: Purpose and types of referrals.

2. Guidelines for Documentation of OT: • Purposes for documentation, fundamental elements in documentation • Types and contents of Documentation – Screening, evaluation, intervention and outcomes • Methods of Documentation: Problem Oriented Medical Records (POMR) - SOAP notes, RUMBA, SMART • Documentation of Initiation of OT Services • Documentation of Continuing OT Services • Documentation of Termination of OT Services • Administrative documentation • Electronic documentation • Confidentiality in Documentation

3. Record maintenance in OT: Attendance, statistics, inventory records, stock (store keeping)

4. Purchase Ordering

5. Maintenance of the following: Equipment's, materials, furniture and buildings

6. Correspondence and Filing: a) Types of correspondence b) Methods of filing.

7. Financial Management: Types of Budgets, Petty cash accounting, costing of splints / aids / equipment / articles made in OT.

8. Annual Reports and Statistics. Method of calculating monthly and annual statistics. Outline method of writing OT department annual reports. Making plans for future requirements based on statistics: e.g. Staff patient ratio, equipment and staff requirements.

9. Considerations for construction of a new department, and modification of an old department: a) Space required b) Allotment of space, e.g. Suitability for access, plumbing requirements, & circulation of air.

10.Safety precautions in OT: Discuss considerations relating to the following • General safety recommendations in the OT department -e.g. Moving patients, training attenders and "helpers", while doing activities outside, when using sharp hand tools, while using machinery and electrical equipment's. • Fire Safety • Safety precautions in relation to patients with physical conditions like Leprosy, Hemiplegia, Paraplegia, back injuries, Cerebellar dysfunction, Epilepsy, Hemophilia; Psychiatric disorders like Mental Retardation, suicidal patients; and pediatric conditions like ADHD

11. Infection control, Incidents and Emergencies: Universal Precautions, Standard Precautions, Transmission based Precautions, Effective hand washing techniques, Isolation Cardio Pulmonary Resuscitation, Falls, Burns, Bleeding, Shock, Seizures Respiratory distress, Insulin related Illness, Choking and Cardiac arrest

12. Legal aspects related to rehabilitation: Mental health act, Medico legal cases, Workmen's Compensation Act & Insurance facilities and other financial benefits available for the disabled.

13. Staff Management, Supervision and Development • Supervision: Methods and Types of Supervision: Formal/Informal, Direct/Indirect, Administrative, Clinical etc. • Mentoring • Performance evaluation and appraisal • Leadership • Professional development • Purpose of staff meeting

14. Planning Teaching methods for assistants and OT students in the clinical situation.

15. Organizing programs for patients: picnic, sports and other events C. Practical work to be carried out under supervision, during clinical postings in the fourth year. E.g. Maintaining records, stores requests, care of equipment, inventory check, costing of aid, adaptations, and petty cash records.

II. WORK STUDY

A. WORK

Define work. Explain the purpose and need to work and identify its relationship to culture. Describe the importance of work to a handicapped person. Distinguish categories of work. Outline the importance of work study to an Occupational therapist.

Return to work Process:

1. Functional work Assessments: Job Analysis, Functional Capacity evaluation (General - Prevocational and Job specific - Vocational Evaluation),

2. Work Intervention: Work Hardening, Work Conditioning, Work Simulation - The Baltimore Therapeutic Equipment Work Simulator

B. PRODUCTIVITY Define productivity. Mention factors which influence productivity and causes for decreases in productivity

C. WORK STUDY PRINCIPLES Work Study: Definition and Components (Method Study and Work Measurements) Method Study: Definition, Objectives; Steps in method study; Recording information and recording techniques - Flow Process Chart (including symbols used in a process chart), Flow Diagram, String Diagram Work measurement: Definition, brief outline of techniques of Work measurements: Time study and Work Sampling VALPAR-WCS; WEST; MODAPTS (Modular Arrangement of Predetermined Time Standards)

D. WORKING CONDITIONS

Specify importance of good working conditions and their relationship to productivity. List different aspects of working conditions-lighting, ventilation, sanitary facilities, safety precautions.

E. ERGONOMICS

1. Define ergonomics. Describe scope of ergonomics in Occupational Therapy. 2. Principles & Objectives of Ergonomics 3. Ergonomic evaluations: Rapid Entire Body Assessment (REBA) and Rapid Upper Limb Assessment (RULA) 4. Application of Ergonomic principles: In lifting, carrying techniques, Do's and Don'ts, Body mechanics, joint protection, work simplification and energy conservation techniques. 5. Application of Ergonomics to various aspects of functional performance: a. ADL b. Homemaking c. School d. Occupation including workstation, seating and tools e. Recreation 6. Application of ergonomics principles to various physical conditions with the following; • Limited range of motion • Muscle weakness • Limited endurance • In-coordination • Pain • Visual Impairment • Cardiac Conditions • Degenerative Disorders

F. Practical's:

1. Participate in problem solving activity. • Coffee making using string diagram. • Serving of meals in a ward using flow diagram or process chart.

2. Conduct a practical work study and job analysis of one occupation. This includes a 4hour observation and

interview of worker at his/her job. Each student may choose a different occupation. A written report may be submitted for the same.

3. Make a visit of observation to a local industry to identify the following:- a. Physical Environment • Access • Lighting • Ventilation • Temperature • Noise b. Organizational environment • Workflow • Work routine/rest breaks • Workhours/overtime • Work pressure • Training • Line of responsibility c. Individual factors • Worker interaction • Psychological factors d. Individual workstation / task / job • Tasks • Equipment used • Tools used • Work posture &movements • Maximum task time Assignment to be submitted with recommendations.

EVALUATION Internals: Theory and Practical Assignments University: Theory

REFERENCE:

- Willard & Spackman's Occupational Therapy
- Occupational Therapy and Mental Health –Jennifer Creek
- Occupational Therapy for Physical Dysfunction by C.A. Trombly
- Occupational Therapy and Physical Dysfunction Principles Skills and Practice by Ann Turner, Margaret Foster, Sybil. Ejohnson O.T. Practice skills for Physical Dysfunction by L.W.Pedrett

BOT 804: OCCUPATIONAL THERAPY IN REHABILITATION

COURSE DESCRIPTION: This course covers rehabilitation methods in detail and the application of O.T. to physical, psychiatric and pediatric conditions and including medical, surgical and chronic deforming conditions, visual, and hearing deficits

COURSE OBJECTIVES: The objective of this course is that after at least 108 hours of lectures, demonstrations, practical and clinics the student will be able to demonstrate an understanding of the Occupational Therapy role in physical, psychiatric and pediatric conditions, and rehabilitation methods for people with residual disability.

THEORY:

A. Role of Occupational Therapy in Rehabilitation

- Explain the role of Occupational Therapy in rehabilitation of Neurology, Orthopedic and Psychiatric conditions, and habilitation of Pediatric conditions.
- Describe in detail ADL and functional assessment, training and planning methods of mobility.

B. Explain in detail the O.T. objectives and principles and appropriate treatment media for the following.

1. Cardiac and Pulmonary disease and rehabilitation 2. Cancer Rehabilitation 3. Geriatric Rehabilitation 4. Terminal illness and Hospice care- Adults and Children 5. Cognitive Rehabilitation – Different models and current trends 6. Rehabilitation of adults with Visual and Hearing Impairment

C. Occupational Therapy Management for pain

- Application of superficial and mechanical modalities as preparatory measures to manage pain and improve occupational performance.
- Underlying principles, Indications and contraindications, Precautions.
- Monitoring, Re-assessment and discharge in collaboration with patient and care givers

D. Dysphagia and Management

- Normal swallowing and Disorders in swallowing, indicators of eating and swallowing dysfunction,
- Dysphagia assessment, Dysphagia intervention including non-oral feeding, positioning, oral hygiene, progression, swallowing therapy and caregiver training

E. Mobility: Functional Ambulation - Basics of Ambulation, mobility devices, Ambulatory techniques, Safety aspects Wheel Chair: Prescriptions, components, measurements, adaptations, safety measures;

Wheel chair skill Training: basic and advanced

Walking aids and Crutches: Types and their indications

Transfer techniques: With walking aids and wheelchair

Indoor mobility: Bed Chair, Toilet, and Floor

Outdoor mobility: Public and private transportation with Car, Bus, Auto, and Tricycle

Community Access: Recommendations and Training in techniques to enhance community mobility

Driving Evaluation: Assessment of performance skills and client factors in comprehensive driving evaluation. Knowledge of primary and secondary controls. Suggest appropriate modification. Regulations for drivers with disability in India.

F. Rehabilitating a Person with Disability to return to work:

• Job Analysis Functional Capacity Evaluation (FCE) – General (Pre-vocational evaluation) and Job specific (Vocational evaluation) • Discuss methods and team involvement in training an individual to return to Work • Vocational Training Terminology, Government Schemes and approved Vocational Trades • Sheltered Workshops, Home-based Programs, Transitional and supported employment

G. Evidence Based Practice Models and approaches to Evidence and inquiry-based practice. • Step in Evidence Based Practice. • Systematic Occupational Therapy Practice Model (SOTP): brief overview

H. Client-Centeredness in Occupational Therapy

I. Adjuncts to Occupational Therapy Intervention 1. Biofeedback 2. Functional Electrical Stimulation 3. Mirror Therapy 4. Modified Constraint-induced movement Therapy (mCIMT) 5. Virtual reality 6. Robotic Therapy 7. Kinesiotaping 8. Artificial Intelligence

J. Assistive Technology: Design, fit, and train in assistive technology and devices required for seating, positioning, daily living which would enhance occupational performance, self-maintenance and self-advancement roles. Also, including Environmental Control units, Augmentative and Alternative Communication devices communication devices, Mobile arm supports and slings, reachers, mouse and keyboard adaptations, writing, feeding and toilet aids.

K. Fabrication of Hand splints and Adaptive devices 1. Hand splints: • Plan appropriate hand splint design. • Fabricate and fit four different hand splints and explain indications and contraindications. (Gutter splints, Knuckle Bender (anti claw), Ulnar drift, Ring Splint) 2. Adaptive devices: • Plan appropriate adaptive devices for PWD. • Design, fabricate and fit four different adaptive devices and explain indications and contraindications including Built up handles on ADL devices like toothbrush, comb, Spoon, utensils, Pen/ Pencil holder, and Universal cuff.

L. Disability evaluation for physical conditions. • Guidelines for disability evaluation of upper &lower extremity •

Disability percentages in the following conditions: a) Amputation b) Intellectual impairment c) Altered sensorium d) Mono paresis, monoplegia, paraparesis, paraplegia, hemiparesis, hemiplegia, quadriparesis, quadriplegia

M. International classification of functioning, disability and health (ICF) - Applying the WHO ICF framework to the Rehabilitation of Persons with disabilities Differentiate: ICD, ICIDH & ICF • Components of ICF: Functioning and Disability and contextual factors • - Functioning and Disability: Body structures & functions, Activity & Participation • - Contextual factors: Personal & environmental factors • ICF as a framework for choosing assessments and intervention strategies

N. Community Based Rehabilitation: Definition and Models. Discuss steps involved in starting a Community Based Rehabilitation. Outline the role and value of O.T. in Community based Rehabilitation (CBR) with emphasis on rehabilitation of disabled children. Identify occupational hazards in the community and discuss possible safety precautions. Discuss community reintegration

O. Architectural barriers: Evaluating and adapting a living space to overcome architectural barriers Evaluating and adapting physical environmental barriers in buildings with Public Facilities

P. Home and work site modifications for persons with disability: Identify appropriate working levels, accessibility, types of stoves, storage levels and Hygiene and safety measures at home.

Q. Process of Selecting Assessment tools - In depth assessment including standardized tools for the following:

1.Tools Assessing Occupational dysfunction • Activities of Daily living – Functional independence measure and Modified Barthel Index (SHAH version) • IADL including home evaluation and modification, home making skills and child care) – Frenchay • Activity Index and Lawton activity Index • Work (Prevocational and Vocational evaluation) • Education (School Readiness, Prewriting skills) • Social participation – Community integration questionnaire • Leisure - Interest Checklist • Play - Test of Playfulness (TOP).

2. Tools Assessing Performance skills and client factors Hand Function (Adults and Pediatrics) - Box and block test, Purdue pegboard, Jebsen Taylor Hand function test Cognitive Perceptual Functions /Higher cortical evaluation - MMSE, Addenbrooke's Cognitive Examination-III and LOTCA (Optional)

R. Psychological reactions in patients: 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 behavior. Recommended book(s) for

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

Reference:

1. Willard &Spackman's Occupational Therapy

2. Occupational Therapy for Physical Dysfunction by C.A. Trombly

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

E Johnson 4. O.T. Practice skills for Physical Dysfunction by L.V.Pedretti

BOT-805: RESEARCH PROJECT

Course Description

- The special study is a major project undertaken by student. It is a subject in its own right and must be satisfactorily completed in order for the student to graduate. As an alternative to this the student can present a record of cases.
- The special study requires the student: to identify a problem area of relevance to the theory and / or practice of occupational therapy to carry out an investigation of one aspect of that problem are: and to present a clear report on the process and results of the project.
- Students are encouraged to identify problems of special interest to them that tall within the interest areas of physiotherapy or occupational therapy services. Students are encouraged to aim towards knowledge on the topic in the specified problem area.

Course objectives:

The objective of this course is that at the end 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.

COURSE OUTCOME:

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's mark.

University: 50 marks will be awarded by external examiner during viva.

CLINICAL POSTING

Course Objective: After posting in the clinical for clinical experience, the student will be able to demonstrate an understanding of the basic requirements of occupational therapy in each O.T section.

Semester 1 and Semester 2, CLINICAL POSTING:

GOAL: To orient students to different clinical areas.

OBJECTIVES: The student will be able to fulfill the following objectives.

1. The students will be oriented to the various departments & wards of the Hospital.
2. Orientation to the PMR department including (Physiotherapy, Prosthetic &orthotic department & speech therapy)
3. At Occupational therapy, orientation to all kinds of patients, sections, equipment's, assessment & treatment services provided.
4. Clinical observation of patients – Identify the common physical / mental / emotional problems
5. Identify media used by therapists during treatment.
6. Developing rapport with patients.
7. Muscle testing and goniometry
8. Surface Anatomy.

EVALUATION: Files –Occupation-focused analysis file should be submitted

Semester 3 and Semester 4, CLINICAL POSTING:

GOAL: The student will be able to take detailed history & evaluate relevant performance components.

OBJECTIVES:

The student will be posted on rotation in the inpatient and outpatient sections of Orthopedics, Neurology, Neurosurgery, Psychiatry and Pediatrics Unit.

1. The student will take detailed history through interview; obtain details of investigations & medical treatment from case records.
2. To evaluate performance skills and client factors relevant to client's diagnosis i.e tone, R.O.M, muscle power, voluntary control, sensation, coordination, DTR, superficial reflexes, TCD, cranial nerve testing.
3. To Identify problems to be addressed in Occupational Therapy.

EVALUATION: Files: Case submission - 2 cases per posting. Case presentation – 1 case per posting

Semester 5 and Semester 6 CLINICAL POSTING:

GOAL: The students will master history taking & learn the skills of Occupational Therapy assessment in respective clinical areas & problem identification & goal setting and intervention The students will be posted on rotation in Occupational Therapy inpatient and outpatient units, in the areas of Psychiatry, Pediatrics, Orthopedics and Neurology.

OBJECTIVE: Students will be able to fulfill the following objective:

1. Be proficient in history taking.
2. Learn occupational therapy assessment skills such as observation, palpation, clinical testing & examination.
3. They will learn to do mental status examination, assess relevant performance components & detailed functional assessment.
4. The students will learn to identify patient's problems to be addressed in Occupational therapy.
5. The students will learn to prioritize short term & long-term goals for the patient.
6. The students will learn to choose and apply treatment approaches and implement Occupational Therapy intervention with supervision.
7. The students will have hands on practice on wheelchair & crutch transfers, one handed techniques and mat activities.
8. The students will learn to plan for prescribing splints, adaptive & assistive devices.

EVALUATION: Files: 1. Normal development of child file - 1year – 5 years of age

2. Hand splint file – 5 hand splints, paper pattern & fabrication description.

3. Case submission – 2 cases per posting

4. Case presentation – 1 per posting

Semester 7 and Semester 8 CLINICAL POSTING:

GOAL: The student should be proficient in Rehabilitation of all clients relevant to occupational therapy. Emphasis is on assessment, treatment plan and involvement in patient care.

OBJECTIVES:

1. The student will have placements to include the following: Clinical Cardio Respiratory, Neurology, Orthopedics & Rheumatology, Plastic surgery, Burns and Geriatric conditions, Hand therapy, Prosthetic & Orthotics, Speech therapy & Physiotherapy units, Community based rehabilitation.

2. Student should be able to do specialized assessments on specific performance components.

3. Demonstrate competency in assessment, clinical reasoning & treatment planning.

4. The student should be able to conduct groups in Occupational Therapy.

5. Take responsibility for at least one administrative or organizational duty in the treatment area eg. Care of equipment / materials, billing & record maintenance.

6. Students will learn to conduct a job site and job analysis of workers in industrial setups.

7. In CBR student will learn to conduct survey, identify disability, plan home based therapy and low cost aids and adaptations.

EVALUATION: 1. Files case submission – 2 cases / posting

2. Case presentation – 1 per student in all specialized performance components.

3. Report writing on work study & job analysis after industrial visit

SEMESTER-9: INTERNSHIP

A student after having successfully completed the final year University Examination is qualified to commence the compulsory rotatory internship. Completion of Internship is mandatory to enable a student to obtain the degree of Bachelor of Occupational Therapy.

Aims: The Internship program is designed to facilitate the transition from student- hood to becoming a competent professional. It is meant to instill in the students clinical practice skills which would encompass the following qualities.

• Time management and Punctuality

• Work behaviors, roles & routines

• Communication and interaction skills with patients, colleagues, supervisors & other professionals of multi-disciplinary team.

• Plan & cooperate with other members of the treatment team for achieving objectives of treatment.

• Take responsibility for at least one administrative or organizational duty in the treatment area e.g. care of equipment, therapy sessions & patient care.

• Ability to write concise, relevant evaluation and progress notes on patients treated in consultation with therapist.

• Ability to present their patients to the treatment team at clinical rounds conferences etc., - clearly demonstrating progress made and present treatment objectives.

Duration & Description: The internship program is of the six months duration. A student doing internship has to work under supervision of experienced staff in the following areas.

1. Pediatrics - One month
2. Orthopedics and Hand, Burns & Plastic surgery - One month
3. Community based Rehabilitation - One month
4. Neurology - One month
5. Psychiatry - One month
6. Physical Medicine & Rehabilitation - One month (Rheumatology, Cardio Respiratory and Prosthetic & Orthotics unit)

Ordinances: •

- The intern will be eligible for 1-day casual leave in each month and can carry over the leave to next months, but he cannot avail the next month leave in advance.
- The intern should conduct themselves in a manner befitting the profession. • The intern should dress appropriately in the clinical areas.
- It is mandatory for the intern to wear the white apron with nametag when in the clinical area/ wards. The intern

can avail medical leave on producing a medical certificate, but will have to compensate for the number of days of absence from internship.