

COURSE OUTLINES FOR BS OCCUPATIONAL THERAPY

SEMESTER	Course	NAME OF SUBJECT	CREDITS
FIRST	FIRST PROFESSIONAL YEAR		
	RSC-601	ANATOMY –I	4(3-1)
	RSC-602	PHYSIOLOGY-I	3(2-1)
	RSC-604	ENGLISH-I	3(3-0)
	RSC-605	PAKISTAN STUDIES	2(2-0)
	RSC-606	INTRODUCTION TO COMPUTER	3(2-1)
	OT-601	INTRODUCTION & APPROACH TO OCCUPATIONAL THERAPY	3(3-0)
			18
SECOND	RSC-611	ANATOMY –II	4(3-1)
	RSC-612	PHYSIOLOGY-II	3(2-1)
	RSC-614	ENGLISH-II	3(3-0)
	RSC-626	SOCIOLOGY	2(2-0)
	RSC-615	ISLAMIC STUDIES / ETHICS	2(2-0)
	RSC-617	CLINICAL PSYCHOLOGY-I	2(2-0)
	OT-611	THERAPEUTIC ACTIVITIES AND THEIR TECHNIQUES-I	2 (1-2)
			18
THIRD	SECOND PROFESSIONAL YEAR		
	RSC-622	ANATOMY –III	3(2-1)
	RSC-623	PHYSIOLOGY-III	3(2-1)
	RSC-621	ENGLISH-III	3(3-0)
	OT-621	DEVELOPMENTAL PEDIATRICS	3(3-0)
	OT-622	KINESIOLOGY	3(2-1)
	RSC-628	CLINICAL PSYCHOLOGY-II	2(2-0)
			17
FOURTH	OT-631	ASSESMENT AND EVALUATION IN OCCUPATIONAL THERAPY	2(1-1)
	RSC-632	BIOMECHANICS & ERGONOMICS II	3(2-1)
	OT-632	THERAPEUTIC ACTIVITIES AND THEIR TECHNIQUES II	3(1-2)
	OT-633	PSYCHIATRIC CONDITIONS	3(3-0)
	RSC-642	PHARMACOLOGY-I	3(3-0)
	OT-634	OCCUPATIONAL THERAPY IN MENTAL HEALTH	3(2-1)
			17
FIFTH	THIRD PROFESSIONAL YEAR		
	RSC-662	SURGERY-I	3(3-0)
	OT-641	CLINICAL NEUROLOGY	2(1-1)
	RSC-661	MEDICINE-I	3(3-0)
	RSC-625	BIOCHEMISTRY & GENETICS-I	2(2-0)
	OT-642	OCCUPATIONAL THERAPY IN NEUROLOGY	3(2-1)
	RSC-652	PHARMACOLOGY-II	2(2-0)
OT-643	SUPERVISED CLINICAL PRACTICE-I	3(0-3)	
			18
SIXTH	RSC-671	MEDICINE-II	3(3-0)

	OT-651	EVIDENCE BASED PRACTICE	3(2-1)
	OT-652	OCCUPATIONAL THERAPY IN ORTHOPEADICS	2(2-0)
	RSC-664	BIOSTATICS-I	3(3-0)
	RSC-672	SURGERY-II	3(3-0)
	OT-653	SUPERVISED CLINICAL PRACTICE-II	3(0-3)
			17
SEVENTH	FOURTH PROFESSIONAL YEAR		
	RSC-641	PROSTHETIC AND ORTHOTICS	2(2-0)
	OT-661	OCCUPATIONAL THERAPY IN PEDIATRICS	3(2-1)
	RSC-653	TEACHING METHODOLOGY & COMMUNITY MEDICINE	2(2-0)
	RSC-674	BIOSTATICS II	3(3-0)
	OT-662	ORGANIZATION, ADMINISTRATION & WORK STUDY IN	2(2-0)
	RSC-681	SCIENTIFIC INQUIRY & RESEARCH METHODOLOGY	3(2-1)
	OT-663	SUPERVISED CLINICAL PRACTICE-III	3(0-3)
			18
EIGHT	OT-671	OCCUPATIONAL THERAPY FOR ELDERLY	2(1-1)
	OT-673	OCCUPATIONAL THERAPY IN REHABILITATION	3(2-1)
	OT-674	GROUP PROCESS IN OCCUPATIONAL THERAPY	3(2-1)
	OT-672	RESEARCH PROJECT	6
	OT-675	SUPERVISED CLINICAL PRACTICE IV	3(0-3)
			17
		TOTAL CREDITS	140

FIRST SEMESTER

- 1. ANATOMY -I**
- 2. PHYSIOLOGY-I**
- 3. ENGLISH-I**
- 4. PAKISTAN STUDIES**
- 5. INTRODUCTION TO COMPUTER**
- 6. INTRODUCTION AND APPROACH OCCUPATION THERAPY**

Course Description:

The focus of this course is an in-depth study and analysis of the regional and systemic organization of the body. Emphasis is placed upon structure and function of human movement. A comprehensive study of human anatomy with emphasis on the nervous, musculoskeletal, and circulatory systems is incorporated. Introduction to general anatomy lays the foundation of the course. Dissection and identification of structures in the cadaver supplemented with the study of charts, models, prosected materials and radiographs are utilized to identify anatomical landmarks and configurations of the upper limb and thoracic region.

GENERAL ANATOMY

- Terms related to position and movements
- The skin and subcutaneous tissues
- Layers of skin
- Integuments of skin
- Glands associated with hair follicle
- Microscopic picture of skin

BONES AND CARTILAGES

- Osteology
- Functions of Bones
- Classification of bones
- Parts of developing long bones
- Blood supply of bones
- Lymphatic vessels & nerve supply
- Rule of direction of nutrient foramen
- Gross structure of long bone
- Surface marking

- Cartilage
- Development of bone and cartilage
- Microscopic picture of cartilage and bone

THE MUSCLE

- Introduction
- Histological Classification
- Functions of muscles in general
- Type of skeletal muscles
- Parts of skeletal muscle and their action
- Nomenclature.
- Microscopic picture of muscle

STRUCTURES RELATED TO MUSCLES & BONES

- Tendons
- Aponeurosis
- Fasciae
- Synovial bursae
- Tendon Synovial sheaths
- Raphaes
- Ligaments
- Condyle
- Epicongyle
- Ridge
- Tuberosity

- Tubercle
- Foramen
- Canal
- Groove
- Process
- Spur

THE JOINTS

- Introduction
- Functional classifications
- Structural classification
- Structures comprising a Synovial joint
- Movements of joints
- Blood supply of Synovial joints, their nerve supply and lymphatic drainage
- Factors responsible for joint stability.
- Development of joints

CARDIOVASCULAR SYSTEM

- Definition
- Division of circulatory system into pulmonary & systemic
- Classification of blood vessels and their microscopic picture
- Heart and its histology
- Function of the Heart
- Anastomosis

NERVOUS SYSTEM

- Definition
- Outline of cellular architecture
- Classification of nervous system
- Parts of the central nervous system
- Microscopic picture of cerebrum, cerebellum, spinal cord
- Functional components of a nerve
- Typical spinal nerve
- Microscopic picture of nerve
- Introduction of autonomic nervous system
- Anatomy of neuromuscular junction

UPPER LIMB

OSTEOLOGY:

- Detailed description of all bones of upper limb and shoulder girdle along their musculature and ligamentous attachments.

MYOLOGY

- Muscles connecting upper limb to the axial skeletal
- Muscles around shoulder joint
- Walls and contents of axilla
- Muscles in brachial region
- Muscles of forearm
- Muscles of hand.
- Retinacula,
- Palmar aponeurosis
- Flexor tendon dorsal digital expansion

NEUROLOGY

- Course, distribution and functions of all nerves of upper limb
- Brachial plexus

ANGIOLOGY (CIRCULATION).

- Course and distribution of all arteries and veins of upper limb.
- Lymphatic drainage of the upper limb
- Axillary lymph node
- Cubital fossa

ARTHROLOGY

- Acromioclavicular and sternoclavicular joints
- Shoulder joint
- Elbow joint
- Wrist joint
- Radioulnar joints
- Inter carpal joints
- Joints MCP and IP
- Surface Anatomy of upper limb
- Surface marking of upper limb

DEMONSTRATIONS:

- Demonstration on Shoulder joint, attached muscles and articulating surfaces.
- Demonstration on Elbow joint.

- Demonstration on Wrist joint
- Demonstration on Radioulnar joint.
- Demonstration on MCP and IP joints.
- Demonstration on acromioclavicular joint
- Demonstration on sternoclavicular joint
- Demonstration on Brachial plexus.
- Demonstration of blood supply of brain.
- Demonstration on Structure of bones

PRACTICAL

During study of Gross Anatomy, emphasis should be given on applied aspect, radiological anatomy, surface anatomy and cross-sectional anatomy of the region covered in the respective semester /year

RECOMMENDED TEXT BOOKS:

- Gray's Anatomy by Prof. Susan Standring 39th Ed., Elsevier.
- Clinical Anatomy for Medical Students by Richard S.Snell.
- Clinically Oriented Anatomy by Keith Moore.
- Clinical Anatomy by R.J. Last, Latest Ed.
- Cunningham's Manual of Practical Anatomy by G.J. Romanes, 15th Ed., Vol-I, II and III.
- The Developing Human. Clinically Oriented Embryology by Keith L. Moore, 6th Ed.
- Wheater's Functional Histology by Young and Heath, Latest Ed.
- Medical Histology by Prof. Laiq Hussain.
- Neuroanatomy by Richard S.Snell.

Course Description:

The course is designed to study the function of the human body at the molecular, cellular, tissue and systems levels. The major underlying themes are: the mechanisms for promoting homeostasis; cellular processes of metabolism, membrane function and cellular signaling; the mechanisms that match supply of nutrients to tissue demands at different activity levels; the mechanisms that match the rate of excretion of waste products to their rate of production; the mechanisms that defend the body against injury and promote healing.

These topics are addressed by a consideration of nervous and endocrine regulation of the cardiovascular, hematopoietic, pulmonary, renal, gastrointestinal, and musculoskeletal systems including the control of cellular metabolism. The integrative nature of physiological responses in normal function and disease is stressed throughout the course.

This course will serve as pre requisite for the further courses i.e. exercise physiology, pathology, etc.

BASIC AND CELL PHYSIOLOGY

- Functional organization of human body
- Homeostasis
- Control systems in the body
- Cell membrane and its functions
- Cell organelles and their functions
- Genes: control and function

NERVE AND MUSCLE

- Structure and function of neuron
- Physiological properties of nerve fibers
- Physiology of action potential
- Conduction of nerve impulse
- Nerve degeneration and regeneration.
- Synapses

- Physiological structure of muscle,
- Skeletal muscle contraction,
- Skeletal, smooth and cardiac muscle contraction.
- Neuromuscular junction and transmission,
- Excitation contraction coupling,
- Structure and function of motor unit

CARDIOVASCULAR SYSTEM

- Heart and circulation
- Function of cardiac muscle
- Cardiac pacemaker and cardiac muscle contraction
- Cardiac cycle
- ECG: recording and interpretation
- Common arrhythmias and its mechanism of development
- Types of blood vessels and their function
- Haemodynamics of blood flow (local control systemic circulation its regulation and control).
Peripheral resistance its regulation and effect on circulation
- Arterial pulse
- Blood pressure and its regulation
- Cardiac output and its control
- Heart sounds and murmurs Importance in circulation and control of venous return.
- Coronary circulation
- Splanchnic, pulmonary and cerebral circulation
- Triple response and cutaneous circulation
- Foetal circulation and circulatory changes at birth

Clinical Module

1. Clinical significance of cardiac cycle, correlation of ECG and heart sounds to cardiac cycle
2. Clinical significance of cardiac cycle, interpretation of ischemia and arrhythmias
3. Effects of hypertension
4. Clinical significance of heart sounds
5. Effects of ischemia
6. Shock

PHYSIOLOGY PRACTICALS

Cardiovascular System

1. Cardiopulmonary resuscitation (to be coordinated with the department of medicine)
2. Examination of arterial pulse
3. ECG recording and interpretation
4. Arterial blood pressure
5. Effects of exercise and posture on blood pressure
6. Apex beat and normal heart sounds

RECOMMENDED BOOKS

- Textbook of Physiology by Guyton and Hall, Latest Ed.
- Review of Medical Physiology by William F. Ganong, Latest Ed.
- Physiology by Berne and Levy, Latest Ed.
- Human Physiology: The Basis of Medicine by Gillian Pocock, Christopher D. Richards
- Physiological Basis of Medical Practice by John B. West and Taylor, 12th Ed.

ENGLISH I (FUNCTIONAL ENGLISH)

CREDIT 3 (3-0)

Objectives: Enhance language skills and develop critical thinking.

Course Contents

- Basics of Grammar
- Parts of speech and use of articles
- Sentence structure, active and passive voice
- Practice in unified sentence
- Analysis of phrase, clause and sentence structure
- Transitive and intransitive verbs
- Punctuation and spelling

Comprehension

- Answers to questions on a given text

Discussion

- General topics and every-day conversation (topics for discussion to be at the discretion of the teacher keeping in view the level of students)

Listening

- To be improved by showing documentaries/films carefully selected by subject teachers

Translation skills

- Urdu to English

Paragraph writing

- Topics to be chosen at the discretion of the teacher

Presentation skills

- Introduction

Note: Extensive reading is required for vocabulary building

Recommended books:

1. Functional English

a) Grammar

1. Practical English Grammar by A.J. Thomson and A.V. Martinet. Exercises 1. Third edition. Oxford University Press. 1997. ISBN 0194313492

2. Practical English Grammar by A.J. Thomson and A.V. Martinet. Exercises 2. Third edition. Oxford University Press. 1997. ISBN 0194313506

b) Writing

1. Writing. Intermediate by Marie-Christine Boutin, Suzanne Brinand and Françoise Grellet. Oxford Supplementary Skills. Fourth Impression 1993. ISBN 0 19 435405 7 Pages 20-27 and 35-41.

c) Reading/Comprehension

1. Reading. Upper Intermediate. Brian Tomlinson and Rod Ellis. Oxford Supplementary Skills. Third Impression 1992. ISBN 0 19 453402 2.

d) Speaking

PAKISTAN STUDIES

CREDIT HOURS 2 (2-0)

Introduction/Objectives

- Develop vision of historical perspective, government, politics, contemporary Pakistan, ideological background of Pakistan.
- Study the process of governance, national development, issues arising in the modern age and posing challenges to Pakistan.

Course Outline

1. Historical Perspective

a. Ideological rationale with special reference to Sir Syed Ahmed Khan, Allama Muhammad Iqbal and Quaid-i-Azam Muhammad Ali Jinnah.

b. Factors leading to Muslim separatism

c. People and Land

i. Indus Civilization

ii. Muslim advent

iii. Location and geo-physical features.

2. Government and Politics in Pakistan

Political and constitutional phases:

a. 1947-58

b. 1958-71

c. 1971-77

d. 1977-88

e. 1988-99

f. 1999 onward

3. Contemporary Pakistan

a. Economic institutions and issues

b. Society and social structure

c. Ethnicity

d. Foreign policy of Pakistan and challenges

e. Futuristic outlook of Pakistan

Books Recommended

1. Burki, Shahid Javed. State & Society in Pakistan, The Macmillan Press Ltd 1980.

2. Akbar, S. Zaidi. Issue in Pakistan's Economy. Karachi: Oxford University Press, 2000.

3. S.M. Burke and Lawrence Ziring. Pakistan's Foreign policy: An Historical analysis. Karachi: Oxford University Press, 1993.

4. Mehmood, Safdar. Pakistan Political Roots & Development. Lahore, 1994.
5. Wilcox, Wayne. The Emergence of Bangladesh., Washington: American Enterprise, Institute of Public Policy Research, 1972.
6. Mehmood, Safdar. Pakistan Kayyun Toota, Lahore: Idara-e-Saqafat-e-Islamia, Club Road, nd.
7. Amin, Tahir. Ethno - National Movement in Pakistan, Islamabad: Institute of Policy Studies, Islamabad.
8. Ziring, Lawrence. Enigma of Political Development. Kent England: WmDawson & sons Ltd, 1980.
9. Zahid, Ansar. History & Culture of Sindh. Karachi: Royal Book Company, 1980.
10. Afzal, M. Rafique. Political Parties in Pakistan, Vol. I, II & III. Islamabad: National Institute of Historical and cultural Research, 1998.
11. Sayeed, Khalid Bin. The Political System of Pakistan. Boston: Houghton Mifflin, 1967.
12. Aziz, K.K. Party, Politics in Pakistan, Islamabad: National Commission on Historical and Cultural Research, 1976.
13. Muhammad Waseem, Pakistan Under Martial Law, Lahore: Vanguard, 1987.
14. Haq, Noor ul. Making of Pakistan: The Military Perspective. Islamabad: National Commission on Historical and Cultural Research, 1993.

INTRODUCTION TO COMPUTER

CREDIT HRS 3(2-1)

Course Description:

This is an introductory course on Information and Communication Technologies. Topics include ICT terminologies, hardware and software components, the internet and world wide web, and ICT based applications.

: Basic Definitions & Concepts

: Hardware: Computer Systems & Components

: Storage Devices , Number Systems

: Software: Operating Systems, Programming and Application Software

: Introduction to Programming, Databases and Information Systems

: Networks

: Data Communication

: The Internet, Browsers and Search Engines

: The Internet: Email, Collaborative Computing and Social Networking

: The Internet: E-Commerce

: IT Security and other issues

: Project Week

: Review Week

Text Books/Reference Books:

- Introduction to Computers by Peter Norton, 6th International Edition (McGraw HILL)
- Using Information Technology: A Practical Introduction to Computer & Communications by Williams Sawyer, 6th Edition (McGraw HILL)
- Computers, Communications & information: A user's introduction by Sarah E. Hutchinson, Stacey C. Swayer
- Fundamentals of Information Technology by Alexis Leon, Mathewsleon Leon press

INTRODUCTION AND APPROACH TO OCCUPATIONAL THERAPY

Introduction to Occupational Therapy

- ❑ The term “occupation” & “occupational therapy”.
- ❑ The performance areas and the performance components within the parameters of occupational therapy.
- ❑ Structure and health care system in Pakistan.
- ❑ Definition and Role of activities in Occupational Therapy.
- ❑ Occupational Therapy process.

A Historical Perspective on Occupational Therapy

- ❑ The ancient origins of “occupation” for treatment purposes.
- ❑ Occupational therapy and medicine in 18th and 19th century.
- ❑ The influence of world war 1 & 2 on the development of occupational therapy profession.
- ❑ The genesis of Occupational Therapy profession in Pakistan.
- ❑ The founders of the profession.
- ❑ The foundation of WFOT- function structure & member countries.
- ❑ The new levels in occupational therapy education.
- ❑ The problem of disability and Rehabilitation in Pakistan.
- ❑ Social problems (social worker).

Code of Ethics

- ❑ The uses and purpose of Professional codes ethical jurisdiction and WFOT code of ethics.

Role of Multidisciplinary Team

- ❑ Difference between various roles of Allied health professionals.

Current Basis for Theory and Philosophy of Occupational Therapy

- ❑ The philosophical base of Occupational Therapy
- ❑ The theoretical framework & models of practice for Occupational Therapy.
- ❑ The objectives of Occupational Therapy & role of Occupational Therapist.

Occupation

- ❑ Occupation” as the major Activity of human beings.
- ❑ Forms of Occupation:
 - ❑ Work
 - ❑ Play
 - ❑ child’s play and functions of play
 - ❑ The content and structure of play.
 - ❑ The theories of play.
 - ❑ Daily living tasks
 - ❑ Leisure
- ❑ Occupation as an evaluating trait
- ❑ Occupation & its different dimensions

Therapeutic use of occupation activities:

- ❑ Definition of activity
- ❑ The philosophical base for the use of activities
- ❑ The historical foundation of manual skills and their relation to occupational therapy

- ❑ Cultural and lifestyle implications with regard to selection of activity
- ❑ Inherent characteristics of activities
- ❑ The analysis and synthesis of component parts of activity
- ❑ Importance of gradation capabilities of activities for adaptation to meet the patient /client needs.
- ❑ The value of activity as basis for occupational therapy
- ❑ The particular considerations, when planning and treating children, adolescent, adult, and aged.

The Human Development Process:

- ❑ Human development and how it is studied.
- ❑ Human development is studied and the factors that influence human development.
- ❑ The general principles of human development.
- ❑ Introduction of reflexes.
- ❑ The principles of maturation.
- ❑ prenatal development and its periods
- ❑ The developmental continuum.
- ❑ The adolescence, adulthood and adult life

Describe the Theoretical Foundations and all its Theories

- ❑ Learning Theory
- ❑ Psychoanalytical Theory

- ☐ Cognitive Theory
- ☐ Humanistic Self Theory Of Self Development
- ☐ Maturational Theory

Occupational Therapy and Problem Solving Approaches

- The Occupational Therapy Approaches for Intervention in the four elements used as basis for Treatment Approach.
- Treatment Plan and its Implementation.
- Other Problem Solving in Occupational Therapy

Developmental Approaches

- The Developmental Treatment Approach.
- The Analysis of Four Theoretical Frameworks for Occupational Therapy.
- The Seven Adaptive Skills.

Sensorimotor Approaches

- The basic concepts of Nervous System
- The overview of Sensori Motor Approaches.
 - o Fay-Doman-Delacato: Neuromuscular Reflex Therapy
 - o Bobath: Neurodevelopment Treatment Approaches.
 - o Rood: Neurophysiological Approach
 - o Kabat-Knott-Voss: Proprioceptive Neuromuscular Facilitation.
 - o Brunnstrom

- o Ayres: Sensory Integration Approach to Learning Disorders.
- o Fuchs: Orthokinetics.

- **The Sensory Integrative Theory.**
- o Sensory Integrative Process
- o Neurophysiological Constructs
- Evaluation
- Sensory System
- Syndromes of Dysfunction.

Occupational Behavior Approach:

- The backgrounds of Occupational Behavior Approach.
- The studies in Occupational Behavior.
- Further directions in Occupational Behavior

Rehabilitation Approach

- Rehabilitation and Habilitation and its Philosophy
- Rehabilitation Of Physically Handicap
- Psychiatric Occupational Therapy and Rehabilitation of Physically Disabled.

SECOND SEMESTER

- 1. ANATOMY -II**
- 2. PHYSIOLOGY-II**
- 3. ENGLISH-II**
- 4. SOCIOLOGY**
- 5. ISLAMIC STUDIES / ETHICS**
- 6. CLINICAL PSYCHOLOGY I**
- 7. THERAPEUTIC ACTIVITIES AND THEIR TECHNIQUES I**

Course Description:

The focus of this course is an in-depth study and analysis of the regional and systemic organization of the body. Emphasis is placed upon structure and function of human movement. A comprehensive study of human anatomy with emphasis on the nervous, musculoskeletal and circulatory systems is incorporated. Introduction to general anatomy lays the foundation of the course. Dissection and identification of structures in the cadaver supplemented with the study of charts, models, prosected materials and radiographs are utilized to identify anatomical landmarks and configurations of the lower limb and abdomen pelvis

LOWER LIMB

OSTEOLOGY

- Detailed description of all bones of lower limb and pelvis along their musculature and ligamentous attachments.

MYOLOGY

- Muscles of gluteal region
- Muscles around hip joint
- Muscles of thigh (anteriorly, posteriorly, laterally and medially)
- Muscles of lower leg and foot.

NEUROLOGY

- Course, distribution, supply of all nerves of lower limb and gluteal region
- Lumbosacral plexus.

ANGIOLOGY

- Course and distribution of all arteries, veins and lymphatic drainage of lower limb

ARTHROLOGY

- Pelvis
- Hip joint

- Knee joint
- Ankle joint
- Joints of the foot
- Surface Anatomy of lower limb
- Surface marking of lower limb

GENERAL HISTOLOGY

- Cell
- Epithelium
- Connective tissue
- Bone
- Muscles tissue
- Nervous tissues
- Blood vessels
- Skin and appendages
- Lymphatic organs

Practical

During study of Gross Anatomy, emphasis should be given on applied aspect, radiological anatomy, surface anatomy and cross-sectional anatomy of the region covered in the respective semester /year

Recommended Text Books:

- Gray's Anatomy by Prof. Susan Standring 39th Ed., Elsevier.
- Clinical Anatomy for Medical Students by Richard S.Snell.
- Clinically Oriented Anatomy by Keith Moore.

- Clinical Anatomy by R.J. Last, Latest Ed.
- Cunningham's Manual of Practical Anatomy by G.J. Romanes, 15th Ed., Vol-I, II and III.
- The Developing Human. Clinically Oriented Embryology by Keith L. Moore, 6th Ed.
- Wheater's Functional Histology by Young and Heath, Latest Ed.
- Medical Histology by Prof. Laiq Hussain.
- Neuroanatomy by Richard S.Snell.

PHYSIOLOGY II

CREDITS 3 (2-1)

Course Description:

The course is designed to study the function of the human body at the molecular, cellular, tissue and systems levels. The major underlying themes are: the mechanisms for promoting homeostasis; cellular processes of metabolism, membrane function and cellular signaling; the mechanisms that match supply of nutrients to tissue demands at different activity levels; the mechanisms that match the rate of excretion of waste products to their rate of production; the mechanisms that defend the body against injury and promote healing.

These topics are addressed by a consideration of nervous and endocrine regulation of the cardiovascular, hematopoietic, pulmonary, renal, gastrointestinal, and musculoskeletal systems including the control of cellular metabolism. The integrative nature of physiological responses in normal function and disease is stressed throughout the course.

This course will serve as pre requisite for the further courses i.e. exercise physiology, pathology, etc.

RESPIRATORY SYSTEM

- Function of respiratory tract,
- Respiratory and non-respiratory function of the lungs,
- Mechanics of breathing.
- Production & function of surfactant and compliance of lungs,
- Protective reflexes.
- Lung volumes and capacities including dead space,
- Diffusion of gases across the alveolar membrane,
- Relationship between ventilation and perfusion.
- Mechanism of transport of oxygen and carbon dioxide in blood.

- Nervous and chemical regulation of respiration,
- Abnormal breathing,
- Hypoxia, its causes and effects,
- Cyanosis, its causes and effects

Clinical Module

1. Clinical importance of lung function tests
2. Causes of abnormal ventilation and perfusion
3. Effects on pneumothorax, pleural effusion, and pneumonia
4. Respiratory failure
5. Artificial respiration and uses & effects of O₂ therapy
6. Clinical significance of hypoxia, cyanosis, and dyspnoea

GASTROINTESTINAL TRACT

- General function of gastrointestinal tract,
- Enteric nervous system,
- control of gastrointestinal,
- motility and secretion,
- Mastication,
- Swallowing: mechanism and control.
- Function, motility and secretions of stomach.
- Function, motility and secretions of small intestine.
- Function, motility and secretions of large intestine.
- Function of GIT hormones,
- Mechanism of vomiting and its control pathway.

- Defecation and its control pathway.
- Functions of liver,
- Functions of, gallbladder and bile in digestion.
- Endocrine & exocrine pancreas and functions of pancreas in digestion

Clinical Module

1. Dysphagia
2. Physiological basis of acid peptic disease
3. Causes of vomiting
4. Diarrhea and constipation in clinical settings
5. Jaundice and liver function tests in clinical settings

BLOOD

- Composition and general functions of blood,
- Plasma proteins their production and function.
- Erythropoiesis and red blood cell function.
- Structure, function, production and different types of haemoglobin,
- Iron absorption storage and metabolism.
- Blood indices, Function, production and type of white blood cells,
- Function and production of platelets.
- Clotting mechanism of blood,
- Blood groups and their role in blood transfusion,
- Complications of blood transfusion with reference to ABO & RH incompatibility.
- Components of reticuloendothelial systems, gross and microscopic structure including tonsil, lymph node and spleen.
- Development and function of reticuloendothelial system

Clinical Module

1. Anemia and its different types
2. Blood indices in various disorders
3. Clotting disorders
4. Blood grouping and cross matching
5. Immunity

ENDOCRINOLOGY

- Classification of endocrine glands,
- Mechanism of action,
- feedback and control of hormonal secretion.
- Functions of the hypothalamus,
- Hormones secreted by the anterior and posterior pituitary and their mechanism of action and function.. Function of the thyroid gland.,
- Function of the parathyroid gland.,
- Calcium metabolism and its regulation.
- Secretion and function of calcitonin,
- Hormones secreted by the adrenal cortex and medulla, and their function and mechanism of action.
- Endocrine functions of the pancreas, Control of blood sugar. Hormones secreted by the gastrointestinal system and their function.
- Function of the thymus,
- The endocrine functions of the kidney and Physiology of growth.

Respiratory System

1. Clinical examination of chest

2. Pulmonary volume, their capacities and clinical interpretation
3. Stethography

RECOMMENDED BOOKS

- Textbook of Physiology by Guyton and Hall, Latest Ed.
- Review of Medical Physiology by William F. Ganong, Latest Ed.
- Physiology by Berne and Levy, Latest Ed.
- Human Physiology: The Basis of Medicine by Gillian Pocock, Christopher D. Richards
- Physiological Basis of Medical Practice by John B. West and Taylor, 12th Ed.

ENGLISH II (FUNCTIONAL ENGLISH)

CREDIT 2(2-0)

Objectives: Enable the students to meet their real life communication needs.

Course Contents

Paragraph writing

Practice in writing a good, unified and coherent paragraph

Essay writing

Introduction

CV and job application

Translation skills

Urdu to English

Study skills

Skimming and scanning, intensive and extensive, and speed reading, summary and précis writing and comprehension

Academic skills

Letter/memo writing, minutes of meetings, use of library and internet

Presentation skills

Personality development (emphasis on content, style and pronunciation)

Note: documentaries to be shown for discussion and review

Recommended books:

Communication Skills

a) Grammar

1. Practical English Grammar by A.J. Thomson and A.V. Martinet. Exercises 2. Third edition. Oxford University Press 1986. ISBN 0 19 431350 6.

b) Writing

1. Writing. Intermediate by Marie-Christine Boutin, Suzanne Brinand and Françoise Grellet. Oxford Supplementary Skills. Fourth Impression 1993. ISBN 019 435405 7 Pages 45-53 (note taking).

2. Writing. Upper-Intermediate by Rob Nolasco. Oxford Supplementary Skills. Fourth Impression 1992. ISBN 0 19 435406 5 (particularly good for writing memos, introduction to presentations, descriptive and argumentative writing).

c) Reading

1. Reading. Advanced. Brian Tomlinson and Rod Ellis. Oxford Supplementary Skills. Third Impression 1991. ISBN 0 19 453403 0.

2. Reading and Study Skills by John Langan

3. Study Skills by Richard Yorky.

Course Description

This course covers the basic knowledge and concepts of sociology to with the aim to help them understand the impact of group, culture and environment on the behavior and health of the patients. Make them realize the importance of the relationship of the physical therapist and the patient and the environment around them

INTRODUCTION TO SOCIOLOGY

- Definition
- Subject matter
- Sociology
- The science of society

SOCIAL ACTION AND INTERACTION

- Social processes
- Co-operation
- Competition
- Conflict and Accommodation

SOCIAL GROUPS

- Primary-Secondary
- In and Out Group
- Reference group

CULTURE

- Meanings

- Materials
- Non-material aspects of culture
- Values
- Beliefs
- Sanctions
- Cultural relativism and Ethnocentrism
- Norms
- Folk ways
- Mores and Laws
- Role and Status
- Conflict
- Deviancy
- Social control

SOCIALIZATION AND PERSONALITY

- Socialization and personality formation

SOCIAL INSTITUTION

- Meanings
- Social stratification
- Meanings and Forms (Classes and Castes)

SOCIAL AND CULTURAL CHANGE

- Factors of promoting and resisting social change

THE FIELD OF MEDICAL SOCIOLOGY

- Contribution of sociology to medicine
- Social causes of diseases
- Aging and its socio-medical implication
- Environmental pollution and health
- Patient perspective of Illness
- Patient, Physiotherapist relationship
- Role of Physiotherapists and attendants in the managements of patient

Recommended Text Books:

- Text book of Community Medicine by: Park J E. Latest Edition
- David, Tucket (ed), 1976, An Introduction to Medical Sociology, Lahore, Tavistock Publication.
- Horton, Paul B. and Chester L. Hunt, 1984 Sociology, Singapore: Megraw Hill Book Co.
- Moon, Graham, 1995. Society and Health; An introduction to Social Science for Processionals, London: Routledge.
- Smelter Heil J. 1993. Sociology, New Delhi, Prentice Hall of India:

ISLAMIC STUDIES

CREDIT 2 (2-0)

Objectives:

This course is aimed at:

- 1 To provide Basic information about Islamic Studies
- 2 To enhance understanding of the students regarding Islamic Civilization
- 3 To improve Students skill to perform prayers and other worships
- 4 To enhance the skill of the students for understanding of issues related to faith and religious life.

Detail of Courses

Introduction to Quranic Studies

- 1) Basic Concepts of Quran
- 2) History of Quran
- 3) Uloom-ul -Quran

Study of Selected Text of Holly Quran

- 1) Verses of Surah Al-Baqra Related to Faith (Verse No-284-286)
- 2) Verses of Surah Al-Hujrat Related to Adab Al-Nabi (Verse No-1-18)
- 3) Verses of Surah Al-Mumanoon Related to Characteristics of faithful (Verse No-1-11)
- 4) Verses of Surah al-Furqan Related to Social Ethics (Verse No.63-77)
- 5) Verses of Surah Al-Inam Related to Ihkam (Verse No-152-154)

Study of Selected Text of Holly Quran

- 1) Verses of Surah Al-Ihزاب Related to Adab al-Nabi (Verse No.6,21,40,56,57,58.)
- 2) Verses of Surah Al-Hashar (18,19,20) Related to thinking, Day of Judgment
- 3) Verses of Surah Al-Saf Related to Tafakar, Tadabar (Verse No-1,14)

Seerat of Holy Prophet (S.A.W) I

- 1) Life of Muhammad Bin Abdullah (Before Prophet Hood)
- 2) Life of Holy Prophet (S.A.W) in Makkah
- 3) Important Lessons Derived from the life of Holy Prophet in Makkah

Seerat of Holy Prophet (S.A.W) II

- 1) Life of Holy Prophet (S.A.W) in Madina
- 2) Important Events of Life Holy Prophet in Madina
- 3) Important Lessons Derived from the life of Holy Prophet in Madina

Introduction To Sunnah

- 1) Basic Concepts of Hadith
- 2) History of Hadith
- 3) Kinds of Hadith

- 4) Uloom –ul-Hadith
- 5) Sunnah & Hadith
- 6) Legal Position of Sunnah

Selected Study from Text of Hadith

Introduction To Islamic Law & Jurisprudence

- 1) Basic Concepts of Islamic Law & Jurisprudence
- 2) History & Importance of Islamic Law & Jurisprudence
- 3) Sources of Islamic Law & Jurisprudence
- 4) Nature of Differences in Islamic Law
- 5) Islam and Sectarianism

Islamic Culture & Civilization

- 1) Basic Concepts of Islamic Culture & Civilization
- 2) Historical Development of Islamic Culture & Civilization
- 3) Characteristics of Islamic Culture & Civilization
- 4) Islamic Culture & Civilization and Contemporary Issues

Islam & Science

- 1) Basic Concepts of Islam & Science
- 2) Contributions of Muslims in the Development of Science
- 3) Quranic & Science

Islamic Economic System

- 1) Basic Concepts of Islamic Economic System
- 2) Means of Distribution of wealth in Islamic Economics
- 3) Islamic Concept of Riba
- 4) Islamic Ways of Trade & Commerce

Political System of Islam

- 1) Basic Concepts of Islamic Political System
- 2) Islamic Concept of Sovereignty
- 3) Basic Institutions of Govt. in Islam

Islamic History

- 1) Period of Khlaft-E-Rashida
- 2) Period of Ummayyads
- 3) Period of Abbasids

Social System of Islam

- 1) Basic Concepts of Social System of Islam
- 2) Elements of Family
- 3) Ethical Values of Islam

Reference Books:

- 1) Hameed ullah Muhammad, "Emergence of Islam" , IRI, Islamabad
- 2) Hameed ullah Muhammad, "Muslim Conduct of State"
- 3) Hameed ullah Muhammad, 'Introduction to Islam
- 4) Mulana Muhammad Yousaf Islahi,"
- 5) Hussain Hamid Hassan, "An Introduction to the Study of Islamic Law" leaf Publication Islamabad, Pakistan.
- 6) Ahmad Hasan, "Principles of Islamic Jurisprudence" Islamic Research Institute, International Islamic University, Islamabad (1993)
- 7) Mir Waliullah, "Muslim Jrisprudence and the Quranic Law of Crimes" Islamic Book Service (1982)
- 8) H.S. Bhatia, "Studies in Islamic Law, Religion and Society" Deep & Deep Publications New Delhi (1989)
- 9) Dr. Muhammad Zia-ul-Haq, "Introduction to Al Sharia Al Islamia" Allama Iqbal Open University, Islamabad (2001)

THERAPEUTIC ACTIVITIES AND THEIR TECHNIQUES I

COURSE DESCRIPTION:

The aim of this manual is to give guidelines for and examples of the use of occupations/activities for the upper limb.

COURSE OBJECTIVES:

The objectives of this course are:

- A. The students may use the manual as an educational tool to indicate to the patient the purpose of the activity being used.
- B. These activities provide innovative ways to adapt or use the equipment.
- C. It assumes their professional discretion in the application of such activities to whatever treatment they undertake.

COURSE CONTENTS:

1. Introduction
2. General Theories on the Use of Therapeutic Activities
3. Terminology
4. Methodology
5. Movements according to Activities
 - Shoulder Abduction/Adduction
 - Shoulder Depression/Elevation
 - Shoulder Extension/Flexion
 - Shoulder horizontal Abduction/Adduction

- Shoulder Protraction/Retraction
- Shoulder Rotation
- Elbow Flexion/Extension
- Forearm Pronation/Supination
- Wrist Flexion/Extension
- MCP Flexion/Extension
- Finger Abduction/Adduction
- IP Flexion/Extension
- Grasp Strengthening
- Pinch Strengthening

6. **Activities/Occupations:**

- Kneading
- Maze game
- Magic squares
- Rolling pastry
- Tug O' War
- Dowel Activity
- Skateboard
- Spot Board
- Sanding
- Chopping
- Finger Ladder
- Pyramids

- Dowel Rotation
- Stick Printing
- Suspended Ball Activities
- Shove Board
- Pronation/Supination Dowel
- Wire Maze
- Sheep (Solitaire Game)
- Darts
- Post Box
- Bandage Roll
- Sponge Ball Squeeze
- Coin Travel
- Interosseal Sheep
- Nuts & Bolts
- Beading
- Elastics
- Fluid Pump
- Ping Pong Puff
- Clothes Peg Sheep

COURSE OBJECTIVES:

The student will be able to fulfil the following objectives of the course.

- Psychosocial assessment of patients in various developmental stages.
- Explain the concept of stress and its relationship to health, stress and one's profession.
- Identify ego defence mechanisms and learn counselling techniques to help those in need.
- Help them to understand the reasons of non-compliance in patients and improve compliance behaviour.

COURSE OUTLINE:

A. Definition Of Psychology

1. Definition of psychology, basic information in relation to following schools methods and branches.

a. Schools: Structuralism, functionalism, behaviourism, psychoanalysis, gestalt psychology.

b. Methods: Introspection, observation, inventory and experimental method.

c. Branches: General, child, social, abnormal, industrial, clinical, counselling, education.

B. Heredity And Environment

Twins, Relative importance of heredity and environment, their role in relation to physical characteristics, intelligence and personality, nature-nurture controversy.

C. Developmental Theories And Growth Behaviour At

Infancy, Early childhood, Middle childhood, Puberty (physiological and psychological changes), adulthood, middle age, and old age.

D. Intelligence

Definitions: IQ, Mental Age, List of various intelligence tests – WAIS, WISC, etc.

E. Motivation

Definitions: Motive, drive, incentive, and reinforcement. Basic information about primary needs: hunger, thirst, sleep, elimination activity, air, avoidance of pain, attitude to sex.

Psychological needs: Information, security, self – esteem, competence, love and hope.

F. Emotions

Definition, Differentiate from feelings, physiological changes of emotion Role of RAS, hypothalamus, cerebral cortex, sympathetic nervous system, adrenal gland, heredity and emotion, and control of anger, fear and anxiety.

G. Personality:

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

H. Learning:

List the laws of learning as proposed by Thorndike. Types of

learning: Briefly describe, classical conditioning, operant

conditioning, insight, observation and Trial and Error type.

List the affective ways to learn: Massed Vs. Spaced. Whole Vs. Part, Recitation Vs. Reading, Serial Vs. Free recall, Knowledge of results, Association, Organization, Mnemonic methods, Incidental Vs Intentional learning, role of language.

I. Thinking

Definition, concepts, creativity, steps in creative thinking; list the traits of creative people, delusions

J. Frustration

Definition sources, solution, conflict; Approach - approach, avoidance-avoidance, and approach – avoidance, solution

K. Sensation, Attention, And Perception

1. List the senses: Vision, Hearing, Olfactory, Gustatory and cutaneous sensation, movement, equilibrium and visceral sense. Define attention and list factors that determine attention; nature of stimulus, intensity, colour, change, extensity , repetition, movement, size, curiosity, primary motives.
2. Define perception and list the principles of perception : Figure ground, constancy, similarity proximity, closure, continuity, values and interest, past experience context, needs, moods, religion, sex and age, perceived susceptibility, perceived seriousness, perceived benefits, and socio-economic status.
3. Define illusion and hallucination.
4. List visual, auditory, cutaneous, gustatory, and olfactory hallucination.

M. Defence Mechanisms Of The Ego

Denial rationalization, projection, reaction formation, identification, repression, emotions, insulation, undoing, introjection, acting out, depersonalization.

THIRD SEMESTER

- **ANATOMY -III**
- **PHYSIOLOGY-III**
- **ENGLISH -III**
- **DEVELOPMENTAL PEDIATRICS**
- **KINESIOLOGY**
- **CLINICAL PSYCHOLOGY II**

ANATOMY III

CREDITS 3(2-1)

Course Description:

The focus of this course is an in-depth study and analysis of the regional and systemic organization of the body. Emphasis is placed upon structure and function of human movement. A comprehensive study of human anatomy with emphasis on the nervous, skeletal, muscle, and circulatory systems is incorporated. Introduction to general anatomy lays the foundation of the course. Dissection and identification of structures in the cadaver supplemented with the study of charts, models, prosected materials and radiographs are utilized to identify anatomical landmarks and configurations of the head and neck

EMBRYOLOGY:

GENERAL

- Male and female reproductive organs.
- Cell division and Gametogenesis.
- Fertilization, cleavage, blastocyst formation and implantation of the embryo. Stages of early embryonic development in second and third week of intrauterine life
- Foetal membrane (amniotic cavity, yolk sac, allantois, umbilical cord and Placenta).
- Developmental defects

SPECIAL:

- Musculoskeletal system
- Cardiovascular system
- CNS

THE HEAD AND NECK

The Neck:

- Muscles around the neck
- Triangles of the neck
- Main arteries of the neck
- Main veins of the neck
- Cervical part of sympathetic trunk
- Cervical plexus
- Cervical spine (Vertebrae)
- Joint of neck

The face:

- Sensory nerves of the face
- Bones of the face
- Muscles of the face

- Facial nerve
- Muscles of mastication
- Mandible
- Hyoid bone
- Temporomandibular joint
- Brief description of orbit and nasal cavity

The Skull:

- Bones of skull
- Anterior cranial fossa
- Middle cranial fossa
- Posterior cranial fossa
- Base of skull
- Structures passing through foramina

Practical

During study of Gross Anatomy, emphasis should be given on applied aspect, radiological anatomy, surface anatomy and cross-sectional anatomy of the region covered in the respective semester /year

Recommended Text Books:

- Gray's Anatomy by Prof. Susan Standring 39th Ed., Elsevier.
- Clinical Anatomy for Medical Students by Richard S.Snell.
- Clinically Oriented Anatomy by Keith Moore.
- Clinical Anatomy by R.J. Last, Latest Ed.
- Cunningham's Manual of Practical Anatomy by G.J. Romanes, 15th Ed., Vol-I, II and III.
- The Developing Human. Clinically Oriented Embryology by Keith L. Moore, 6th Ed.
- Wheater's Functional Histology by Young and Heath, Latest Ed.

- Medical Histology by Prof. Laiq Hussain.
- Neuroanatomy by Richard S.Snell

PHYSIOLOGY III

CREDITS 3(2-1)

Course Description:

The course is designed to study the function of the human body at the molecular, cellular, tissue and systems levels, The major underlying themes are: the mechanisms for promoting homeostasis; cellular processes of metabolism, membrane function and cellular signaling; the mechanisms that match supply of nutrients to tissue demands at different activity levels; the mechanisms that match the rate of excretion of waste products to their rate of production; the mechanisms that defend the body against injury and promote healing.

These topics are addressed by a consideration of nervous and endocrine regulation of the cardiovascular, hematopoietic, pulmonary, renal, gastrointestinal, and musculoskeletal systems, including the control of cellular metabolism. The integrative nature of physiological responses in normal function and disease is stressed throughout

This course provides the foundation for the further course as exercise physiology, pathology, etc

NERVOUS SYSTEM

- General organization of the nervous system.,
- Classification of nerve fibers.,
- Properties of synaptic transmission,
- Function of neurotransmitters and neuropeptides.
- Type and function of sensory receptors.,
- Function of the spinal cord and ascending tracts.,
- Reflex action and reflexes.
- Muscle spindle and muscle tone.

- Mechanism of touch,
- temperature and pain.,
- Functions of the cerebral cortex.
- Difference between the sensory and motor cortex and their functions,
- Motor pathways including pyramidal and extrapyramidal,
- Basal Ganglia and its functions.
- Cerebellum and its function.,
- Control of posture and equilibrium.
- Physiology of sleep.
- Physiology of memory,
- Mechanism and control of speech.
- Function of the thalamus,
- Function of the hypothalamus and limbic system.
- Production of CSF,
- Mechanism of temperature regulation,
- Function of the autonomic nervous system and the physiological changes of aging.

Clinical Module

1. Significance of dermatomes.
2. Injuries of the spinal cord.
3. Hemiplegia and paraplegia.
4. Parkinsonism.
5. Effects of cerebellar dysfunction.

REPRODUCTION

- Function of the male reproductive system, Spermatogenesis.,
- Mechanism of erection and ejaculation.,
- Production and function of testosterone and Physiological changes during male puberty.
- Function of the female reproductive system.,
- Production and function of oestrogen, and progesterone,
- Menstrual cycle,
- Physiological changes during female puberty and menopause,
- Pregnancy and the physiological changes taking place in the mother.
- Function of the placenta,
- Parturition and lactation.
- Neonatal physiology.

Clinical Module

1. Male infertility.
2. Female infertility.
3. Contraception.
4. Basis for pregnancy tests.

BODY FLUIDS AND KIDNEY

- Components and quantitative measurements of body fluids.
- Fluid compartments, tissue and lymph fluid.
- Structure of the kidney and nephron.
- General function of the kidney,
- GFR and its regulation.,
- Formation of urine including filtration, re-absorption and secretion.

- Plasma clearance., Mechanism of concentration and dilution of urine.
- Water and electrolyte balance with reference to the kidney,
- Role of the kidney in blood pressure regulation.,
- Hormonal functions of the kidney.
- Acidification of urine and its importance,
- Acid base balance with reference to the kidney.,
- Micturition and its control.

Clinical Module

1. Renal function tests and their clinical importance.
2. Fluid excess and depletion.
3. Renal failure and dialysis.
4. Metabolic acidosis and alkalosis.
5. Abnormalities of micturition.

PHYSIOLOGY PRACTICALS

Nervous System

1. Examination of superficial and deep reflexes.
2. Brief examination of the motor and sensory system.
3. Examination of the cranial nerves.

Special Senses

1. Measurement of the field of vision.
2. Measurement of light reflex.
3. Ophthalmoscopy.
4. Colour vision.

5. Hearing tests.
6. Testing taste and smell.

Pregnancy tests

RECOMMENDED BOOKS

1. Textbook of Physiology by Guyton and Hall, Latest Ed.
2. Review of Medical Physiology by William F. Ganong, Latest Ed.
3. Physiology by Berne and Levy, Latest Ed.
4. Human Physiology: The Basis of Medicine by Gillian Pocock, Christopher D. Richards
5. Physiological Basis of Medical Practice by John B. West and Taylor, 12th Ed.

ENGLISH III (Technical Writing and Presentation Skills)

CREDIT 2(2-0)

Objectives:

Enhance language skills and develop critical thinking

Presentation skills

Essay writing

Descriptive, narrative, discursive, argumentative

Academic writing

How to write a proposal for research paper/term paper

How to write a research paper/term paper (emphasis on style, content, language, form, clarity, consistency)

Technical Report writing

Progress report writing

Note: Extensive reading is required for vocabulary building

Recommended books:

Technical Writing and Presentation Skills

a) Essay Writing and Academic Writing

1. Writing. Advanced by Ron White. Oxford Supplementary Skills. Third Impression 1992. ISBN 0 19 435407 3 (particularly suitable for discursive, descriptive, argumentative and report writing).
2. College Writing Skills by John Langan. Mc=Graw-Hill Higher Education. 2004.
3. Patterns of College Writing (4th edition) by Laurie G. Kirszner and Stephen R. Mandell. St. Martin's Press.

b) Presentation Skills

c) Reading

The Mercury Reader. A Custom Publication. Compiled by norther Illinois University. General Editors: Janice Neulib; Kathleen Shine Cain; Stephen Ruffus and Maurice Scharon. (A reader which will give students exposure to the best of twentieth century literature, without taxing the taste of engineering students).

DEVELOPMENTAL PEADIATRICSCr. Hrs 3

COURSE DECRPTION:

This course gives the understanding of normal development from infancy to five years old children. It also covers the physical, mental and emotional disorders of childhood.

COURSE OBJECTIVES:

The student will be able to demonstrate an understanding of:

- Areas of normal development in children from birth to 5 years.
- Psychological reactions of children to hospitalization and to disability.
- Appropriate therapeutic approaches and techniques for the physical, mental and emotional disorders of childhood and related reactions.

COURSE OUTLINE:

Introduction to Developmental Paediatrics

Theories of early development

A. Normal Development From Birth To Five Years.

1. Physical development- Gross and Fine motor.
2. Reflex development + Practicals.
3. Perceptual, Cognitive, Social, emotional, Language and Selfcare and Play development
4. Practicals (eg. perceptual testing).

B. Pregnancy, Normal Prenatal , natal and Post natal period and possible complications.

C. Brain damage and its origin in children.

D. Overview of childhood diseases. Neurological diseases in children (meningitis, encephalitis, etc.) and other conditions (hypothyroidism etc.) which may affect the child's development or lead to permanent disability.

- E. Cerebral Palsy(CP); causes, signs, assessment , treatment
- F. Mental Retardation: causes, signs, Assessment, Treatment,
- G. Developmental Delay and Global Developmental Delay;Assessment, Interventions, treatment
- H. Genetic syndromes, genetic disorders/ Chromosomal aberrations focusi
- I. Genetic Counseling
- J. Downs syndrome
- K. Cri du chat syndrome
- L. Hydrocephalus and Microcephaly
- M. Autism spectrum disorders.(ASD)
- N. Social Communication Disorder

- O. Rare developmental syndromes
- P. The organization and work of child healthcare services in the medical sector.
- Q. Assessment and therapeutic procedures for rehabilitation of disabled child.

KINESIOLOGY

CREDITS 3 (2-1)

COURSE DESCRIPTION:

This course covers the definition of kinesiology as well as its importance in Occupational therapy. It identifies the scope of kinesiology and studies its application. It covers the types of human motions as well as plane and relative axis of motion. It also explains the inter-relationship among kinematic variables and utilizes this knowledge to describe and analyze motion.

This course additionally covers the classification of the joints and muscles along their distinguishing characteristics; group action of muscles arthrokinematics and osteokinematics of human movement. This course also covers the classification of the joints or muscles and their characteristics distinguishing arthrokinematic movements from osteokinematic movements and explain their relationship and the difference among agonists, antagonists, and synergists integrate the knowledge learned with human motion occurring during daily activities.

INTRODUCTION TO KINESIOLOGY

- Definition of kinesiology
- Definition of rehabilitation

MECHANICS:

Mechanical Principles and Mechanics of Position

- Force - force system – Description of units.
- Gravity: Center of gravity and line of gravity
- Level of gravity
- Equilibrium

- Fixation and Stabilization

Mechanics of movement

- Axes /Plane
- Speed
- Velocity
- Acceleration
- Momentum
- Inertia
- Friction
- Lever - types - application
- Pulley - types - application
- Anatomical application of lever system and other pulley system application
- Angle of pull

Introduction to Movement

- The body levers
- Forces applied to the body levers
- Types of movement and posture
- Patterns of movement
- Timing in movement
- Rhythm of movement
- The nervous control of movement

Starting Positions

- Definition
- Fundamental positions

- Standing
- Kneeling
- Sitting
- Lying
- Hanging
- The pelvic tilt

Posture

- Inactive postures
- Active postures
- The postural mechanism
- The pattern of posture
- Principles of Re- Education
- Techniques of Re-Education
- Prevention of muscles wasting
- The initiation of muscular contraction
- Strengthening methods
- Abnormal postures

Muscle Strength and Muscle Action

- Types of Muscles contraction
- Muscles tone
- Physiological application to postural tone
- Group action of muscles
- Overview of muscle structure

- Types of muscle work
- Range of muscle work
- Group action of muscles
- Two joint muscle work
- Active and passive insufficiency
- Group movement of joints
- Muscular weakness and paralysis

RANGE OF MOTION

Active Movements

Voluntary movements

- Definition
- Classification

Free Exercises

- Classification of free exercises
- Techniques of free exercises
- Effects and uses

Assisted Exercises

- The principles of assistance
- Techniques
- Effects and uses

Assisted Resisted Exercises

Resisted Exercises

- The principles of resistance
- Variation of the power of the muscles in different parts of their range
- Techniques of resisted exercises

- Resistances
- Progressive resistance exercise
- Progression
- Effects and uses of resisted exercises

Involuntary Movement

- Reflex movement
- The reflex arc
- The stretch reflex
- The righting reflexes
- The postural reflexes
- Effects and uses of reflex movement

PASSIVE MOVEMENT

- Classification
- Specific definitions
- Relaxed passive movements
- Principles of giving relaxed passive movements & its Effects and uses
- Accessory movements
- Principles of giving accessory movements and its Effects and uses
- Passive manual mobilization and manipulations
- Principles and Effects and uses
- Controlled sustained stretching, Principles and Effects and uses

RELAXATION

- Definition

- Muscle tone
- Postural tone
- Voluntary movement
- Mental attitudes
- Degrees of relaxation
- Pathological tension in the muscles
- Technique
- General relaxation
- Local relaxation

DERIVED POSITIONS

- Purpose of derived positions
- Positions derived from standing By: alteration of arms, alteration of the legs, alteration of trunk & alteration of legs and trunk
- Positions derived from kneeling
- Positions derived from sitting By: alteration of the legs& by alteration of trunk
- Positions derived from lying , By alteration of arms and by alteration of the legs
- Positions derived from hanging
- Other positions in which some of the weight is taken on the arms

SUSPENSION THERAPY

- Suspension application
- Suspension concept of inclined planes
- The fixed point suspension
- Supporting rope and its types
- Sling and its types

- Type of suspension: axial & vertical
- Methods, techniques of suspension: upper limb & lower limb
- Suspension effect on muscle work and joint mobility

NEUROMUSCULAR CO-ORDINATION

- Coordinated movement
- Group action of muscles
- Nervous control
- Inco-ordination
- Re-Education
- Frenkel's exercises

WALKING AIDS

- Crutches
- Sticks
- Tripod or Quadra pod
- Frames

RECOMMENDED TEXT BOOKS:

- Practical exercise therapy by Margaret Hollis
- Brunnstrom's Clinical Kinesiology
- Clinical kinesiology and anatomy by Lynn S Lippert
- Joint structure and function: a comprehensive analysis by: Pamela. K. Levangie and Cynthia. C. Norkin.
- Muscle function testing by: Cunningham and Daniel.
- Human movement explain by kim jonas and karenbaker

- The principles of exercise therapy by: M Dena Gardiner, 4th Edition

CLINICAL PSYCHOLOGY II Cr. Hrs 3

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.

COURSE OBJECTIVES:

The students will be able to demonstrate ability to apply their knowledge of psychology in clinical situations for assessing, understanding, and treating their patients.

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

- A. How to cope up with psychological reactions of a patient during admission and treatment of different conditions.
- B. To evaluate attention, concentration, perception and memory related abnormalities.
- C. To understand and explain behavioural aspects of learning maturation, and appropriately use behavioural techniques in therapy
- D. To evaluate memory, thinking & intelligence and memory related disorders.
- E. To evaluate motivation, emotion and personality and assess their pathological manifestations.
- F. With the concepts of conscious and unconscious mind to explain frustration and conflicts, and to study the role of Defence mechanisms in normal and abnormal conditions.

COURSE OUTLINE

- A. Health Psychology
 - 1. 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.

- 2. 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.

- 3. Stress

Physiological and psychological changes, relation to health and sickness: Psychosomatics, professional stress, burnout.

- 4. Communications

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

b. Counselling: Definition, Aim, differentiate from guidance, principles in counselling and personality qualities of counsellors.

- 5. Compliance

Nature, factors, contributing to non-compliance, improving compliance.

- 6. 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.

- 7. Geriatric Psychology

Specific psychological reactions and needs of geriatric patients.

- 8. Paediatric Psychology

Specific psychological reactions and needs of paediatric patients.

- 9. Behaviour Modification

Application of various conditioning and learning principles to modify patient behaviour.

- 10. Substance Abuse

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

- 11. Personality Styles

Different personality styles of patients.

B: ABNORMAL PSYCHOLOGY

A. General and historical introduction of Abnormal Psychology, Psychology in relation to medicine, different schools. Methods of Clinical Psychology: Case history method, interview Techniques, Clinical observation, Situational tests, Questionnaires.

B. Concepts of normality and abnormality: Causes of abnormality, Criteria for abnormality. Broad classification of Current model of abnormal behaviour - Medical model, Psychodynamic model, Behaviouristic model & Humanistic model ,and Cognitive model

C. Functional units of mind, Id ego and super ego - Their functions and interactions. Role of Defence mechanisms in normal and abnormal behaviour.

D. Evaluation of attention and concentration, perception, memory, thinking, etc. and related disorders.

E. Intelligence and mental subnormality. Intelligence test - demonstrations. Measurement of intelligence - children & adults. Factors contributing to mental retardation. Prevention , Remedy and care.

F. Personality Assessment: Questionnaire, inventories, projective techniques.

G. Learning and maturation with specific reference to behavioural aspects. Behaviour techniques in therapy

H. Counselling, Psychotherapy and Psychodrama.

Fourth semester

- ASSESMENT AND EVALUATION IN OCCUPATIONAL THERAPY
- BIOMECHANICS & ERGONOMICS II
- THERAPEUTIC ACTIVITIES AND THEIR TECHNIQUES II
- PSYCHIATRIC CONDITIONS
- PHARMACOLOGY I
- OCCUPATIONAL THERAPY IN MENTAL HEALTH

ASSESMENT AND EVALUATION IN OCCUPATIONAL THERAPY

COURSE DESCRIPTION:

This course will learn the principles, methods of assessments and evaluation methods.

COURSE OBJECTIVES:

The student will enable to demonstrate an understanding of principles, methods of assessment and evaluation techniques used in occupational therapy.

COURSE CONTENTS:

1. Principles of Therapeutic Exercise:

a. Generalized & specific principles

b. Types of Movements, Muscle contraction used in exercise

c. Exercise classification & application to activity

d. Objective to develop i) Power ii) Endurance iii) Coordination iv) ROM

e. Progressive resistive exercise (PRE), Regressive resistive exercise (RRE), brief repetitive isometric exercise (BRIME)

2. Assessment of Occupational Function

- Joint range of motion
- Muscle strength
- Muscle tone
- Co-ordination
- Motor Behavior (control of movement)
- Sensation (cutaneous and cortical)
- Vision, Visual Perception, and Praxis
- Cognitive Perceptual functions
- Hand functions (in detail)
- Gait
- ADL (activities of daily living)
- Functional abilities

4. Definition, Classification, Variation In Testing Methods Of Following

- Muscle tone
- Coordination
- Sensation
- Perception

5. Therapeutic Modalities :

Purposeful activity & characteristics

6. Practicals:

1. Assessment of joint range of motion of U.E. & L.E. on normal subject
2. Assessment of group muscle strength U.E. & L.E. on normal subject
3. Activities to be analysed shoulder wheel, Bicycle fretsaw, eating, inclined sanding, medicine ball kicking.

7. Modification, Interventions & Adaptations

A. Home Evaluation and adapting a house for different types of people with handicap , include appropriate working levels, accessibility, types of stoves, storage levels. Hygiene and safety measures at home. Starting a vegetable garden at home. Planning a days work for a housewife with physical limitations including use of energy saving techniques

B. Special Assessments and intervention for

1. Activities of Daily living
2. Hand Function- Adults and Paediatrics
3. Cognitive Perceptual Functions
4. Home Evaluation and Modification
5. Home Making skills and Child care
6. Prevocational and Vocational Testing and Training
7. Leisure
8. Play

C. Wheel Chair transfers

8. Pre-Vocational And Vocational Evaluation

Discuss methods and team involvement in pre-vocational and vocational evaluation and training.

THERAPEUTIC ACTIVITIES & THEIR TECHNIQUES III

Activities of daily living:

- ☐ Activities of daily living, (introduction, ADL & IADL ē examples)
- ☐ Work simplification techniques
- ☐ Energy conservation techniques
- ☐ Home visit and home planning
- ☐ Transferring techniques
- ☐ Kitchen specifications and modifications
- ☐ Bathroom specifications and modifications
- ☐ Adaptive devices
- ☐ One handed techniques
- ☐ Prevocational and vocational training

Note: (In the end student will have to give presentation on above topics assigned them)

Lab/Workshop:

Activity analysis

- i) Examining the process
- ii) Experiencing the process

- iii) Documentation: analysis, and patient activity correlation
- iv) Learning resources

Therapeutic Application

1. Therapeutic applications of upper limb activities in different conditions
2. Implementation of ADL techniques on different patients
3. Submission of file

Adaptive devices:

1. Training in making adaptive devices.
2. Submission of the assigned project

INTRODUCTION TO BIOMECHANICS

CREDIT HR 3(3-0)

Course Description:

This course aims to develop appreciation of how mechanical principles can be applied to understand the underlying causes of human movement. It also examines selected anatomical, structural and functional properties of human connective, muscular, and nervous tissues, as well as skeletal structures. Emphasis is placed on the mechanical, neuroregulatory, and muscular events that influence normal and pathological motion

This course will also help to gain an understanding of basic theoretical concepts, principles and techniques of ergonomics as well as an introduction to fundamental ergonomic measurement tools for assessment of physical workload, posture, occupational exposure, and stress

DETAILED COURSE OUTLINE:

Basic terminology

- Biomechanics
- Mechanics

- Dynamics
- Statics
- Kinematics
- Kinetics and anthropometries
- Scope of scientific inquiry addressed by biomechanics
- Difference between quantitative and qualitative approach for analyzing human movements
- Biomechanics of human bone growth and development

Kinematic Concepts For Analyzing Human Motion

- Common units of measurement for mass, force, weight, pressure, volume, density, specific weight, torque and impulse
- Different types of mechanical loads that act on human body.
- Uses of available instrumentation for measuring kinetic quantities

Biomechanics of Tissues and Structures of the Musculoskeletal System

- Biomechanics of Bone
- Biomechanics of Articular Cartilage
- Biomechanics of Tendons and Ligaments
- Biomechanics of Peripheral Nerves and Spinal Nerve Roots
- Biomechanics of Skeletal Muscles

Biomechanics of the Human Upper Extremity

- Biomechanics of the Shoulder
- Biomechanics of the Elbow
- Biomechanics of the Wrist and Hand
- Factors that influence relative mobility and stability of upper extremity articulation

- Muscles that are active during specific upper extremity movements
- Biomechanical contributions to common injuries of the upper extremity

Biomechanics of Human Lower Extremity

- Biomechanics of the Hip
- Biomechanics of the Knee
- Biomechanics of the ankle and foot
- Factors influencing relative mobility and stability of lower extremity articulations
- Adaptation of lower extremity to its weight bearing functions
- Muscles that are active in specific lower extremity movements
- Biomechanical contribution to common injuries of the lower extremity

ERGONOMICS

OVERVIEW AND CONCEPTUAL FRAMEWORK.

- Ergonomics and Therapy: An Introduction.
- A Client-Centered Framework for Therapists in Ergonomics.
- Macroergonomics.

KNOWLEDGE, TOOLS, AND TECHNIQUES.

- Ergonomic Assessments/Work Assessments.
- Anthropometry
- Cognitive and Behavioral Occupational Demands of Work.
- Psychosocial Factors in Work-Related Musculoskeletal Disorders.
- Physical Environment.
- Human Factors in Medical Rehabilitation Equipment: Product Development and Usability Testing.

Biomechanics of Human Spine

- Biomechanics of the Lumbar Spine
- Biomechanics of the Cervical Spine
- Factors influencing relative mobility and stability of different regions of Spine
- Biomechanical adaptations of spine during different functions
- Relationship between muscle location and nature and effectiveness of muscle action in the trunk
- Biomechanical contribution to common injuries of the spine

Applied Biomechanics

- Introduction to the Biomechanics of Fracture Fixation
- Biomechanics of Arthroplasty
- Engineering Approaches to Standing, Sitting, and Lying
- Biomechanics of Gait

Angular Kinetics Of Human Movement

- Angular analogues of mass, force, momentum and impulse
- Angular analogues of Newton's laws of motion
- Centripetal and Centrifugal forces
- Angular acceleration

Angular Kinematics Of Human Movement

- Measuring body angles
- Angular kinematics Relationships
- Relationship between Linear and Angular motion

Human Movement In Fluid Medium

- The nature of fluids

- Buoyancy and floatation of human body
- Drag and components of drag
- Lift Force
- Propulsion in a fluid medium

ERGONOMICS II

SPECIAL CONSIDERATIONS.

- Lifting Analysis.
- Seating.
- Computers and Assistive Technology.

APPLICATION PROCESS.

- Ergonomics of Children and Youth.
- Ergonomics of Aging.
- Ergonomics in Injury Prevention and Disability Management.
- Ergonomics of Play and Leisure.

☐ Practical Training / Lab Work

- Biomechanical assessment of Upper extremity
- Biomechanical assessment of Lower Extremity
- Biomechanical assessment of Gait
- Reflective case assignment related to biomechanics of various regions of the body
- Measurement of angles of joints
- Biomechanical study of deformities

Recommended text books

- Basic biomechanics of musculoskeletal system By: Nordin & Frankel, 3rd edition.
- Basic Biomechanics, By: Susan J. Hall 4th edition.
- Additional study material as assigned by the tutor.
- Ergonomics for the therapist by Karen Jacobs 3rd edition mosby and Elsevier publishers

THERAPEUTIC ACTIVITIES AND THEIR TECHNIQUES II

COURSE DESCRIPTION:

A variety of practical activities are taught in order to provide a wide selection of therapeutic media relevant to the need of individual patients. For each activity the following objectives apply.

COURSE OBJECTIVES:

The student will be able to demonstrate an understanding of materials, tools and methods required for the activities studied, and their application in Occupational therapy.

In addition, the student will be able to fulfil with as measured by written assignments & practical work the following objectives of the course:

- A. Demonstrate the process involved.
- B. Explain and demonstrate methods of handling the materials.
- C. Plan and design simple, relevant projects in each activity learnt.
- D. Demonstrate ability to teach the activity to both individuals and groups. This will include both patients and fellow students.
- E Analyse processes involved for physical, mental and emotional aspects prevocational and vocational purposes.
- F. Apply and adapt the activity appropriately for specific therapeutic, prevocational and vocational purposes.

COURSE OUTLINE:

The following seven activities should be learnt.

A. Design

B. Weaving and chair canning.

C. Leatherwork.

D. Book-binding

E. Recreational activities

F. Tailoring

G. Basics in Computer science with reference to OT.

H. Home activities

I. Woodwork

A. Design

a. Introduction to design - Students will be able to identify design in nature, textures, buildings, textiles, etc., to apply the colour wheel (primary and secondary colours, different shades and tones) for colour preparation.

b. Students will carry out and describe therapeutic value of the following:

1. Painting/designs (blow, spray, blotch, finger, oil, wax, thread, charcoal, etc)

2. Montage and collage.

3. Paper mat weaving and paper folding,

4. Paper cutting and streamers

5. Macrame - cord / knotting

6. Symmography

7. Ball decoration and paper beads. Plate decorations and coconut shell designs.

8. Aluminium wire pictures. Wire decorations.

9. Embroidery (4 stitches)

10. Lettering and posters

11. Batik printing

12. Tie and Dye fabric design

13. Block designing and printing, including adaptations.

14. Finger puppets clay modelling and paper mache.

15. Hand puppets, and dramatic presentation as group work

c. Each student will teach their class 1 or 2 activities of their own choice.

d. Therapeutic application and analysis of physical and psychological aspects. Observation of application in O.T psychiatric & paediatric application in detail.

File preparation - compiling of methods samples for each activity. Children's activities to be compiled separately with appropriate therapeutic values. Files will be marked.

B. Weaving and chaircaning

Weaving

1. Simple card weaving.

2. Rug weaving

Therapeutic application, activity analysis of above.

3. Chaircaning

a. Students will be able to carry out and describe the following:

1. Preparation of frame (for chair or stool).

2. Seven different steps in weaving the cane.

b. Application of therapeutic prevocational and vocational values.

File preparation - illustrations of above processes and OT application will be marked.

C. Leather work

a. 1. Types of hides and skins used in leather work.,

2. Manufacture of leather, different characteristics in relation to method employed.

3. Leather purchasing and calculation of cost.

b. Describe and use tools - basic tools, cutting tools, sewing tools, tools for special effects. Outline purchase and care of tools.

Carry out techniques - cutting, thonging, stitching, punching, braiding, lining, fastenings (rivets, eyelets, press buttons, buckles, zips and velcro), decorating leather articles, use of paints, dyes and finishes

- c. Prepare 1 project - eg. watch strap, purse, wallet, belt, pocket pouch, spectacle case etc., using as many techniques as possible.
- d. Outline - storage availability, cost and care of materials.
- e. Application : Activity analysis, therapeutic values and use to the therapist.

File preparation - On all the above. Practical test Marks will also be given for projects and files.

D. Book Binding

- a. Outline the art of book binding

Describe book binding equipment and how to use it.

Describe maintenance and care of binding tools and equipment.

- b. Practical sessions:

1. Simple binding procedures eg. chit pads and letter pads.
2. Section binding (including stitching)
3. Costing of projects made.

c. Application - therapeutic, prevocational and vocational values. File preparation on above methods and application. Marks will be given for files and projects.

E. Recreational Activities

Outline the use of the following recreational activities as a therapeutic medium.

Plan the following activities for various patient groups.

1. Sports
2. Games
3. Picnic
4. Drama

5. Leisure & hobbies

6. Music

7. Play

File preparation: This is an applied subject. Notes on the above will be marked.

F. Tailoring

1. Types of stitches and their uses

2. Types of seams and their uses

3. Types of openings and fastenings

4. Pattern making , measuring and cutting

5. To make any one of the following:

Pillow case

Shopping bag

Apron

Cushion cover

Baby's dress

G. Basic Computer Science

a. Introduction to computers –

Key board usage

Hardware:

A) Knowledge of the following terminology -Micro processor(CPU), Memory, Monitor, Keyboard ,Storage device, hard discs, printers, Microcomputers.

B) Switching on and switching off the computer and printer

C) Accessory Management: Explorer and Outlook Express.

D) Printers, Modem, CD.

E) Simple trouble shooting.

F) Simple Preventive Maintenance techniques (dust, Mouse pad maintenance, gentle use of keys)

Software :

Operating Systems: E.g. Windows, Linux, DOS. The student should know how to use any one.

Word processing Software: E.g. MS Word, Star Office, Word Perfect .The student should be able to use any one

Spread sheet software: E.g. MS Excel, Star Office, Lotus. The student should be able to use anyone

Application Software: Power Point, Graphics

Browser/ Mail: Netscape Communication, Internet.

Internet: searching Medline and related research –Key terms, Privacy issues and ethics.

H. Home Activities

a. Plan and prepare simple meals.

b. Gardening

EVALUATION

Internal:

1. Files to be submitted for each of the above activities
2. Tests on Activity analysis, grading of activity,
3. Written, Oral & Practical examination

PHARMACOLOGY

CREDIT 3(3-0)

Course Description:

This course covers the basic knowledge of pharmacology including administration, physiologic response and adverse effects of drugs under normal and pathologic conditions. Topics focus on the influence of drugs in rehabilitation patient/client management. Drugs used in iontophoresis and phonoporesis will be discussed in detail.

GENERAL PRINCIPLES OF PHARMACOLOGY;

- Basic Principles of Pharmacology
- Pharmacokinetics; Drug Administration, Absorption, and Distribution
- Pharmacokinetics; Drug Elimination
- Drug Receptors

PHARMACOLOGY OF THE CENTRAL NERVOUS SYSTEM;

- Central Nervous System Pharmacology, General Principles
- Sedative-Hypnotic and Anxiety Agents
- Drugs used to treat affective Disorders; Depression and Manic-Depression
- Antipsychotic Drugs
- Antiepileptic Drugs
- Pharmacologic Management of Parkinson Disease
- General Anesthetics
- Local Anesthetics

DRUGS AFFECTING SKELETAL MUSCLE;

- Skeletal Muscle Relaxants

DRUGS USED TO TREAT PAIN AND INFLAMMATION

- Opioid Analgesics
- Nonsteroidal Anti-Inflammatory Drugs (NSAID)
- Pharmacologic Management of Rheumatoid Arthritis and Osteoarthritis
- Patient-Controlled Analgesia

AUTONOMIC AND CARDIOVASCULAR PHARMACOLOGY

- Introduction to Autonomic Pharmacology
- Cholinergic Drugs
- Adrenergic Drugs
- Antihypertensive Drugs
- Treatment of Angina Pectoris
- Treatment of Cardiac Arrhythmias
- Treatment of Congestive Heart Failure
- Treatment of Coagulation Disorders and Hyperlipidemia

RESPIRATORY AND GASTROINTESTINAL PHARMACOLOGY;

- Respiratory drugs
- Gastrointestinal Drugs

ENDOCRINE PHARMACOLOGY;

- Introduction to Endocrine Pharmacology
- Adrenocorticosteroids
- Male and Female hormones
- Thyroid and Parathyroid Drugs; Agents affecting bone mineralization
- Pancreatic Hormones and the Treatment of Diabetes Mellitus

CHEMOTHERAPY OF INFECTIOUS AND NEOPLASTIC DISEASES;

- Treatment of Infections; Antibacterial Drugs
- Treatment of Infections; Antiviral Drugs
- Treatment of Infections; Antifungal and Ant parasitic drugs
- Cancer Chemotherapy

- Immunomodulating Agents

DRUGS USED IN CURRENT PHYSICAL THERAPY PRACTICE:

- Drugs administered by Iontophoresis and Phonophoresis
- Potential Interactions Between Physical Agents and Therapeutic drugs

Recommended text book

- Pharmacology in Rehabilitation (3rd Edition) By Charles D. Ciccone
- Pharmacology, Richard A. Harvey, 2nd Edition, Lippincott's
- Mutliantore text book of Pharmacology and Therapeutics, M. Cheema, A vol 1 and Vol 2

PSYCHIATRIC CONDITIONS Cr. Hrs 3

COURSE DESCRIPTION:

In this course students will study abnormality of behavior functioning. It follows the study of Psychology and Clinical Psychology. Course of mental illness, preventive measures, and all clinical syndromes are covered.

COURSE OBJECTIVES:

The student will be able to demonstrate an understanding of mental illness, methods of assessment and approaches used in therapy.

Other objective are;

1. Explain the causes and describe preventive measures for mental illness.
2. Describe possible symptoms in relation to clinical syndromes.
3. Discuss methods of treatment and explain the main treatment approaches.
4. Appreciate legal aspects of psychiatric illness and psychiatric management.

COURSE OUTLINE:

A. 1. Introduction.

A brief history of psychiatry, History taking in psychiatry including mental examination and assessment.

2. Causes of mental disturbances:

a. Hereditary factors.

b. Embryonic development factors.

c. Birth injury.

d. Endocrine disease.

e. Systemic diseases / accidents.

f. Cerebral diseases.

g. Emotional factors.

h. Stresses related to cultural factors.

3. Preventive measures: In relation to consanguinous marriages, adequate ante-natal care, obstetric care, mother and child services, psychological services (eg. child guidance, counselling services)

B. Symptoms of mental illness:

1. Disturbances of consciousness.

2. Disturbances of reasoning and judgement.

3. Disturbances of memory.

4. Disturbances of thought and perception.

5. Disturbances of volition.

6. Disturbances of motor behaviour.

7. Disturbances of speech.

8. Disturbances of affect.

C. Methods of treatment:

1. Individual and group psychotherapy

2. Physical Methods: ECT and related side effects, Psychosurgery.

3. Psychopharmacology and related side effects,

4. Social and rehabilitation.

5. Family interaction, environmental manipulation.

D. Criteria for classification and definition of psychiatric illness.

E. Description of the various clinical syndromes including etiology, clinical features, course, treatment, and prognosis. To include:

- o Schizophrenic and other Psychotic disorders
- o Mood disorders
- o Anxiety disorder including Phobias
- o Somatoform disorders
- o Dissociative disorders
- o Factitious disorders
- o Eating and sleep disorders
- o Psychosomatic illness
- o Personality disorders
- o Substance related disorders
- o Sexual dysfunction and gender identity disorders
- o Organic Brain Syndrome
- o Psychiatric disorders of childhood
- o Psychiatric disorders of adolescence
- o Psychiatric disorders of old age

F. Legal aspects related to psychiatric patients.

1. Civil responsibility.

2. Criminal responsibility.

3. Testamentary capacity.

G. Clinical teaching, case studies and discussion.

EVALUATION :

Internal Assessment: Theory Tests

Final Examination: Theory

OCCUPATIONAL THERAPY IN MENTAL HEALTH Cr. Hrs 3

COURSE DESCRIPTION:

It covers the practical application of occupational therapy in psychiatric treatment, including a variety of assessment and treatment approaches.

COURSE OBJECTIVES:

The student will be able to demonstrate an understanding of evaluation and therapy techniques used in occupational therapy for psychiatric conditions.

COURSE OUTLINE:

- A. Describe the history of psychiatric occupational therapy, and its development upto the present day.
- B. Define OT in relation to psychiatry, and the role of an occupational therapist in the psychiatric team.
- C. Describe the general characteristics of a potential client. Identify problems that make a person seek help. Compare types of referrals. Discuss the potential of psychiatric OT in the community.
- D. Discuss the role of activities in psychiatric treatment, including patient, therapist, activities and context of treatment
- E. Frames of Reference in the treatment of psychiatric conditions :
 1. Cognitive behavior.
 2. Behavioural.
 3. Psychoanalytical.
 4. Occupational behavior and Model of Human Occupation
 5. Therapeutic use of self.

6. Projective techniques.
 7. Developmental groups and developmental approach.
 8. Mosey's adaptive skills.
 9. Sensory integrative approach.
- F. List and describe the various attitudes applied by the therapist in different conditions.

G. Analyze activities with reference to psychiatry and psychodynamics of activities.

H. Describe in detail the assessment of a client including specific methods used in the following:

1. Observation.
2. Interest checklist.
3. Interview.
4. Personality questionnaire.
5. ADL
6. Vocational and Pre-vocational
7. Social dysfunction rating scales – to learn any one scale

I. Help students to identify their client's psychiatric problems in relation to the practical situations observed in OT. E.g. Restlessness manifesting as decreased concentration and attention.

J.. Counseling: Guidelines and practical demonstration

K. Discuss OT assessment, treatment aims, plan and methods of treatment for the following conditions:

- o Schizophrenic and other Psychotic disorders
- o Mood Anxiety disorder including Phobias
- o Somatoform disorders
- o Factitious disorders
- o Eating and sleep disorders
- o Psychosomatic illness

- o Personality disorders
- o Substance related disorders
- o Seizure disorders
- o Organic Brain Syndrome
- o Mental Retardation

L. Review psychiatric problems of childhood and apply OT principles and techniques.

M. Outline the types of therapeutic groups and briefly discuss the value of group therapy in psychiatry (Detailed study on group study is included in Group process in Occupational therapy in the 8th semester.)

N. Explain precautions to be observed by the therapist in a psychiatric unit, with reference to each condition; including handling of tools and materials, grouping and attitude of the therapist.

O. Outline the following psychiatric setups and the role of OT in each.

- a. Therapeutic community
- b. Geriatric units.
- c. Sheltered workshops
- d. Day care centers.
- e. Government mental hospitals and psychiatric institutions
- f. Family therapy units
- g. Psychiatric rehabilitation

FIFTH SEMESTER

SUBJECTS:

- SURGERY I
- CLINICAL NEUROLOGY
- MEDICINE I
- BIOCHEMISTRY & GENETICS I
- OCCUPATIONAL THERAPY IN NEUROLOGY
- PHARMACOLOGY II
- SUPERVISED CLINICAL PRACTICE I

MEDICINE I

CREDIT 3(3-0)

Course Description:

This course intends to familiarize students with medical terminology and abbreviations for efficient and effective chart reviewing and documentation. It also explores select systemic diseases, focusing on epidemiology, pathology, histology, etiology, as well as primary and secondary clinical characteristics and their management. Discusses and integrates subsequent medical and surgical management to formulate appropriate intervention indications, precautions and contraindications.

CARDIOVASCULAR DISEASES

Cardiac Diseases:

- Chest pain

- Dyspnoea
- Palpitation
- Peripheral edema
- Syncope
- Cardiac failure
- Acute pulmonary edema
- Cardiogenic shock
- Systemic hypertension
- Ischemic heart disease
- Angina pectoris
- Unstable angina
- Myocardial infarction
- Rheumatic fever
- Valvular heart diseases
- Congenital heart diseases
- Ventricular septic defect
- Atrial septal defect
- pulmonary heart disease
- Pericardial disease
- Pulmonary hypertension
- Cardiac arrhythmias and heart in pregnancy

Vascular Diseases:

- Arteriosclerosis
- Acute & Chronic ischemia of leg
- Aortic aneurysm

- Buerger's disease
- Raynaud's disease
- Varicose veins
- Venous thrombosis

RHEUMATOLOGY AND BONE DISEASES

Arthritis

- Osteoarthritis
- Rheumatoid arthritis
- Connective tissue diseases
- Arthritis in elderly
- Arthritis in children,
- Seronegative spondyloarthropathies
- Crystals deposition disease
- Arthritis associated with other diseases

Back Pain

- Back Pain due to serious disease
- Inflammatory Back Pain
- Disc disease
- Mechanical problems
- Soft tissues problems
- Psychogenic Back Pain
- Nonspecific Back Pain
- Neck pain

Soft Tissue Rheumatism

Bone diseases

- Paget's disease
- Infections of bones
- Neoplastic disease
- Skeletal dysplasia
- Other hereditary diseases

RESPIRATORY DISEASES

Diseases of Upper respiratory tract

- Common cold
- Sinusitis
- Rhinitis
- Pharyngitis
- Acute laryngo-tracheobronchitis
- Influenza
- Inhalation of the foreign bodies

Disease of Lower Respiratory tract

- Acute & chronic Bronchitis
- Bronchiectasis
- Cystic fibrosis
- Asthma
- Emphysema
- Pneumonias
- Tuberculosis
- Pulmonary fibrosis

- Radiation damage
- Common tumors of the lungs
- Respiratory failure
- Adult distress respiratory syndrome
- Disorders of chest wall and pleura
- Chest trauma
- Deformities of rib cage
- Dry pleurisy
- Pleural effusion
- Empyema
- Pneumothorax

Recommended Text Books:

- *Practice of medicine* by: Davidson
- *Clinical medicine* by: Parveen j Kumar & Michael Clark
- *Short text book by medicine* by: M. Inam Danish
- *Hutchison's clinical methods* by: Michael swash. 21st edition
- *Bed side techniques*

SURGERY I

CREDIT HR 3(3-0)

Course Description:

This course intends to familiarize students with principles orthopaedic surgery along with familiarization with terminology and abbreviations for efficient and effective chart reviewing and documentation. It also explores various orthopaedic conditions needing surgical attention, focusing on epidemiology, pathology, as well as primary and secondary clinical characteristics and their surgical management. The purpose of this course is to make physiotherapy students aware of various surgical conditions so these can be physically managed effectively both pre as well as postoperatively.

ORTHOPEDIC SURGERY

Fractures

- Definition
- Classification
- Causes
- Clinical features
- Healing of fractures
- Complications
- Principles of general management of
 - Fracture of the Upper Extremity
 - Fracture of the Lower Extremity
 - Fracture of the vertebral column, thorax and pelvis
- Basic and advanced trauma life support

Dislocations & Subluxations

- Definition
- Traumatic dislocation
- General description
- Principles of general description and management of traumatic dislocation and subluxation of :
 - Shoulder joint

- Acromioclavicular joint
- Elbow joint
- Hip joint
- Knee joint

Soft Tissue Injuries

- Introduction
- Anatomy & physiology general description and management of injuries of:
 - Ligaments
 - Tendons
 - Muscles
 - Fascia
 - Bursae
- Detailed description of physiotherapy management of individual tissue injuries around:
 - Shoulder region
 - Elbow region
 - Wrist and hand region
 - Knee region
 - Ankle region
- Muscles and tendons injuries of upper and lower limb
- Cervicolumbar injuries
- Whiplash of the cervical spine
- Crush injuries
- Spinal pain
- Degenerative and Inflammatory Conditions:

- Osteo-orthosis/Arthritis
- Spondylosis
- Spondylolysis
- Pyogenic arthritis
- Rheumatoid arthritis
- Juvenile arthritis
- Tuberculosis arthritis
- Gouty arthritis
- Haemophilic arthritis
- Neuropathic arthritis
- Ankylosing spondylitis
- psoriatic arthritis

General Orthopedic Disorders

- Carpel tunnel syndrome
- Compartment syndromes
- Muscular dystrophies
- Neuropathies
- Avascular necrosis of bone in adult and children
- Ischemic contracture
- Gangrene
- Rickets
- Osteoporosis and osteomalacia
- Shoulder pain
- Neck pain

- Knee pain
- Backache
- Painful conditions around elbow
- Detailed description of :
 - Orthotics
 - Prosthetics
 - Splintage
 - Traction
 - POP

Tumors:

- Classification
- Principles of general management
- General description of benign and malignant tumors of musculoskeletal system

Deformities and Anomalies

- Definition
- Causes
- Classification
- Congenital and acquired deformities
- Physical and clinical and radiological features
- Complications
- Principles of medical and surgical management of the deformities
- General description of following deformities:

Deformities of the spine:

- Torticollis
- Scoliosis
- Kyphosis
- Lordosis
- flat back

Deformities of the Lower Limb:

- CDH
- coxa vera
- coxa valga
- anteversion
- Retroversion
- Genu valgum
- Genu varum
- Genu recurvatum
- CDK
- Talipes calcaneus equinus, varus & valgus
- Talipes calcaneovarus
- Talipes calcaneovalgus
- Talipes equinovarus
- Pes cavus
- Pes planus
- Hallux valgus & varum,
- Hallux rigidus and hammer toe

Deformities of Shoulder and Upper limb:

- Sprengels shoulder
- Cubitus varum
- Cubitus valgum
- Deputryn's contracture

RECOMMENDED TEXT BOOKS:

- *Short practice of surgery* by Baily and Love's
- *Text Book of Surgery* by Ijaz Ahsan
- *Out line of Fractures*

CLINICAL NEUROLOGY

COURSE DESCRIPTION:

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 OBJECTIVES:

The student will be able to demonstrate an understanding of neurological conditions causing disability and their management.

COURSE OUTLINE:

- 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 Neurophysiological basis of : tone and disorders of tone and posture, bladder control, muscle contractions and movement and pain. Functions of the lobes of the brain

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, heamorrhagic & inflammatory strokes.
- Gross localization and sequelae.

3. Trauma - board 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.
- Tumours,
- 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.
- Infections.
- Pyogenic Meningitis sequelae.
- Tuberculous infection of central nervous system.
- Poliomyelitis.

7. Disease of the muscle -classification, signs, symptoms, progression and management.

8. Peripheral nerve disorders.

- Peripheral nerve injuries: localisation and management.
- Entrapment neuropathies.
- Peripheral neuropathies.

9. Miscellaneous.

- Epilepsy: Definition, classification and management.
- Myasthenia Gravis: Definition, course and management.
- Intracranial tumours: Broad classification, signs and

symptoms.

- Motor neuron disease.

D. ASSESSMENT

Clinical assessment of neurological function to be taught through, bedside or demonstration clinics spread out over at least 5 sessions.

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 etc
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.

BIOCHEMISTRY & GENETICS I

CREDIT 2(2-0)

Course Description:

This course provides the knowledge and skills in fundamental organic chemistry and introductory biochemistry that are essential for further studies. It covers basic biochemical, cellular, biological and microbiological processes, basic chemical reactions in the prokaryotic and eukaryotic cells, the structure of biological molecules, introduction to the nutrients i.e. carbohydrates, fats, enzymes, nucleic acids and amino acids. The nutritional biochemistry concludes the course.

Detailed Course Outline:

Cell

- Introduction to Biochemistry
- Cell: (Biochemical Aspects)
- Cell Membrane Structure
- Membrane Proteins
- Receptors & Signal Molecules

Body Fluids

- Structure and properties of Water
- Weak Acids & Bases
- Concept of pH & pK
- Buffers, their mechanism of action
- Body buffers

Biomolecules

Amino Acids, Peptides & Proteins

- Amino acids: Classification
- Acid-Base Properties
- Functions & Significance.
- Protein Structure, Primary, Secondary & Super secondary. & Structural Motifs
- Tertiary & Quaternary Structures of Proteins
- Protein Domains
- Classification of Proteins
- Fibrous proteins (collagens and elastins) & Globular proteins

Enzymes

- Introduction
- Classification & Properties of Enzymes
- Coenzymes
- Isozymes & Proenzymes
- Regulation & Inhibition of Enzyme activity & enzymes inhibitors
- Clinical Diagnostic Enzymology

Carbohydrates

- Definition

- Classification
- Biochemical Functions & Significance of Carbohydrates
- Structure & Properties of Monosaccharides & Oligosaccharides
- Structure & Properties of Polysaccharides
- Bacterial cell Wall
- Heteropolysaccharides
- GAGS

Lipids

- Classification of Lipids
- Fatty Acids: Chemistry
- Classification occurrence & Functions
- Structure & Properties of Triacylglycerols and Complex Lipids
- Classification & Functions of Eicosanoids
- Cholesterol: Chemistry, Functions & Clinical Significance
- Bile acids/salts

Nucleic Acids

- Structure, Functions & Biochemical Role of Nucleotides
- Structure & Functions of DNA
- Structure & Functions of RNA

Nutritional Biochemistry

Minerals & Trace Elements

- Sources
- RDA
- Biochemical Functions & Clinical Significance of Calcium & Phosphorus

- Sources
- RDA
- Biochemical Functions & Clinical Significance of Sodium Potassium & Chloride
- Metabolism of Iron, Cu, Zn, Mg, Mn, Se, I, F

Vitamins

- Sources
- RDA
- Biochemical Functions & Clinical Significance of Fat Soluble Vitamins
- Sources
- RDA
- Biochemical Functions & Clinical Significance of Water Soluble
- Vitamins

Nutrition

- Dietary Importance of Carbohydrates, Lipids & Proteins
- Balanced Diet

Molecular Biology

- DNA Replication & Repair in Prokaryotes
- DNA Replication & Repair in Eukaryotes

Recommended Text Books:

- *Harper's Biochemistry* by Robert K. Murray, Daryl K. Granner, Peter A. Mayes, Victor W. Rodwell, Latest Ed.
- *Lippincott's Illustrated Review of Biochemistry* by Pamela C. Champe and Richard A. Harvey, Latest Ed.

- *Practical Clinical Biochemistry* by Varley.
- *Textbook of Biochemistry* by Devlin, 5th Ed.
- *Textbook of Medical Biochemistry* Vol-I and II by M.A. Hashmi.
- *Biochemistry* by Stryer, Lubert, Latest Ed

OCCUPATIONAL THERAPY IN NEUROLOGY Cr. Hrs 3

COURSE DESCRIPTION:

It involves the application of Occupational Therapy techniques to these conditions. Further study on aspects of rehabilitation and team involvement will be covered in Occupational Therapy in Rehabilitation.

COURSE OBJECTIVES:

The student will be able to demonstrate an understanding of evaluation and therapy techniques used in occupational therapy for neurologic conditions.

COURSE CONTENTS:

A. Application of occupational therapy principles and techniques in evaluation and treatment of the following neurological conditions to include:

- Identification of possible deficits, dysfunction, and potential function improvement.
- Planning of long term and short term treatment goals.
- Selection and implementation of appropriate treatment techniques, including biomechanical, Neurodevelopmental, psychological, and biofeedback.
- Identification of residual dysfunction
- application of appropriate training in activities of daily living and adaptation to home environment.

1. Muscular dystrophy.

2. Motor neurone disease.

3. Multiple sclerosis.
4. Parkinson's disease.
5. Multiple Sclerosis
6. Cerebellar ataxia.
7. Cerebrovascular Accidents
8. Intra cranial tumours.
9. Brain injuries.
10. Guillain Barre Syndrome.
11. Spinal Cord Injuries.
12. Poliomyelitis :Post polio residual paralysis and post polio syndromes
13. Spondylitis, Spondyloses, spondylolyses
14. Diabetic Neuropathy
15. Myasthenia gravis
16. Dementia
17. Peripheral Nerve Lesion
18. Epilepsy

PHARMACOLOGY II

Credit hr 2(2-0)

Course Description:

This course covers the basic knowledge of pharmacology including administration, physiologic response and adverse effects of drugs under normal and pathologic conditions. Topics focus on the influence of drugs in rehabilitation patient/client management. Drugs used in iontophoresis and phonophoresis will be discussed in detail.

RESPIRATORY AND GASTROINTESTINAL PHARMACOLOGY;

- Respiratory drugs

- Gastrointestinal Drugs

ENDOCRINE PHARMACOLOGY;

- Introduction to Endocrine Pharmacology
- Adrenocorticosteroids
- Male and Female hormones
- Thyroid and Parathyroid Drugs; Agents affecting bone mineralization
- Pancreatic Hormones and the Treatment of Diabetes Mellitus

CHEMOTHERAPY OF INFECTIOUS AND NEOPLASTIC DISEASES;

- Treatment of Infections; Antibacterial Drugs
- Treatment of Infections; Antiviral Drugs
- Treatment of Infections; Antifungal and Ant parasitic drugs
- Cancer Chemotherapy
- Immunomodulating Agents

DRUGS USED IN CURRENT PHYSICAL THERAPY PRACTICE:

- Drugs administered by Iontophoresis and Phonophoresis
- Potential Interactions Between Physical Agents and Therapeutic drugs

Recommended Textbook:

- Pharmacology in Rehabilitation (3rd Edition) By Charles D. Ciccone
- Pharmacology ,Richard A,Harvey ,2nd Eddition ,Lippincott's
- Mutlianthore text book of Pharmacology and Therapeutics ,M.Cheema,A vol 1 and Vol 2

SIXTH SEMESTER

- **MEDICINE II**
- **EVIDENCE BASED PRACTICE**
- **OCCUPATIONAL THERAPY IN ORTHOPEADICS**
- **BIOSTATICS I**
- **SUPERVISED CLINICAL PRACTICE II**
- **SURGERY II**

MEDICINE II

CREDIT 3(3-0)

Course Description:

This course intends to familiarize students with medical terminology and abbreviations for efficient and effective chart reviewing and documentation. It also explores select systemic diseases, focusing on epidemiology, pathology, histology, etiology, as well as primary and secondary clinical characteristics and their management. Discusses and integrates subsequent medical and surgical management to formulate appropriate intervention indications, precautions and contraindications

Detailed Course Outline:

Dermatology

- Introduction to disorders and diseases
- Acne vulgaris
- Psoriasis
- Boils
- Carbuncles
- Alopecia
- Mycosis fungoides
- Polymorphic light eruptions
- Vitiligo
- Pityriasis
- Hyperhidrosis

Diseases of Brain and Spinal Cord:

- Common neurological symptoms
- Neurological examination
- The brain death
- Stroke, types of stroke
- Parkinson's disease
- Epilepsy
- Multiple Sclerosis
- Infective and Inflammatory diseases
- Intracranial tumors
- Hydrocephalus
- Headache
- Migraine
- Facial pain
- Head injury
- Motor neuron disease
- Diseases of spinal cord
- Diseases of Cranial nerves
- Peripheral nerve lesions
- Diseases of voluntary muscles and of neuromuscular junction

- Sleep
- Unconsciousness and Comma

Renal diseases

- Glomerulonephritis
- Acute nephritic syndrome
- Nephrotic syndrome
- Urinary tract infection
- Renal hypertension
- Renal failure
- Benign enlargement of prostate gland
- Prostatic carcinoma

Diseases of the Blood:

- Anaemia
- Brief description of types of Anaemia
- Brief description of Bleeding and Coagulation, only Haemophilia and Thrombosis is described in detail

Miscellaneous Diseases:

- Brief description of Diabetes Mellitus and its complications
- Detailed description of Diabetic Neuropathy and Diabetic foot
- Steroid induced Myopathy

Recommended Text Books:

- *Practice of medicine* by: Davidson
- *Clinical medicine* by: Parveen j Kumar & Michael Clark
- *Short text book by medicine* by: M. Inam Danish
- *Hutchison's clinical methods* by: Michael swash. 21st edition
- *Bed side techniques*

EVIDENCE BASED PRACTICE

CREDIT 3(2-

Course Description:

This course introduces the concept of evidence-based practice in physical therapy including the formulation of answerable clinical questions, methods of obtaining peer-reviewed evidence to

those clinical questions, and how to critically appraise evidence once located. This course is a lecture and seminar course that will focus on developing the skills need for evaluating, critiquing, and consuming the literature germane to physical therapy practice. Current journal articles, texts, and online resources will be used in the course to develop critical reading and writing skills.

Evidence-Based Physiotherapy

- An introduction about evidence-based Physiotherapy:
 - ? What do we mean by 'high quality clinical research'?
 - ? What do we mean by 'patient preferences'?
 - ? What do we mean by 'practice knowledge'?
 - ? Additional factors
 - ? The process of clinical decision-making
- Importance of evidence-based Physiotherapy:
 - ? For patients
 - ? For physiotherapists and the profession
 - ? For funders of physiotherapy services
- History of Evidence-Based Health Care
 - ? Steps for practicing evidence-based Physiotherapy

What do we need to know?

- Relevant clinical questions
- Refining your question
 - ? Effects of intervention
 - ? Experiences
 - ? Prognosis
 - ? Diagnosis

What constitutes evidence?

- Evidence about effects of interventions
- Different forms of evidence
- Different sources of evidence
- Hierarchy of evidence
- Research study design

Finding the Evidence

- Search Strategies
- ❓ The World Wide Web
- ❓ Selecting search terms AND and OR
- Finding Evidence of Effects of Interventions
- ❓ PEDro
- ❓ The Cochrane Library
- Finding Evidence of Prognosis and Diagnostic Tests
- Finding Evidence of Experiences
- ❓ CINAHL
- ❓ Pub Med
- Getting full text
- Finding evidence of advances in clinical
- Practice (Browsing)

Trust upon Evidence

- A process for critical appraisal of evidence

- Critical appraisal of evidence about the Effects of intervention
- ☒ Randomized trials
- ☒ Systematic reviews of randomized trials
- Critical appraisal of evidence about experiences
- Critical appraisal of evidence about prognosis
- ☒ Individual studies of prognosis
- ☒ Systematic reviews of prognosis
- Critical Appraisal of Evidence about Diagnostic Tests
- ☒ Individual studies of diagnostic tests
- ☒ Systematic reviews of diagnostic tests

Clinical Guidelines as a Resource for Evidence-Based Physiotherapy

- What are clinical guidelines?
- History of clinical guidelines and why they are important
- Where can I find clinical guidelines?
- How do I know if I can trust the recommendations in a clinical Guideline?
- ☒ Scope and purpose
- ☒ Stakeholder involvement
- ☒ Rigor of development
- ☒ Clarity and presentation
- ☒ Applicability
- ☒ Editorial independence
- ☒ What do the results of the critical appraisal mean for my practice?
- Legal Implications of Clinical Guidelines

- ❓ Clinical guidelines or 'reasonable care': which do the courts consider more important?
- ❓ Documenting the use of a clinical guideline in practice: legal implications
- Reflections on the Future of Guideline Development
- ❓ Who should develop clinical guidelines?
- ❓ Collaboration in guideline development
- ❓ Uniprofessional or multiprofessional guideline development?

Critical Thinking

- The Benefit of Asking the Right Questions
- What Are the Issue and the Conclusion?
- What Are the Reasons?
- What Words or Phrases Are Ambiguous?
- What Are the Value Conflicts and Assumptions?
- What Are the Descriptive Assumptions?
- Are There Any Fallacies in the Reasoning?
- How Good Is the Evidence: Intuition, Personal Experience?
- Testimonials, and Appeals to Authority?
- How Good Is the Evidence: Personal Observation, Research?
- Studies, Case Examples, and Analogies
- Are There Rival Causes?
- Are the Statistics Deceptive?
- What Significant Information Is Omitted?
- What Reasonable Conclusions Are Possible?
- Practice and Review

- The Tone of Your Critical Thinking
- Strategies for Effective Critical Thinking

PRACTICAL

- Identify the different sources of evidence
- Critically appraised topics (CAT)
- How to evaluate web page
- Ways of searching strategies for different databases
- Selection of search terminology
- Retrieving of articles from data bases

RECOMMENDED TEXT BOOKS:

- Practical Evidence based physiotherapy By, Rob Herbert, Gro Jamtdvedt, Judy Mead & Kare Birger Hagen.
- Asking the right question-A guide to critical thinking, 8th Edition By, M.Neil.Browne & Stuart M Keeley
- Additional reading material as assigned.

OCCUPATIONAL THERAPY IN ORTHOPEADICS credit hr : 2(2-0)

COURSE DESCRIPTION:

It involves the application of Occupational Therapy techniques to these conditions. Further study on aspects of rehabilitation and team involvement will be covered in Occupational Therapy in Rehabilitation.

COURSE OBJECTIVES:

The student will be able to demonstrate an understanding of evaluation and therapy techniques used in occupational therapy orthopaedic conditions.

COURSE OUTLINE:

A

B. Evaluation procedures including:-

- special tests in ortho
- special tests for nerve compression ,contractures and deformities.

C. Approaches – including Biomechanical, Roods, NDT – Bobath for adults, Movement Therapy - Brunnstrom Approach, Proprioceptive neuro muscular facilitation, motor relearning theory and problem oriented approach, Rehabilitative Approach and Affolter’s approach, Task oriented approach

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

- Identification of possible deficits, dysfunction, and potential function improvement.
- Planning of long term and short term treatment goals.
- Selection and implementation of appropriate treatment techniques, including biomechanical, Neurodevelopmental, psychological, and biofeedback.
- Identification of residual dysfunction
- application of appropriate training in activities of daily living and adaptation to home environment.

1. Injuries to upper limb and hand, including:

a) Peripheral nerve injuries, including appropriate reconstructive surgery & muscle re-education.

b) Shoulder hand syndrome.

c) Leprosy deformities (including appropriate reconstructive surgery and muscle re-education)

- d) Volkman's ischaemic contracture.
- e) Brachial plexus injury.
- f) Hand injuries
- 2. Amputations- upper limb treatment and prosthetic training.
- 3. Fractures, with emphasis on upper limb and complications.
- 4. Low Back Pain.
- 5. Spondylitis, Spondyloses, spondylolyses
- 6. Total Hip and Knee replacements

BIOSTATISTICS I

CREDIT HRS: 3 (3-0)

What is Statistics?

Definition of Statistics, Population, sample Descriptive and inferential Statistics, Observations, Data, Discrete and continuous variables, Errors of measurement, Significant digits, Rounding of a Number, Collection of primary and secondary data, Sources, Editing of Data. Exercises.

Presentation of Data

Introduction, basic principles of classification and Tabulation, Constructing of a frequency distribution, Relative and Cumulative frequency distribution, Diagrams, Graphs and their Construction, Bar charts, Pie chart, Histogram, Frequency polygon and Frequency curve, Cumulative Frequency Polygon or Ogive, Histogram, Ogive for Discrete Variable. Types of frequency curves. Exercises.

Measures of Central Tendency

Introduction, Different types of Averages, Quantiles, The Mode, Empirical Relation between Mean, Median and mode, Relative Merits and Demerits of various Averages. properties of Good Average, Box and Whisker Plot, Stem and Leaf Display, definition of outliers and their detection. Exercises.

Measures of Dispersion

Introduction, Absolute and relative measures, Range, The semi-Inter-quartile Range, The Mean Deviation, The Variance and standard deviation, Change of origin and scale, Interpretation of the standard Deviation, Coefficient of variation, Properties of variance and standard Deviation, Standardized variables, Moments and Moments ratios. Exercises.

Probability and Probability Distributions.

Discrete and continuous distributions: Binomial, Poisson and Normal Distribution. Exercises

Sampling and Sampling Distributions

Introduction, sample design and sampling frame, bias, sampling and non sampling errors, sampling with and without replacement, probability and non-probability sampling, Sampling distributions for single mean and proportion, Difference of means and proportions. Exercises.

Recommended Books

- Walpole, R. E. 1982. "Introduction to Statistics", 3rd Ed., Macmillan Publishing Co., Inc. New York.

- Muhammad, F. 2005. "Statistical Methods and Data Analysis", Kitab Markaz, Bhawana Bazar Faisalabad.

SURGERY II

CREDIT 3(3-0)

Course Description:

This course intends to familiarize students with principles orthopaedic surgery along with familiarization with terminology and abbreviations for efficient and effective chart reviewing and documentation. It also explores various orthopaedic conditions needing surgical attention, focusing on epidemiology, pathology, as well as primary and secondary clinical characteristics and their surgical management. The purpose of this course is to make physiotherapy students aware of various surgical conditions so these can be physically managed effectively both pre as well as postoperatively

Detailed Course Outline:

GENERAL SURGERY

- Introduction
- Indications for surgery
- Types of incisions
- Wounds, types of wounds, factors affecting wounds healing, care of wounds
- Bandages and dressing
- Trauma and metabolic response to trauma
- Detailed description of chest and abdominal trauma
- Hemorrhage, hemostasis and blood transfusion
- Classification and brief description of shock
- Fluid and electrolyte balance

- Classification of body fluid changes
- Pre, intra and post operative fluid therapy
- Surgery and diabetes
- Burns and grafts
- Neoplasia
- Preoperative assessment & preparation
- Post operative treatment, complications and their management
- Types of anaesthesia
- ❓ Local anaesthetic agents
- ❓ Regional anaesthesia (spinal and epidural)
- Intravenous anaesthetic agents
- Muscle relaxants
- Inhalational anaesthetic agents
- Anaesthesia and associated diseases.
- Complications of anaesthesia.
- Perioperative management.
- Cardiopulmonary Resuscitation. CPR.
- Recovery from anaesthesia.
- Pain management and postoperative care.
- Ulcers, sinuses and fistulas
- Transplantation
- Brief description of operation performed on: oesophagus, stomach, intestine gall bladder, bile duct, spleen, pancreas, liver, abdominal wall, hernias, breast, kidneys, ureters, prostate, peritoneum, mesentery and retroperitoneal space

THORACIC SURGERY

Pulmonary surgery

- Introduction
 - types of incision
 - types of operation
 - complications of pulmonary surgery
 - drains , tubes
 - pneumonectomy, lobectomy , thoracoplasty
 - Operations on pleura
 - Chest injuries
 - Brief description of indication for pulmonary surgery:
- ? Diseases of chest wall and pleura
 - ? Diseases of bronchi
 - ? Tumors of lung
 - ? Lung abscess
 - ? Hydatid disease of lung
 - ? Pulmonary embolism
 - ? Mediastinal masses
 - ? Problems related to diaphragm

Cardiac surgery

- Introduction
- Cardiorespiratory resuscitation

- Special investigation procedures in cardiac surgery
- Basic techniques in cardiac surgery
- Types of incision
- Types of operation
- Complications of cardiac surgery
- Lines, drains and tubes
- Brief description of indications for cardiac surgery :
 - ❓ Congenital heart diseases
 - ❓ Acquired heart diseases
 - ❓ Diseases of the pericardium
 - ❓ Cardiac transplantation

Vascular surgery

- Introduction
- Investigation in vascular disease types of operation
- Indication for vascular surgery
- Complication of vascular surgery
- Brief description of arterial occlusion
- Gangrene
- Detailed description of amputation
- Aneurysm
- Burgers disease
- Raynaud's disease and syndrome
- Varicose veins

- Superficial and deep venous thrombosis
- Venous hemorrhage
- Lymph edema
- Lymph adenitis and lymphomas

NEUROSURGERY

Cranial surgery

- Introduction
- Special investigation in brain diseases and traumas
- Types of operations, indications and complications of cranial surgery
- Head injuries to the brain
- Acute intracranial hematomas
- Fractures of the skull
- Intra cranial abscess
- Intracranial tumors
- Intra cranial aneurysm and hydrocephalus

Surgery of vertebral column spinal cord and peripheral nerves

- Dislocation and management of dislocation of vertebral column
- Tumors of vertebral column
- Prolapse intervertebral disc
- Disc protrusion
- Spondylosis and spondylolisthesis
- Spinal cord injuries and their management

- Tumors of spinal cord types of operations performed on nerves
- Nerve injuries and their surgical management
- Brief description of lesions of cranial and spinal nerves and their management

Recommended Text Books:

- Short practice of surgery by Baily and Love's
- Text Book of Surgery by Ijaz Ahsan
- Outline of Fractures by David Hamblen, Hamish Simpsons
- Outline of orthopedics. by David Hamblen, Hamish Simpsons
- Apley's systems of orthopedics and fractures by Louis Solomon 9th ed , publisher holder Arnold
-

SEVENTH SEMESTER

SUBJECTS:

- **PROSTHETIC AND ORTHOTICS**
- **OCCUPATIONAL THERAPY IN PEDIATRICS**
- **TEACHING METHODOLOGY & COMMUNITY MEDICINE**
- **BIOSTATICS II**
- **ORGANIZATION, ADMINISTRATION & WORK STUDY IN OCCUPATIONAL THERAPY**
- **SCIENTIFIC INQUIRY & RESEARCH METHODOLOGY**
- **SUPERVISED CLINICAL PRACTICE III**

PROSTHETIC & ORTHOTIC

CREDIT 2(2-0)

Course Description:

This course intends to study prosthetic and orthotic management as applied to a variety of patient populations across a life span. It also addresses the considerations of various pathologies and medical, surgical management to formulate appropriate patient examinations, evaluation, diagnosis, prognosis and intervention that are consistent with physical therapy practice guidelines. Principles of normal biomechanics, pathomechanics, physiology and Pathophysiology will be a major focus for evaluation, intervention and education of the vascular, neuromuscular, and / or musculoskeletal compromised patient who may utilize prosthetic or orthotic devices. Basic principles of mechanical physics and material characteristics will be applied.

Detailed Course Outline:

ORTHOTICS

Introduction to Orthotics

- Basic Terminology
- Historical Background
- Factors In Prescription Orthotics
- Nomenclature of Orthotics
- Biomechanical Principles
- Materials Used in Orthotics Manufacturing
- Methods of Construction

Hand Splinting

Describe goals of splinting. Explain classification of hand splint and their application to treatment. Identify splint types and materials used.

Upper Limb Orthoses

- Hand And Wrist Hand Orthoses
- Forearm And Elbow Orthoses
- Shoulder Orthoses, Fabrication Option
- Upper limb Orthoses Evaluation (Hand, Wrist, Fingers, Shoulder and Elbow)
- Guideline For Prescription

Foot Orthoses

- Shoe Style

- Parts of Shoes
- Special Purpose Shoes
- Foot Examination
- Orthotics Interventions
- Fabrication Options
- Pediatric Foot Orthoses
- Guideline for Prescription Foot Orthoses

Ankle Foot Orthoses

- Plastic Ankle Foot Orthoses
- Lather Metal Ankle Foot Orthoses
- Composite Materials
- Weight Relieving Ankle Foot Orthoses
- Support (Fabric , Leather, Gel And Air)
- Contracture Reducing Ankle Foot Orthoses
- Guidelines for Prescription Ankle Foot Orthoses

Knee Ankle Foot Orthoses and Knee Orthoses

- Plastic Metal Knee Ankle Foot Orthoses
- Knee Immobilizer
- Supra- Condylar Knee Ankle Foot Orthoses
- Weight Relieving Orthoses, Fracture Orthoses
- Lather Metal Knee Ankle Foot Orthoses
- Knee Orthoses
- Guidelines For Prescription Knee Ankle Foot Orthoses

Orthoses for Paraplegia And Hip Disorders

- Paraplegia
- Standing Frames
- Orthoses Designed For Ambulation
- Functional Electrical Stimulation
- Specific Devices for Paraplegia
- Hip Orthoses
- Guidelines for Prescription

Evaluation Procedures for Lower Limb Orthoses

- Need of Evaluation
- Static Evaluation
- Dynamic Evaluation
- Gait Disorders with Orthoses Usage

Trunk and Cervical Orthoses

- Trunk Orthoses
- Trunk Orthoses Evaluation
- Scoliosis and Kyphosis Orthoses
- Scoliosis And Kyphosis Orthoses Evaluation
- Cervical Orthoses
- Cervical Orthoses Evaluation
- Guideline For Prescription

Orthoses For Burns And Other Soft Tissue Disorders

- Importance of Orthoses for Burns and Other Soft Tissue Disorders
- Orthoses for Burn Management
- Orthoses for Patients with Soft Tissues Problem Associated With Neuromuscular Disorders

. Mobility Aids

Demonstrate knowledge of the indications for different types of mobility aids, and their functions, e.g.

- Wheel chairs
- Walkers
- Crutches
- Adaptive Devices and Assistive Technology
 - including reachers, mouse and keyboard adaptations, and mobility impairment. Environmental control units, writing, feeding and toilet aids.
- High-Technology Adaptations to Compensate for Disability
- Physical Agent Modalities
- Prescription and designing foot wear modifications.
- Architectural Barriers
 - Describe architectural barriers and possible modifications, with reference to Rheumatoid arthritis, Cerebrovascular accident, spinal cord injury, and other disabling conditions

Goal Setting And Treatment Plan

- Long Term Goals
- Short Term Goals
- Treatment Planning
- Criteria for Discharge

- Care of Orthoses

PROSTHETICS

Early Management

- Clinic Team Approach to Rehabilitation
- Amputation Surgery: Osteomyoplastic Reconstructive Technique
- Postoperative Management
- Pain Management
- Skin Disorders and Their Management
- Psychological Consequences of Amputation

Rehabilitation of Adults With Lower-Limb Amputations

- Partial Foot and Syme's Amputations and Prosthetic Designs
- Transtibial Prosthetic Designs
- Transfemoral Prosthetic Designs
- Hip Disarticulations and Transpelvic Prosthetic Designs
- Basic Lower-Limb Prosthetic Training

Rehabilitation of Adults with Upper-Limb Amputations

- Body-Powered Upper-Limb Prosthetic Designs
- Upper-Limb Externally Powered Prosthetic Designs
- Training Patients with Upper-Limb Amputations

Beyond the Basics

- Special Considerations with Children

- Rehabilitation Outcomes
- Adaptive Protheses for Recreation
- Future Prosthetic Advances and Challenges
- Future Surgical and Educational Advances and Challenges

Recommended Text Books

- Prosthetics and Patient Management: A Comprehensive Clinical Approach By: Kevin Carroll ; Joan Edelstein

OCCUPATIONAL THERAPY IN PEADIATRICS

Cr. Hrs 3

COURSE DESCRIPTION:

This course covers the application of the principles of occupational therapy to physical, mental and emotional disorders of childhood. It is the first of five courses in the application of Occupational Therapy.

COURSE OBJECTIVES:

The student will be able to demonstrate an understanding of:

- Areas of abnormal and delayed development in children from birth to 5 years.
- Psychological reactions of children to hospitalization and to disability.
- Appropriate therapeutic approaches and techniques for the physical, mental and emotional disorders of childhood and related reactions.
- Treatment plans appropriate to a child's condition and stage of development.

COURSE CONTENT:

A. PSYCHOLOGICAL ASPECTS

1. Psychological reactions to disability in childhood and OT role.
2. Psychological aspects of hospitalization, and OT role.

B. TREATMENT APPROACHES - (Children's activities)

1. Play Therapy.

2. Creative activities.

C. Frames of References - (Practicals)

1. Bobath NDT.

2. Rood's neuromuscular facilitation.

3. Ayre's Sensory Integration Approach.

4. Biomechanical frame of reference

5. Behaviour modification

6. Peto's - conductive Education.

7. Special Education principles of education for perceptual and cognitive training.

D. OT APPLICATION (including review of each condition)

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 / PPRP

7. Spina bifida and hydrocephalus.

8. Nutritional disorders,

9. Mental retardation and Down's syndrome.

10. Congenital Syndromes and Chromosomal abnormalities

11. Specific learning disabilities

12. Pervasive Developmental Disorder

13. Attention Deficit Hyperactivity Disorder

14. Behaviour disorders.

15. Visual / auditory loss.

16. Speech and communication disorders.

17. Acquired Immuno Defficiency Syndrome.

18. Seizure disorders

19. Hemophilia

E. Occupational Therapy Intervention for specific areas of dysfunction

1. Oromotor dysfunction

2. Pre writing and writing skills

3. Psychosocial dysfunction

E. Assessment and Therapeutic intervention of all developmental disorders.

F. A multidisciplinary team approach for developmental disorders.

COMMUNITY MEDICINE CREDIT 3 (3-0)

COURSE DESCRIPTION

The course is organized to introduce the concept of health care and management issues in Health Services. It will help them in assuming a leadership role in their profession and assume the responsibility of guidance. It will help them assume wider responsibilities at all levels of health services. It will help them in improving their performance through better understanding of the total function of the institution.

CONTENTS OF THE COURSE:

- Types of health services, public, private, scientific, traditional health system.
- Organization of public services in health, central, provincial and local levels.
- Burden of disease, concept of health needs for care,
- Levels of health care, primary, secondary and tertiary,

- Planning of health services,
- Organization of health services,
- Implementation and evaluation of health services,
- Management of resources in health services,
- Financial management.
- Health education and social cultural concept in health,
- Ethics in Health Services.
- Theories of learning facilitations
- Cognitive, Psychomotor domain & effective domain
- Bloom taxonomy

COMMUNITY MEDICINE

Course Description:

This course is designed for the physiotherapists in order to develop strong knowledge background regarding the community health and well being. It also gives knowledge about issues in community health and policies and procedures for their effective management..

History of Community Medicine

Definition, concept of Health & illness of diseases

Natural History of diseases, levels & prevention

Environmental sanitation & Medical entomology

water

waste disposal

Environmental problems & pollution

Genetics

Prevention of genetic diseases

Genetic counseling

General Epidemiology

Descriptive epidemiology

Time

Place

Person

ii) Analytical epidemiology

a) Case control

b) Cohort studies

iii) Experimental Epidemiology randomized control trial

Systemic epidemiology

i) Vector borne diseases

ii) Water borne diseases

iii) Air born diseases

iv) Contact diseases

v) Diseases of major public health

importance alongwith national

health programmes wherever

Applicable

Non-communicable diseases:

i) Diabetes

ii) Hypertension

iii) Heart diseases

IV) Blindness

v) Accidents

vi) Geriatric problems

Occupational Health problems:

M.C.H. and family welfare

Programmes

Health care delivery in the community

National Health Policy

National Health programmes including

Rehabilitation, Evaluation of Health

Programmes, Health Planning Organization,

Structure of Health care system in the

Country including P.H.C. district level

State level and central level.

ii) P.H.C. Organization and Function

iii) Role of Non-Governmental Organization

Health Education

i) Principles of Health Promotion

ii) Methods, approaches and media for

I.E.C (Information, Education & Communication)

Medical and Health/Information system

Mental Health

Nutrition

TEXT BOOKS

1-Textbooks of Community Medicine, by Prof. H. A. Siddique

(2nd Edition).

2- Parks text book of preventive & social medicine

BIOSATISTICS II

CREDIT HRS: 3 (3-0)

Hypothesis Testing

Introduction, Statistical problem, null and alternative hypothesis, Type-I and Type-II errors, level of significance, Test statistics, acceptance and rejection regions, general procedure for testing of hypothesis. Exercises.

Testing of Hypothesis- Single Population

Introduction, testing of hypothesis and confidence interval about the population mean and proportion for small and large samples, Exercises

Testing of Hypotheses-Two or more Populations

Introduction, Testing of hypothesis and confidence intervals about the difference of population means and proportions for small and large samples, Analysis of Variance and ANOVA Table. Exercises

Testing of Hypothesis-Independence of Attributes

Introduction, Contingency Tables, Testing of hypothesis about the Independence of attributes. Exercises.

Regression and Correlation

Introduction, cause and effect relationships, examples, simple linear regression, estimation of parameters and their interpretation. r and R^2 . Correlation. Coefficient of linear correlation, its estimation and interpretation. Multiple regression and interpretation of its parameters. Examples

ORGANIZATION, ADMINISTRATION & WORK STUDY IN OCCUPATIONAL THERAPY Cr.Hrs 2(2-0)

COURSE DESCRIPTION:

The course will give an understanding of the principles and methods of organization, administration and work study as appropriate to the OT delivery system and to patient treatment and training.

COURSE OBJECTIVES:

This course will prepares students to become managers, leaders, and advocates. Emphasizes leadership theories, management skills, human resources issues, strategic planning.

COURSE OUTLINE:

A. ORGANIZATION AND ADMINISTRATION

1. Explain aspects of administration in general and in relation to OT work situations. Outline principles of administration.
2. Describe methods of administration in an OT department.
 - a. Records - their purpose eg. attendance, statistics, inventory, stock.
 - b. Maintenance of records. eg. methods of community and institutional based departments (CBR & IBR)
 - c. Referrals – purpose and types of referral.
 - d. Documentation
3. Demonstrate administration of the following.
 - a. Store keeping – materials, inventory records, Purchase ordering, Petty cash accounting.
 - b. General maintenance of equipment, furniture, buildings, costing of splints / aids / equipment / articles / make in OT.
4. Describe and demonstrate:
 - a. Types of correspondence
 - b. Methods of filing.
5. Describe methods for care of equipment and materials.
6. Discuss budgeting – including items for an annual budget.
7. Discuss considerations for construction of a new department, and modification of an old department including:
 - a. Space required
 - b. Allotment of space, eg. Suitability for access, plumbing requirements, & circulation of air.

8. Plan assessment forms eg. pre-vocational. ADL, hand function & higher functions for initial evaluation and progress recording.

9. Outline method of writing OT department annual reports. Calculate monthly and annual statistics. Make plans for future requirements eg. consider staff patient ratio, equipment and staff requirements.

10. Plan to organize picnic or sports programme for patients.

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

12. Outline safety precautions in OT. Discuss considerations relating to the following.

1. When using small hand tools.

2. General safety in the OT department, eg. moving patients, training attenders and "helpers" , while using safety machinery, while doing activities outside. Safety precautions in relation to patients with,

a. Leprosy

b. Hemiplegia

c. Paraplegia

d. Back injuries

e. Epilepsy, M.R.

f. Suicidal patients.

g. Patients with incoordination.

3. Infection control

13. Plan teaching methods for assistants and OT students in the clinical situation.

14. Discuss staff management and development, purpose of staff meetings.

Personnel

☐ Human resource

☐ HR planning

☐ Legal consideration

☐ Recruiting

Task analysis

SCIENTIFIC INQUIRY & RESEARCH METHODOLOGY

CREDIT 3(2-1)

Course Description:

This course includes discussion on basic quantitative methods and designs, including concepts of reliability and validity, interpretation of inferential statistics related to research designs, co relational statistic & designs, interclass correlation coefficients, and critical appraisal of the literature.

Research Fundamentals:

- Rehabilitation Research
- Theory in Rehabilitation Research
- Research Ethics

Research Design:

- Research Problems, Questions, and Hypotheses
- Research Paradigms
- Design Overview
- Research Validity

Experimental Designs:

- Group Designs
- Single-System Design

Non experimental Research:

- Overview of Non experimental Research
- Clinical Case Reports
- Qualitative Research

- Epidemiology
- Outcomes Research
- Survey Research

Measurement:

- Measurement Theory
- Methodological Research

Data Analysis:

- Statistical Reasoning
- Statistical Analysis of Differences; The basics
- Statistical Analysis of Differences; Advanced and special Techniques
- Statistical Analysis of Relationships; The basics
- Statistical Analysis of Relationships; Advanced and special Techniques

Being a Consumer

- Locating the Literature
- Evaluating Evidence One Article at a time
- Synthesizing Bodies of Evidence

Implementing Research:

- Implementing a Research Project
- Publishing and Presenting Research

PRACTICAL

- Literature review
- Preparation, presentation and defence of research proposal
- Poster presentation

RECOMMENDED TEXTBOOK:

- *Essentials of clinical research* By Stephan P. Glasser
- *Rehabilitation Research (Principles and Applications)* 3rd Edition By Elizabeth Domholdt

Recommended Books

- Walpole, R. E. 1982. "Introduction to Statistics", 3rd Ed., Macmillan Publishing Co., Inc. New York. Muhammad, F. 2005.
- "Statistical Methods and Data Analysis", Kitab Markaz, Bhawana Bazar Faisalabad

EIGHT SEMESTER

SUBJECTS:

- **OCCUPATIONAL THERAPY FOR ELDERLY**
- **RESEARCH PROJECT**
- **OCCUPATIONAL THERAPY IN REHABILITATION**
- **GROUP PROCESS IN OCCUPATIONAL THERAPY**
- **SUPERVISED CLINICAL PRACTICE**

OCCUPATIONAL THERAPY FOR ELDERLY

The Ageing Process

- **Appearance**
- **Skeletal system**

- **Special senses**
- **Metabolism**
- **Mental changes.**

Theories of Ageing

- **Sociology**
- **Psychology**
- **Biology**

The Role of Interdisciplinary Team:

- **The consultant**
- **The general physician**
- **The nurse**
- **The social worker**
- **The speech therapist**
- **Carers**
- **The patient**

Disorders commonly encountered in elderly:

- **Physiological Impairment**
 - a) **Respiratory disorders**
 - b) **Skeletal disorder**

- c) **Circulatory disorders**
- d) **Nervous system disorder**
- e) **Falls in elderly**
- f) **Others**
- **Intellectual Impairment.**
- a) **Dementia**
- b) **Alzheimer's**
- c) **Others**
- **Psychosocial Impairment**
- a) **Depression**
- b) **Other affective disorders.**

Role of Occupational therapist, Evaluation, Assessment, Treatment and Management

- **Evaluation**
- **Assessment of functional level**
- **Personal Assessment**
- **Psychological Assessment**
- **Social Assessment.**
- **Preventive care**
- **Acute care**
- **Chronic care**
- **Treatment**
- **Interdisciplinary management after discharge**

Home modification for elderly:

- **Ramp**
- **Door**
- **Kitchen**
- **Bathroom**
- **Safety issues**

Risk of fall

COURSE DESCRIPTION:

This course covers rehabilitation methods in detail and the application of O.T. to physical conditions not covered in Occupational Therapy in Neurology and Orthopaedics, and including medical, surgical and chronic deforming conditions, visual, hearing deficits. It runs parallel to Rehabilitation Medicine,

COURSE OBJECTIVES:

The student will be able to demonstrate an understanding of the OT role in medical and surgical conditions, and rehabilitation methods for people with residual disability.

COURSE OUTLINE:

A. Explain the role of O.T. in rehabilitation of Neurology, Orthopaedic and Psychiatric conditions, and habilitation of Paediatric conditions. Describe in detail ADL and functional assessment, training and planning methods of mobility.

B. Discuss the removal of architectural barriers, and use of appropriate adaptive devices. Explain purposes and methodology in home situation evaluation.

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

1. Arthritis

2. Burns

3. Cardiac and Pulmonary disease and rehabilitation

4. Hansen's disease – early treatment, prevention of deformity, treatment of neuritis reaction, rehabilitation measures for chronic disabilities Reconstructive surgery and muscle re-education, Sensory compensation

5. Amputation, both upper and lower limb including rehabilitation measures.

6. Cancer

7. Geriatric conditions, including social implications.

8. Haemophilia (adults)

9. OT management for pain

10. Visually and Hearing Impaired – Adults

11. Cumulative trauma disorder

12. Dysphagia

D. Plan appropriate hand splint design. Prepare and fit four different hand splints, and explain their use.

E. Explain disability evaluation for physical conditions and mention the legal aspects relating to compensation and insurance.

F. 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

G. Vocational Rehabilitation including Work assessments, Prevocational evaluation, Vocational Evaluation, Job analysis, Work Hardening

H. Observe and interpret psychological reactions in patients with physical disabilities and their relatives, and plan therapeutic approaches and methods for treating such reactions. Understand the principles and use techniques of group dynamics in both psychiatric and physical treatment areas as agents of change in behaviour.

I. Client Centered Therapy; Evidence Based Practice, Introduction to ICF (International classification of function)

GROUP PROCESS IN OCCUPATIONAL THERAPY Cr. Hrs 3

COURSE OBJECTIVES:

This course applied general group theory to occupational therapy practice and aim to help therapist function more effectively in groups. The students should gain practical experience in conducting various types of groups in the clinical setting.

COURSE OUTLINE:

Sec A

i) Groups in Occupational Therapy

ii) Groups in society

iii) Groups in therapy

iv) Different approaches to group work

Sec B Group Dynamics

i) Group process

ii) Roles

iii) Interaction - verbal & non verbal

iv) Intra-group relationships

v) Stages of a group

vi) Norms

vii) Group cohesion

Sec C. Managing groups:

i) Planning aims & goals

ii) Choosing an activity

iii) The environment

iv) Motivating group members

Sec D

i) Leadership roles & styles

ii) Developing group leader skills

Sec E.

Managing problems within a group.

Sec F.

Evaluating groups.

Sec G.

Demonstrate ability to plan and organize the following groups:

i) Awareness groups.

ii) Task oriented groups.

iii) Stress management groups.

iv) Self-help groups.

v) Anger management groups.

vi) Assertiveness training group.

vii) Drama therapy groups.

viii) Social skills training groups.

RESEARCH PROJECT

CREDIT HOURS 6

COURSE DESCRIPTION:

This course includes discussion on basic quantitative methods and designs, including concepts of reliability and validity, interpretation of inferential statistics related to research designs, co relational statistic & designs, interclass correlation coefficients, and critical appraisal of the literature.

COURSE OUTLINE:

- **Writing a Research Proposal**

- Describe the components of a research proposal.
- Identify the purposes of a research proposal.
- Describe the important issues for administrative support of a research proposal.

- **Reporting the Results of Clinical Research**

- Describe the components of a research article.
- Include the relevant information in each section of a research report.
- Discuss the use of tables and graphs in a research report.
- Give examples of good writing style.
- Employ the elements of good design when constructing a research poster.
- Develop an oral presentation integrating spoken and visual elements in a coherent, understandable manner.

- **Evaluating Research Reports**

- Develop a process for critical review of published papers.
- Analyze the appropriateness of the method of study presented in a research report to answer the proposed research question.
- Evaluate the reliability and validity of the procedures described in a research report.
- Appraise the validity of the conclusions presented in a study report for evidence-based practice.

PRACTICAL:

Analysis of Data using SPSS (Statistical Program for Social Science

Literature review

Preparation, presentation and defense of research proposal
Poster presentation

DISSERTATION

The dissertation will normally be 18,000 and 20, 000 words in length. 20000 words is the maximum word length permissible. Concise appendices are permissible, however, all information essential to the coherence of the dissertation needs to be located outside the appendices, within the main body of the dissertation.

The dissertation will normally contain the following elements;

- An abstract
- Clear statement of research questions and aims
- Background chapter including review of the pertinent literature and relevance of the study to the focus of the student's M.S Physical Therapy course
- Method section (with due reference to methodological issues, methods of data collection and analysis, sampling, critique and ethical consideration)
- Findings
- Discussion
- Conclusion
- Implication and recommendations(where applicable)

Assessment Criteria

- Synopsis writing and defense in Institutional Review Committee (IRC)
- Synopsis defense in IRC
- Research WORK and THESIS writing
- Submission of Research Thesis / Dissertation

REFERENCEBOOKS:

Recommended Reading

1. **The Essential Guide to Doing Your Research Project by Zina O'Leary (Nov 25, 2009)**
2. **Doing Your Research Project (Open Up Study Skills) by Judith Bell (May 1, 2010)**
3. **A Beginner's Guide to Doing Your Education Research Project by Mike Lambert (Sep 5, 2012)**
4. **A Manual for Writers of Research Papers, Theses, and Dissertations, Eighth Edition: Chicago Style for Students... by Kate L. Turabian, Wayne C. Booth, Gregory G. Colomb and Joseph M. Williams (Mar 28, 2013)**
5. ***Essentials of clinical research* By Stephan P. Glasser.**
6. **2. Rehabilitation Research (Principles and Applications) 3rd Edition By Elizabeth Domholdt.**