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04 YEARS CURRICULUM OF SPEECH AND LANGUAGE PATHOLOGY PROGRAM

INTRODUCTION

FIRST SEMESTER

SECOND SEMESTER

THIRD SEMESTER

FORTH SEMESTER

FIFTH SEMESTER

SIXTH SEMESTER

SEVENTH SEMESTER

EIGHT SEMESTER

POLICIES, RULES & REGULATIONS

INTRODUCTION

INTRODUCTION

SLP CURRICULUM COMMITTEE

CURRICULUM LEAD:	**DR. DANISH ALI KHAN**
COORDINATOR:	

TEAM MEMBERS:	

SPEECH THERAPY AS A HEALTH CARE PROFESSION

PROGRAMME OVERVIEW

OBJECTIVES OF THE PROGRAM

SCHEME OF STUDIES FOR 4 YEARS OCCUPATIONAL THERAPY (0T) PROGRAM

FIRST SEMESTER

COURSE CODE	SUBJECTS	CREDIT HOURS
RS 301	ANATOMY –I	**4 (3-1)**
RS 302	PHYSIOLOGY-I	**3(2-1)**
RS 304	ENGLISH-I	**3(3-0)**
RS 305	PAKISTAN STUDIES	**2(2-0)**
RSC 306	INTRODUCTION TO COMPUTER	**3(2-1)**
SLP 301	INTRODUCTION TO SPEECH AND LANGUAGE PATHOLOGY-I	**3(2-1)**
		18

SECOND SEMESTER

COURSE CODE	SUBJECTS	CREDIT HOURS
RS 351	ANATOMY –II	**4(3-1)**
RS 352	PHYSIOLOGY-II	**3 (2-1)**
RS 354	ENGLISH-II	**3(3-0)**
RS 406	SOCIOLOGY	**2(2-0)**
RS 355	ISLAMIC STUDIES	**2(2-0)**
RS 356	CLINICAL PSYCHOLOGY 1	**2(2-0)**
SLP 351	INTRODUCTION TO SPEECH AND LANGUAGE PATHOLOGY-II	**2 (2-0)**
		18

THIRD SEMESTER

COURSE CODE	SUBJECTS	CREDIT HOURS
RS 402	ANATOMY –III	**3(2-1)**
RS 403	PHYSIOLOGY-III	**3 (2-1)**
RS 401	ENGLISH-III	**3(3-0)**
RS 407	DEVELOPMENTAL PEDIATRICS	**3(3-0)**
SLP 401	OTOLARYNGOLOGY-I	**3(2-1)**
RS 408	CLINICAL PSYCHOLOGY-II	**2(2-0)**
		17

FOURTH SEMESTER

COURSE CODE	SUBJECTS	CREDIT HOURS
RS 453	BIOCHEMISTRY & GENETICS-I	**2(2-0)**
SLP 451	LINGUISTICS FOR SPEECH AND LANGUAGE PATHOLOGY	**3(3-0)**
SLP 452	OTOLARYNGOLOGY-II	**3(2-1)**
RS 455	PSYCHIATRIC CONDITIONS	**3(3-0)**

SLP 454	PHONETICS FOR SPEECH LANGUAGE PATHOLOGY	**3(2-1)**
SLP 453	AUDIOLOGY	**3(2-1)**
		17

FIFTH SEMESTER

COURSE CODE	SUBJECTS	CREDIT HOURS
RS 501	PATHOLOGY & MICROBIOLOGY-I	**2(2-0)**
SLP 501	SPEECH DISORDER-I	**3(3-0)**
SLP 502	LANGUAGE DISORDER-I	**3(3-0)**
RS 601	MEDICINE-I	**3(3-0)**
SLP 503	ASSESSMENT AND DIAGNOSIS OF SPEECH RELATED DISORDERS	**3(2-1)**
SLP 504	SUPERVISED CLINICAL PRACTICE-I	**3**
		17

SIXTH SEMESTER

COURSE CODE	SUBJECTS	CREDIT HOURS
SLP 551	SPEECH DISORDER-II	**2(2-0)**
SLP 552	LANGUAGE DISORDER-II	**2(2-0)**
SLP 553	VOICE DISORDERS	**2(2-0)**
RS 603	BIOSTATISTICS-I	**3(3-0)**
SLP 554	EVIDENCE BASED PRACTICE	**3(3-0)**
RS 651	MEDICINE-II	**3(3-0)**
SLP 555	SUPERVISED CLINICAL PRACTICE-II	**3**
		18

SEVENTH SEMESTER

COURSE CODE	SUBJECTS	CREDIT HOURS
SLP 601	NEUROLOGY OF COMMUNICATION	**3(2-1)**
SLP 602	SWALLOWING & FEEDING DISORDER	**2(1-1)**

SLP 603	CRANIOFACIAL ABNORMALITIES	**2(1-1)**
RS 653	BIOSTATICS II	**3(3-0)**
RS 701	SCIENTIFIC INQUIRY & RESEARCH METHODOLOGY	**3(2-1)**
RS 553	TEACHING METHODOLOGY & COMMUNITY MEDICINE	**2(2-0)**
SLP 604	SUPERVISED CLINICAL PRACTICE III	**3**
		18

EIGHT SEMESTER

COURSE CODE	SUBJECTS	CREDIT HOURS
SLP 651	CLINICAL DECISION MAKING & DIFFERENTIAL DIAGNOSIS	**3(3-0)**
SLP 652	REHABILITATION OF HEARING IMPAIRED	**2(2-0)**
SLP 653	MANAGEMENT AND DOCUMENTATION	**2(2-0)**
SLP 654	ALTERNATIVE & AUGMENTATIVE COMMUNICATION	**2(2-0)**
SLP 655	SUPERVISED CLINICAL PRACTICE IV	**3**
SLP 656	RESEARCH PROJECT	**6**
		18

FIRST SEMESTER

COURSE CODE	SUBJECTS	CREDIT HOURS
RS 301	ANATOMY –I	**4 (3-1)**
RS 302	PHYSIOLOGY-I	**3(2-1)**
RSC 304	ENGLISH-I	**3(3-0)**
RS 305	PAKISTAN STUDIES	**2(2-0)**
RS 306	INTRODUCTION TO COMPUTER	**3(2-1)**
SLP 301	INTRODUCTION TO SPEECH LANGUAGE PATHOLOGY	**3(3-0)**
		18

ANATOMY -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 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 z Classification of bones z 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 apouenrosis
- 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 z Elbow joint
- Wrist joint
- Radioulnar joints
- Inter carpal joints
- Joints MCP and IP
- Surface Anatomy of upper limb
- Surface marking of upper limb

DEMONSTARIONS

- 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

THORAX

STRUCTURES OF THE THORACIC WALL

- Dorsal spine (Vertebrae)
- Sternum
- Costal Cartilages & Ribs
- Intercostal Muscles

- Intercostal Nerves
- Diaphragm
- Blood supply of thoracic wall
- Lymphatic drainage of thoracic wall
- Joints of thorax

THORACIC CAVITY

- Mediastinum
- Pleura
- Trachea
- Lungs
- Bronchopulmonary segments
- Pericardium
- Heart – Its blood supply, venous drainage & nerve supply
- Large veins of thorax, superior and in-ferior vena cava, pulmonary veins brachiocephalic veins.
- Large Arteries – Aorta & its branches

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.

CARDIOVASCULAR SYSTEM

PHYSIOLOGY -I

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 sever 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

CLINICAL MODULE

- Perform nerve conduction studies and explain their clinical importance
- Myopathies and neuropathies
- Peripheral nerve injuries
- 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

- Clinical significance of cardiac cycle, correlation of ECG and heart sounds to cardiac cycle
- Clinical significance of cardiac cycle, interpretation of ischemia and arrhythmias
- Effects of hypertension
- Clinical significance of heart sounds
- Effects of ischemia
- Shock

PHYSIOLOGY PRACTICALS

- Cardiovascular System
- Cardiopulmonary resuscitation (to be coordinated with the department of medicine)
- Examination of arterial pulse
- ECG recording and interpretation
- Arterial blood pressure
- Effects of exercise and posture on blood pressure
- 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

COURSE DESCRIPTION

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

- Functional English
- Grammar
- Practical English Grammar by A.J. Thomson and A.V. Martinet. Exercises 1. Third edition. Oxford University Press. 1997. ISBN 0194313492zPractical English Grammar by A.J. Thomson and A.V. Martinet. Exercises 2. Third edition. Oxford University Press. 1997. ISBN 0194313506zWritingzWriting. Intermediate by Marie-Christine Boutin, Suzanne
- Brinand and Francoise Grellet. Oxford Supplementary
- Skills. Fourth Impression 1993. ISBN 0 19 435405 7 Pages 20-27 and 35-41.zReading/ComprehensionzReading. Upper Intermediate. Brain Tomlinson and Rod Ellis. Oxford Supplementary Skills. Third Impression
- 1992. ISBN 0 19 453402 2.
- Speaking

PAKISTAN STUDIES

COURSE DESCRIPTION

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.

HISTORICAL PERSPECTIVE

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

- Factors leading to Muslim separatism PEOPLE AND LAND
- Indus Civilization
- Muslim advent
- Location and geo-physical features

GOVERNMENT AND POLITICS IN PAKISTAN

Political and constitutional phases:

- 1947-58
- 1958-71
- 1971-77
- 1977-88
- 1988-99
- 1999 onward

CONTEMPORARY PAKISTAN

- Economic institutions and issues
- Society and social structure
- Ethnicity
- Foreign policy of Pakistan and challenges
- Futuristic outlook of Pakistan

RECOMMENDED BOOKS

- Burki, Shahid Javed. State & Society in Pakistan, The Macmillan Press Ltd 1980.
- Akbar, S. Zaidi. Issue in Pakistan's Economy. Karachi: Oxford University Press, 2000.
- S.M. Burke and Lawrence Ziring. Pakistan's Foreign policy: An Historical analysis. Karachi: Oxford University
- Press, 1993.zMehmood, Safdar. Pakistan Political Roots & Development.
- Lahore, 1994.zWilcox, Wayne.The Emergence of Banglades., Washington: American Enterprise, Institute of Public Policy

INTRODUCTION TO COMPUTER

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.

COURSE CONTENTS

- 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

RECOMMENDED 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 TO SPEECH LANGUAGE PATHOLOGY

COURSE OBJECTIVE

To develop an insight about Speech language pathology to the students. The students will learn about Speech language pathology, scope of practice, role and responsibilities of SLP and an overview of different modalities will be instructed to the students.

COURSE content

- Define Speech and Language Pathology
- History and development of the profession of Speech- Language Pathology.
- Demonstrate Scope of Practice
- Demonstrate Knowledge and Skills Needed by Speech-Language Pathologists
- Explain Roles and Responsibilities of Speech-Language Pathologists
- Define communication
- Explain various communication disorders
- Define swallowing and explain swallowing disorders.
- Illustrate major work activities of SLP
- Explain various settings of service delivery.
- Relate other professions concerned with communication disorders.
- Define human communication.
- Outline the components of human communication.
- Compare distinctions and similarities between communication, speech and language.
- Explain speech chain.
- Explain functions of communication, speech and language
- Classify modes of communication.
- Demonstrate communication skills

Anatomy Related to Speech and Hearing;

1. The Ear

a) Outer ear

Anatomical structures of outer ear.

b) Middle ear

a. Ossicles, Tympanic muscles,

b. Landmarks of middle ear.

c) Inner ear

a. Osseous vestibule

b. Osseous semicircular canals

c. Osseous cochlear Labyrinth

d. Membranous Labyrinth

Blood supply, nerve supply and lymphatic drainage of external middle and inner ear structures.

2. Nose:

a. List names the bony components of the nose.

b. Label the parts and boundaries of the nose.

c. Explain the main features of the nasal cavity.

d. List the names and identifies the para nasal air sinuses and locates their openings.

3. Temporomandibular joint:

a. Explain the type, articular surface, ligaments, possible movements, muscles performing the movements and nerve supply of the temporomandibular joint.

b. Identifies the joint and its articular surfaces.

c. Identifies and explain the muscles of mastication.

4. Oral Cavity

a. List the main features of the oral cavity, tongue, palate, salivary glands, teeth and gums.

b. Name the bones of oral cavity, dentition,

c. Illustrate Origin and insertion of the Muscles of Palate

d. Identifies the origin insertion of muscles of tongue

e. Explain the function of the intrinsic and extrinsic muscles of tongue

f. Explain the sensory and motor innervation of the tongue.

g. Identifies the salivary glands.

h. Demonstrates movements of the tongue and palate.

i. Show tests and produces the swallowing (gag) reflex.

5. Pharynx:

a. Identify the position and extent of the pharynx.

b. Classify the three subdivisions and features of each subdivision.

c. List the muscles of pharynx and their action.

d. Explain the sensory and motor innervation of the pharynx.

6. Larynx and trachea:

a. Identifies the hyoid and label its parts.

b. Identifies the larynx and names the laryngeal cartilages.

c. Illustrate the boundaries of laryngeal inlet and glottis.

d. Identifies the vocal and vestibular folds.

e. Explain the movement of the laryngeal cartilages.

f. List the laryngeal muscles and explain their attachments, action and nerve supply.

g. Defines the position, extent and gross structure of the trachea.

h. Demonstrate the mechanics of phonation and speech, production of sound voice and speech.

7. Eye:

a. Label the position of the lacrimal apparatus, the functional implications of structure of the eye and the lacrimal apparatus.

b. Illustrate the structure of retina and optic nerve pathway.

a. Basic understanding of the light and accommodation reflex. (omitting the pathway).

Names and explain the nerve supply and simple actions of the extraoccular muscles

SECOND SEMESTER

COURSE CODE	SUBJECTS	CREDIT HOURS
RS 351	ANATOMY –II	**4(3-1)**
RS 352	PHYSIOLOGY-II	**3 (2-1)**
RS 354	ENGLISH-II	**2(2-0)**
RSC 406	SOCIOLOGY	**2(2-0)**
RS 355	ISLAMIC STUDIES / ETHICS	**2(2-0)**
RSC 356	CLINICAL PSYCHOLOGY 1	**2(2-0)**

SLP 351	INTRODUCTION TO SPEECH LANGUAGE PATHOLOGY	**3 (3-0)**
		18

Applied Anatomy II

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

ABDOMEN

- ABDOMINAL WALL
- Structures of anterior abdominal wall: superficial and deep muscles
- Structure of rectus sheath
- Structures of Posterior abdominal wall
- Lumbar spine (vertebrae)
- Brief description of viscera

PELVIS

- Brief description of anterior, posterior and lateral walls of the pelvis
- Inferior pelvic wall or pelvic floor muscles
- Sacrum
- Brief description of perineum
- Nerves of perineum

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 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

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 sever 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 reflexeszLung 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 respirationzAbnormal breathing,
- Hypoxia, its causes and effects
- Cyanosis, its causes and effects

CLINICAL MODULE

- Clinical importance of lung function tests
- Causes of abnormal ventilation and perfusion
- Effects on pneumothoax, pleural effusion, and pneumonia
- Respiratory failure
- Artificial respiration and uses & effects of O2 therapy
- Clinical significance of hypoxia, cyanosis, and dyspnoea

GASTROINTESTINAL TRACT

- General functions of gastrointestinal tract
- Enteric nervous system
- Control of gastrointestinal motility and secretion
- Mastication
- Swallowing: mechanism and control
- Functions, motility and secretions of stomach
- Functions, motility and secretions of small intestine
- Functions, motility and secretions of large intestine
- Functions 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

- Dysphagia
- Physiological basis of acid peptic disease
- Causes of vomiting
- Diarrhea and constipation in clinical settings
- 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 metabolismzBlood 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

- Anemia and its different types
- Blood indices in various disorders
- Clotting disorders
- Blood grouping and cross matching
- 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

CLINICAL MODULE

- Acromegaly, gigantism and dwarfism.
- Effects of panhypopitutiarism.
- Diabetes insipidus.
- Thyrotoxicosis and myxoedema.
- Pheochromocytoma.
- Cushing's disease.
- Adrenogenital syndrome.
- Diabetes mellitus and hypoglycaemila.

PHYSIOLOGY PRACTICALS HEMATOLOGY

- Use of the microscope
- Determination of haemoglobin
- Determination of erythrocyte sedimentation rate
- Determining packed cell volume
- Measuring bleeding and clotting time
- RBC count
- Red cell indices
- WBC count
- Leukocyte count
- Prothrombin and thrombin time

RESPIRATORY SYSTEM

- Clinical examination of chest
- Pulmonary volume, their capacities and clinical interpretation
- Stethography

ENGLISH -II

COURSE DESCRIPTION

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

- Writing. Intermediate by Marie-Chrisitine Boutin, Suzanne Brinand and Francoise Grellet. Oxford Supplementary Skills. Fourth Impression 1993. ISBN 019 435405 7 Pages 45-53 (note taking).
- 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).
- Reading
- Reading. Advanced. Brian Tomlinson and Rod Ellis. Oxford Supplementary Skills. Third Impression 1991. ISBN 0 19 453403 0.
- Reading and Study Skills by John Langan
- Study Skills by Riachard Yorky.

SOCIOLOGY

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.

COURSE OBJECTIVES

- Understand the role of family and community in the development of human behaviour.
- Develop a holistic outlook toward the structure of the society and community resources.
- Identify the subtle influence of culture in the development of human personality, the role of beliefs and value as determinants of individual and group behaviour.
- Understand the social and economic aspect of community that influence the health of the people
- Learn to assess the social problem and participate in social planning.
- Identify Social Institution and resources.
- Understand the significance of social interaction in the process of rehabilitation.
- Appreciate the role of therapist as a member of society and the interdependence of individuals and society

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

COURSE DESCRIPTION

This course is aimed at:

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

INTRODUCTION TO QURANIC STUDIES

- Basic Concepts of Quran
- History of Quran

- Uloom-ul -Quran

STUDY OF SELECTED TEXT OF HOLLY QURAN

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

STUDY OF SELECTED TEXT OF HOLLY QURAN

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

SEERAT OF HOLY PROPHET (S.A.W) I

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

SEERAT OF HOLY PROPHET (S.A.W) II

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

INTRODUCTION TO SUNNAH

- Basic Concepts of Hadith
- History of Hadith
- Kinds of Hadith
- Uloom –ul-Hadith
- Sunnah & Hadith
- Legal Position of Sunnah

SELECTED STUDY FROM TEXT OF HADITH

- INTRODUCTION TO ISLAMIC LAW & **JURISPRUDENCE**

- Basic Concepts of Islamic Law & Jurisprudence
- History & Importance of Islamic Law & Jurisprudence
- Sources of Islamic Law & Jurisprudence
- Nature of Differences in Islamic Law
- Islam and Sectarianism

ISLAMIC CULTURE & CIVILIZATION

- Basic Concepts of Islamic Culture & Civilization
- Historical Development of Islamic Culture & Civilization
- Characteristics of Islamic Culture & Civilization
- Islamic Culture & Civilization and Contemporary Issues

ISLAM & SCIENCE

- Basic Concepts of Islam & Science
- Contributions of Muslims in the Development of Science
- Quranic & Science

ISLAMIC ECONOMIC SYSTEM

- Basic Concepts of Islamic Economic System
- Means of Distribution of wealth in Islamic Economics
- Islamic Concept of Riba
- Islamic Ways of Trade & Commerce

POLITICAL SYSTEM OF ISLAM

- Basic Concepts of Islamic Political System
- Islamic Concept of Sovereignty
- Basic Institutions of Govt. in Islam

ISLAMIC HISTORY

- Period of Khlaft-E-Rashida
- Period of Ummayyads
- Period of Abbasids

SOCIAL SYSTEM OF ISLAM

- Basic Concepts of Social System of Islam

- Elements of Family
- Ethical Values of Islam

RECOMMENDED BOOKS

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

CLINICAL PSYCHOLOGY I

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

Definition of Psychology

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

- Schools: Structuralism, functionalism, behaviourism, psychoanalysis, gestalt psychology.
- Methods: Introspection, observation, inventory and experimental method.
- Branches: General, child, social, abnormal, industrial, clinical, counselling, education.

Heredity and Environment

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

Developmental Theories And Growth Behaviour

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

Intelligence

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

Motivation

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

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

Emotions

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

Personality

- Definition, list the components: Physical characteristics, abilities, temperament interest, and attitudes.
- Discuss briefly the role of heredity, nervous system, physical characteristics, abilities, family, and culture on personality development.

- Basic concepts of Freud: Unconscious, conscious, id, ego, and superego. List and define the oral, anal, and phallic stages of personality department. List and define the 8 stages as proposed by Erickson, 4 concepts of learning as proposed by Dollard and Miller; drive, cue, response and reinforcement.
- Personality assessment; interview, standardised, non- standardised, exhaustive and stress interviews, list and define inventories BAI, CPI and MMPI. Projective tests: Rorschach TAT and sentence completion test.

Learning

- List the laws of learning as proposed by Thorndike.
- Types of learning: Briefly describe, classical conditioning, operant conditioning, insight, observation and Trial and Error type.
- List the affective ways to learn: Massed Vs. Spaced. Whole Vs. Part, Recitation Vs. Reading, Serial Vs. Free recall, Knowledge of results, Association, Organization, Mnemonic methods, Incidental Vs Intentional learning, role of language.

Thinking

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

Frustration

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

Sensation, Attention, And Perception

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

Defence Mechanisms Of The Ego

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

INTRODUCTION TO SPEECH LANGUAGE PATHOLOGY

Course objectives

The course is divided into Theory and clinical practical component. .During the supervised clinical practice, students are responsible for learning the art of history taking, the first interaction with patient. Students learn the skills under supervision of trained physical therapists. Students become familiar with performance of these skills in all settings (inpatient and outpatient) as well as on all types of patients.

The emphasis is placed on general history taking skills. Student is required to keep a performance record of all listed competencies and successfully perform on real patients during the final evaluation of the course.

Course contents:

I. Theory

Speech and Language Development

- Explain the normal development of communication
- Explain the Development of communicative intent
- Explain the Development of Voice
- Explain the Development of Phonology
- Explain the Development of Semantics
- Explain the Development of Syntax
- Explain the Development of Pragmatics
- List Prerequisites for language and speech development. Prespeech skills
- Illustrate the factors affecting language and speech development .
- Outline the theories of language acquisition – Innate Vs Acquired – a brief introduction.
- Demonstrate models of Speech production.

- Explain Stages of language and speech development.
- Demonstrate speech and language skills of infants, toddlers, pre-schoolers, School - going children and adolescents.
- Label and identify structures of the speech mechanism with the help of charts, model, specimen and computer software.
- Apply OPM examination on at least five children and adults without speech language complaints.
- Compare characteristics of good and normal speech using recorded samples and speech samples of classmates.

a) Illustrate vocal parameters

- Pitch (High, Low)
- Loudness (High, Low)
- Quality (Pleasant, unpleasant, harsh, hoarse, breathy, hypo nasal, hyper-nasal)

b) Explain other parameters

- Rate of speech (Normal, Fast, Slow)
- Enunciation (Clear, Unclear)
- Prosodic aspects (adequate / inadequate)

II. Clinical Competencies:

Interpret pertinent medical records and conduct an interview which collects the following data:

- Past and current patient/client history
- Developmental history, speech history
- Demographics
- General health status
- Chief complaint
- Medications
- Medical/surgical history

1) Compare intelligible Vs unintelligible speech along the intelligibility rating scale (two samples)

- Demonstrate and use varying range of pitch and loudness.
- Carry out stop watch assisted measures of
  - -Phonation duration
  - -Rate of speech
  - -AMR and SMR in 5 normal individuals.
  - -Maximum blowing time

- -S/z ratio

2) Compare relevant material pertaining to developmental milestones of

- -Communicative intent
- -Pre-linguistic skills
- -Speech
- -Hearing response
- -Phonology
- -Morphology
- -Syntax
- -Semantics
- -Pragmatics
- -Feeding skills
- -Attention

3) Interpret of a minimum of:

- -5 diagnostic cases
- -5 therapy sessions for 3 cases with different speech language disorders
- -Writing of observation reports of above.

4) Identify with available instrument for voice and speech analysis. Use of these instruments for measurement of own voice parameters.

5) Construct maintenance of a clinical diary.

6) Construct maintenance of a journal to be submitted at the end of the term.

7) Introduction of self as SLP professional through modeling and role play.

THIRD SEMESTER

COURSE CODE	SUBJECTS	CREDIT HOURS
RS 402	ANATOMY –III	**3(2-1)**
RS 403	PHYSIOLOGY-III	**3 (2-1)**
RS 401	ENGLISH-III	**3(3-0)**
RS 407	DEVELOPMENTAL PEDIATRICS	**3(3-0)**
RS 408	CLINICAL PSYCHOLOGY II	**2(2-0)**
SLP 401	OTOLARYNGOLOGY-I	**3 (2-1)**
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ANATOMY -III

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 EMBRYOLOGY

- 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 EMBRYOLOGY

- Musculoskeletal system
- Cardiovascular system
- CNS

HEAD AND NECK

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

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

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 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

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

- Significance of dermatomes
- Injuries of the spinal cord
- Hemiplegia and paraplegia
- Parkinsonism
- 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
- Function of the placenta
- Parturition and lactation
- Neonatal physiology

CLINICAL MODULE

- Male infertility
- Female infertility
- Contraception

- 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

- Renal function tests and their clinical importance
- Fluid excess and depletion
- Renal failure and dialysis
- Metabolic acidosis and alkalosis
- Abnormalities of micturition

PRACTICALS

NERVOUS SYSTEM

- Examination of superficial and deep reflexes
- Brief examination of the motor and sensory system
- Examination of the cranial nerves

SPECIAL SENSES

- Measurement of the field of vision
- Measurement of light reflex
- Ophthalmoscopy

- Colour vision
- Hearing tests
- Testing taste and smell

PREGNANCY TESTS

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 -III

COURSE DESCRIPTION

Enhance language skills and develop critical thinking

PRESENTATION SKILLS

How to prepare and deliver a successful presentation

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

Extensive reading is required for vocabulary building

RECOMMENDED BOOKS

- Technical Writing and Presentation Skills
- Essay Writing and Academic Writing
- 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).
- College Writing Skills by John Langan. Mc=Graw-Hill Higher Education. 2004.
- Patterns of College Writing (4th edition) by Laurie G. Kirszner and Stephen R. Mandell. St. Martin's Press.
- Presentation Skills

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

DEVELOPMENTAL PEADIATRICS

COURSE DECRIPTION

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:

- Explain Areas of normal development in children from birth to 5 years.
- Demonstrate 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.
- Explain Perceptual, Cognitive, Social, emotional, Language and Selfcare and Play development
- Demonstrate Assessment and therapeutic procedures for rehabilitation of disabled child.
- Explain Theories of early development

COURSE OUTLINE

1. Introduction to Developmental Paediatrics
2. Theories of early development:

- Normal Development From Birth To Five Years.
    - Physical development- Gross and Fine motor.
    - Reflex development + Practicals.
    - Perceptual, Cognitive, Social, emotional, Language and Selfcare and Play development
    - Practicals (eg. perceptual testing).
    - Pregnancy, Normal Prenatal , natal and Post natal period and possible complications.

- Brain damage and its origin in children.
- 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.

- Cerebral Palsy(CP); causes, signs, assessment , treatment
- Mental Retardation: causes, signs, Assessment, Treatment,
- Developmental Delay and Global Developmental Delay;Assessment, Interventions, treatment
- Genetic syndromes, genetic disorders/ Chromosomal aberrations focusi
- Genetic Counseling
- Downs syndrome
- Cri du chat syndrome
- Hydrocephalus and Microcephaly
- Autism spectrum disorders.(ASD)
- Social Communication Disorder
- Rare developmental syndromes
- The organization and work of child healthcare services in the medical sector.
- Assessment and therapeutic procedures for rehabilitation of disabled child.

CLINICAL PSYCHOLOGY II

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:

- How to cope up with psychological reactions of a patient during adimission and treatment of different conditions.
- To evaluate attention, concentration, perception and mention related abnormalities.
- To understand and explain behavioural aspects of learning maturation, and appropriately use behavioural techniques in therapy
- To evaluate memory, thinking & intelligence and mention related disorders.
- To evaluate motivation, emotion and personality and assess their pathological manifestations.
- 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

- **Health Psychology**

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.

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.

Stress

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

Communications

- Types: verbal, non-verbal, elements in communication, barriers to good communication, developing effective communication, specific communication techniques.
- Counselling: Definition, Aim, differentiate from guidance, principles in counselling and personality qualities of counsellors.

Compliance

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

Emotional Needs

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

Geriatric Psychology

Specific psychological reactions and needs of geriatric patients.

Paediatric Psychology

Specific psychological reactions and needs of paediatric patients.

Behaviour Modification

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

Substance Abuse

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

Personality Styles

Different personality styles of patients.

ABNORMAL PSYCHOLOGY

- General and historical introduction of Abnormal Psychology, Psychology in relation to medicine, different schools. Methods of Clinical Psychology: Case history method, interview Techniques, Clinical observation, Situational tests, Questionnaires.
- Concepts of normality and abnormality: Causes of abnormality, Criteria for abnormality. Broad classification of Current model of abnormal behaviour - Medical model, Psychodynamic model, Behaviouristic model & Humanistic model ,and Cognitive model
- Functional units of mind, Id ego and super ego - Their functions and interactions. Role of Defence mechanisms in normal and abnormal behaviour.
- Evaluation of attention and concentration, perception, memory, thinking, etc. and related disorders.
- Intelligence and mental subnormality. Intelligence test - dmonstrations.Measurement of intelligence - children & adults. Factors contributing to mental retardation. Prevention , Remedy and care.
- Personality Assessment: Questionnaire, inventories, projective techniques.
- Learning and maturation with specific reference to behavioural aspects. Behaviour techniques in therapy
- Counselling, Psychotherapy and Psychodrama.

OTOLARYNGOLOGY-I

Course objective: To become familiar with relevant ENT anatomy and to understand the pathogenesis, diagnosis, and management relative to the otorhinolaryngologic condition related to speech language pathology.

Course content:

I. OTOLOGY

- Explain anatomy and physiology (Hearing and Balance systems)
- Explain diseases of the External Ear : Congenital malformations, otitis externa, neoplasm, miscellaneous – Keratosis, Obturans, Foreign bodies.
- Explain disease of the middle ear : Congenital malformations, traumatic lesions, inflammatory diseases- Non-suppurative otitis media and its sequelae, Acute suppurative otitis media, chronic suppurative otitis media complications of suppurative otitis media, neoplasms.
- Explain diseases of the Inner Ear : Congenital deformities, traumatic lesions labyrithitis,
- Define and explain meniere's disease, presbycusis, ototoxicity, noise induced hearing loss.
- Illustrate space occupying and degenerative lesions of the central auditory nervous system.

II. RHINOLOGY

- Explain anatomy of the nose – paranasal sinuses
- Explain congenital diseases of the nose : Complete absence, cleft lip, probosis lateralis, cysts, and nasal choanal atresis.
- Define and explain Sinusitis.

FOURTH SEMESTER

COURSE CODE	SUBJECTS	CREDIT HOURS
RS 453	BIOCHEMISTRY & GENETICS-I	**2(2-0)**
SLP 451	LINGUISTICS FOR SPPECH LANGUAGE PATHOLOGY	**3(3-0)**
SLP 452	OTOLARYNGOLOGY-II	**3(2-1)**
RS 455	PSYCHIATRIC CONDITIONS	**3(2-1)**
SLP 454	PHONETICS FOR SPEECH LANGUAGE PATHOLOGY	**3(2-1)**
SLP 453	AUDIOLOGY	**3(2-1)**
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BIOCHEMISTRY & GENETICS-I

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 Robbert 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

LINGUISTICS FOR SPEECH LANGUAGE PATHOLOGY

Course Content

To introduce the basics of linguistics and phonetics to the students.

1.Introduction to linguistics

- Demonstrate concept of linguistics
- Explain linguistics analysis and branches of linguistics
- Define Language
- Explain nature, properties, functions of language and subsystems of language.
- Define communication
- Explain nature, requirements and types of communication
- Illustrate the origins of language
- Explain normal language development
- Demonstrate models of language processing
- Explain expressing ideas in speech
- Understanding what we hear, including attention and perception pre-requisites
- Explain Language and brain
- Explain communication in older age
- Explain structural linguistics; the generative approach to language.
- Demonstrate the basics of phrase structure grammar; lexical information about heads; recursion and clauses; dependency relations in syntax.

2. Syntax

- Demonstrate syntactic analysis, I.C. analysis,
- Demonstrate phrase structure grammar,

- Explain transformational grammar.
- Explain components and functions of grammar.
- Demonstrate acceptability and grammaticality of sentences.

3. **Morphology:**
   - Demonstrate Concepts of morph, morpheme and allomorph and their relationship.
   - Demonstrate Morphemic analysis. Morpheme types-lnflectional and derivational.
   - Define word
   - Explain types, processes of word formation.
   - Illustrate concept of meaning.
   - Explain different types of meanings, Concepts of synonyms, homonyms and antonyms.
   - Demonstrate semantic ambiguity

4. **Pragmatics.**

5. **Psycholinguistics:**
   - Introduction to psycholinguistics.
   - Explain competence and performance distinctions.
   - Explain language acquisition in children
   - Demonstrate major theories
   - Explain application of linguistics and psycholinguistics to the field of Speech Pathology with Special reference to testing.
   - (illustrate phonological, morphological, semantic, syntactic and pragmatic aspects of Pakistani languages.)
   - Explain clinical application of linguistic theory
   - Demonstrate universals and particulars in language acquisition
   - Demonstrate phonological development
   - Demonstrate lexical development
   - Demonstrate morphological development
   - Demonstrate syntactic development
   - Demonstrate pragmatics development
   - Demonstrate browns stages of Language development

- Demonstrate putting language to use: discourse development
- Demonstrate bilingualism
- Explain bilingual First Language Acquisition (BFLA)
- Illustrate the social environment and BFLA
- Demonstrate phonological acquisition and bilingualism
- Illustrate vocabulary development and BFLA
- Demonstrate bilingual syntax acquisition
- Illustrate bilingualism and the mind
- Explain information Carrying words
- Explain determining the mean length of utterance
- Explain language analysis tools (SALT, CHILDES etc.)

OTOLARYNGOLOGY-II

Course objective:

To become familiar with relevant ENT anatomy and to understand the pathogenesis, diagnosis, and management relative to the otolaryngologic condition related to speech language pathology.

Course content;

1. Explain anatomy and physiology of laryngeal structures
2. Demonstrate Anatomy and physiology of pediatric larynx.
3. Explain the mechanism of Voice production
4. Explain diseases of the tonsils and adenoids: Acute tonsillitis, Acute Lingual tonsillitis, acute Adenoiditis, Chronic nonspecific peritonsillar abscess (Quinsy).
5. Explain tumors of oropharynx, nasopharynx, laryngopharynx (benign and malignant)
6. Demonstrate pharyngeal pouch (Hypopharyngeal Diverticulum)
7. Explain congenital Diseases of Larynx. Differences between an infant and an adult larynx.
8. Define Stridor
9. Explain causes of infantile stridor.
10. Explain the following disorder:
    a. Laryngomalacia.
    b. Bifid uvula

c. epiglottis

d. Laryngeal web

e. Atresia, Subglottic

f. stenosis,

g. posterior laryngeal cleft.

11. Explain paralysis of vocal fold.

12. Define and explain Tumors and Cysts.

13. Define and explain Laryngeal Trauma and Stenosis :

14. Compare Open injuries and closed injuries.

15. Define and explain Burns Scalds.

16. Explain Foreign bodies and trauma due to intubation Stenosis.

17. Define and explain Puberphonia

18. Explain Acute Laryngitis

a. Explain Acute infective laryngitis in the adult:

b. Define and explain Simple laryngitis,

c. Explain acute supraglottic laryngitis (Epiglotitis)

d. Explain acute infective laryngitis in infancy and childhood.

e. Define and explain acute laryngotracheobronchitis,

f. Explain Acute epiglottitis,

g. Define and explain Laryngotracheal diphtheria,

h. Explain Non-Diphtheretic membranous laryngitis,

i. Define and explain Acute perichondritis,

j. Explain chondral neurosis,

k. Explain abscess of larynx

l. Explain acute non-infective laryngitis.

19. Chronic laryngitis

a. Explain Non-specific chronic laryngitis without hyperplassia,

b. Demonstrate atrophic laryngitis.

c. Explain vocal cord polyps

d. Explain Reinke's Oedema.

e. Explain Vocal nodules.

f. Explain Chronic laryngitis in childhood.

g. Explain Specific-tuberculosis

h. Define and explain lupus

i. Define and explain syphillis,
j. Define and explain eprosy,
k. Define and explain scleroma,
l. Define and explain mycoses.

20. Explain blood supply and nerve supply and lymph drainage of larynx, Effect of damage to X nerve
21. Demonstrate Carcinomas of larynx
22. Demonstrate Laryngectomy.
23. Demonstrate Tracheostomy

PSYCHIATRIC CONDITIONS

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;

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

COURSE OUTLINE

Introduction.

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

Causes of mental disturbances

- Hereditary factors.
- Embryonic development factors.
- Birth injury.
- Endocrine disease.
- Systemic diseases / accidents.
- Cerebral diseases.
- Emotional factors.
- Stresses related to cultural factors.

Preventive measures

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

Symptoms of mental illness

- Disturbances of consciousness.
- Disturbances of reasoning and judgement.
- Disturbances of memory.
- Disturbances of thought and perception.
- Disturbances of volition.
- Disturbances of motor behaviour.
- Disturbances of speech.
- Disturbances of affect.

Methods of treatment:

- Individual and group psychotherapy
- Physical Methods: ECT and related side effects, Psychosurgery.
- Psychopharmacology and related side effects,
- Social and rehabilitation.
- Family interaction, environmental manipulation.

Criteria for classification and definition of psychiatric illness.

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

- Schizophrenic and other Psychotic disorders
- Mood disorders
- Anxiety disorder including Phobias

- Somatoform disorders
- Dissociative disorders
- Factitious disorders
- Eating and sleep disorders
- Psychosomatic illness
- Personality disorders
- Substance related disorders
- Sexual dysfunction and gender identity disorders
- Organic Brain Syndrome
- Psychiatric disorders of childhood
- Psychiatric disorders of adolescence
- Psychiatric disorders of old age

Legal aspects related to psychiatric patients.

- Civil responsibility.
- Criminal responsibility.
- Testamentary capacity.
- G. Clinical teaching, case studies and discussion.

PHONETICS FOR SPEECH LANGUAGE PATHOLOGY

- Define branches and explain brief sketch of articulatory, acoustic and auditory phonetics.
- Define Speech
- Explain Formation of speech, Speech mechanisms: Air stream, phonatory, articulatory and resonatory mechanisms.
- Explain Classification of speech sounds and Segmentals and suprasegmentals.
- Define Segmentals
- Define Vowels and Consonants.
- Classification of consonants
- Explain Place and manner of articulation,
- Demonstrate Voiceless and voiced consonants.
- Classification of vowels
- Demonstrate Concept of cardinal vowels.
- Define Supra- segmentals, Stress, pitch, tone and intonation.

- Define Semivowels and diphthongs and also explain Formation and classification.
- Demonstrate Sounds formed using non-pulmonic air stream
- Demonstrate Ejectives, implosives and clicks.
- Explain Acoustic theory of speech production.
- Define and explain Acoustic properties of vowels and consonants.
- Define Sound spectrograph.
- Demonstrate the structure of the vocal tract
- Explain the description and production of the sounds of the IPA (English and non-English)
- Explain the transcription of English and non-English vowels and consonants from the IPA
- Explain Complex articulations
- Explain Theory of voice
- Demonstrate Different air stream mechanisms
- Explain the phonological organization of English
- Explain the pattern of phonological development and Phonological disorders
- Introduction to phonological analysis
- Explain speech 'errors' with reflection on remediation, based on phonetic principles.

2. Phonology:

- Define phoneme and allophones.
- Demonstrate Phonemic analysis with reference to Pakistani languages.
- Demonstrate Distinctive feature analysis.
  Explain its application in articulatory disorders.

- Define Syllable
- Explain Types and structure of syllables

3.Phonetic Transcription

- Demonstrate Broad transcription
- Demonstrate Narrow transcription

AUDIOLOGY

Course Objective: To examine the field of clinical audiology including assessment and treatment of hearing loss and to demonstrate knowledge and understanding of: speech perception in normally-hearing and hearing-impaired listeners.

Course content:

INTRODUCTION TO AUDIOLOGY

- **a.** Define Audiology
- **b.** Explain Historical Aspects of audiology
- **c.** Explain Anatomy and Physiology of the external ear, middle and inner ear explanation of the threshold of hearing based on the anatomy of the ear – auditory pathway and central hearing mechanism – cochlear microphonics : action potential

2) Development of the human auditory and vestibular system

- **a.** Explain Basic embryology of the auditory and vestibular system
- **b.** Explain Relevance of the information with special reference to syndromes.

3) Development of auditory behaviour

a. Explain Prenatal hearing

b. Explain New born hearing

c. Explain Auditory development from 0-2 yrs.

4) Explain dB concept

5) Define Frequency and intensity and also explain their psychological correlates: DL for frequency and intensity.

6) Explain Causes for aural deficiency. Hereditary deafness congenital deafness, acquired hearing loss in children and adults – causes of central auditory disorders.

7) Explain Causes of hearing loss in children :

- **a.** Genetic : - Congenital of late onset
  - **i.** Progressive- Syndromic / Non-syndromic
- **b.** Non – Genetic : Congenital / Acquired
- **c.** Importance of case history.

8) Explain early identification of Hearing Loss – Need, with specific reference to conductive hearing loss and sensori-neural hearing loss.

9) Explain Screening for hearing loss :

a. **i.** High risk registers.

ii. Behavioural Tests : Stimuli, procedure, recording of responses, interpretation of results and validation of results.

iii. Define and explain Mass Media Tests

iv. Explain Objective Tests : Historical review, immittance Screening, BERA,

v. Explain Otoacoustic Emission (OAE)

b. School screening:

i. Explain Objectives of Screening for hearing sensitivity, screening for middle ear effusion.

ii. Explain Need, criteria, instrumentation, Tests: individual, Group. Importance of follow up.

10) Demonstrate Hearing Testing in neonates and infants :

a. Demonstrate Behavioural Observation Audiometry (BOA)

b. Illustrate conditioning Techniques including CORA (*conditioned orientation reflex audiometry*), VRA (Visual reinforcement audiometry) and its modifications, TROCA (tangible reinforcement operant conditioning audiometry) and play audiometry.

11) Explain Speech Audiometry in Children:

a. Tests and material used to obtain:

i. Identify and explain Speech Detection Threshold (SDT)

ii. Identify and explain Speech Reception Threshold (SRT)

iii. Explain Speech Recognition Tests

iv. Identify and explain Auditory Screening Procedure (gasp), Early Speech Perception Test (EST),

v. Explain Response elicitation.

b. Explain Factors affecting these measures

c. Explain BC Speech Audiometry.

12) Define and explain Physiological / Electrophysiological Measures:

a. Immittance

b. Evoked Response Audiometry

c. Otoacoustic emission.

13) Define and explain Functional Hearing Loss in Children : Signs / Symptoms and screening Tests.

14) Define and explain Tunning fork tests – Rinne – Schwabach, Weber, Bing interpretation and duration to be observed, audiometric version of Weber and Bing tests.

15) Define and explain Puretone audiometry

16) Explain Masking

- **a.** –Definition, types of masking, types of noises, critical band concept, Terminology related to masking: Test ear, non-test ear, masker, maskee, crossover, cross hearing and shadow curve.
- **b.** Criteria for masking during AC and BC testing

17) Orientation to :

- **a.** Define Speech Audiometry
- **b.** Tests: Speech Awareness Threshold (SAT), Speech Recognition Threshold (SRT), Word Recognition Score (WRS).
- **c.** Demonstrate Calibration of Audiometers : Demonstration.
- **d.** Explain role of Speech Audiometry in differential diagnosis,
- **e.** Explain merits and demerits of Speech Audiometry.

18) Explain Immitance Audiometry

19) Explain Principle of Immittance Audiometry and Instrumentation

20) Define and explain Tympanometry

21) Define and explain Static Immittance

22) Define Reflexometry

23) Demonstrate Use of Immittance Audiometry in Clinical Population.

- **a.** to detect middle ear pathology
- **b.** to differentiate between cochlear and retrocochlear pathology
- **c.** to identify brain stem lesion
- **d.** to identify 7th Nerve lesion
- **e.** to identify pseudohypocusis
- **f.** to predict thresholds.

24) Demonstrate evoked Response Audiometry

- **a.** instrumentation and calibration
- **b.** -test procedure
- **c.** -interpretation
- **d.** -factors affecting ERR

25) Tests to detect Central Auditory Dysfunction:

- **a.** Definition terminologies used incidence and causes, indications for administration of CAD Tests.
- **b.** Explain Rationale for CAD Tests. Material, Instrumentation, Procedure.
- **c.** Interpret the following tests :

a. -Masking level

b. -Pitch Pattern Test

c. -Binaural Beats

d. -Filtered Speech Test

e. -Dichotic binaural fusion test

f. -Time altered speech test

g. -Rapidly alternating speech test.

h. -Speech with alternate masking index

i. -Staggered spondee word test

j. -Synthetic sentence identification with ipsilateral competing messages, synthetic

k. Sentence identification with contralateral competing message.

l. -Dichotic digit test

m. -Dichotic consonant vowel test

26) Demonstrate Audiological Rehabilitation in Geriatric population

27) Define and explain Presbyacusis

28) Explain Ototoxic drugs

29) Explain the pathway of Auditory nerve

30) HEARING AIDS:

a. Define hearing aid technology and explain parts of hearing aids & its functions
b. Explain type of hearing aids:
    - Body level Vs ear level
    - Monaural Vs Binaural Vs Pseudobinaural
    - Directional hearing aids Vs modular hearing aids
c. Classroom amplification devices; Group amplification systems– hard wired, induction loop, FM, infrared rays.
d. Setting up class rooms for the hearing handicapped : Classroom acoustics preferential seating and adequate illumination
e. Hearing Aid Selection:
    i. Pre-selection factors: which ear to fit? Monoaural or binaural? Which type of receiver? Which style?
    ii. Prescriptive and comparative procedure.

iii. Functional gain and insertion gain methods: Instrumentation, prescription formulae, Articulation Index, Speech-banana. Merit and demerits of each of these.

iv. Hearing aids for conductive hearing loss: congenital malformation, chronic middle ear disorders.

v. Hearing aids for infants / children / multiply handicapped.

vi. Hearing aids for elderly

vii. Hearing aids for the sightless.

viii. Dispensing Hearing Aid

f. Trouble shooting of hearing aid.

g. Counseling and orienting the hearing aid user (patients and significant others) – importance of harness, BTE loops etc.; Tips to facilitate acceptance of hearing aids; Battery life, battery charger, etc.

31) EXPLAIN ASSISTIVE LISTENING DEVICES :

TV listening aid, alarm devices, telephone listening aids, vibrotactile aids.

32) EXPLAIN COCHLEAR IMPLANT:

a. Historical review, parts and working of cochlear implant.

b. Candidacy for the cochlear implant (changing criteria).

c. team members and their roles for rehabilitation after cochlear implant, pre implant evaluations, surgical procedure, post-Surgical management,

d. complications

e. mapping the implant

f. rehabilitation after implant

g. Merits and demerits of cochlear the implant.

33) Demonstrate Vestibular System

h. Explain Anatomy and physiology of Vestibular system

i. Demonstrate The pathway of Vestibular division of VIII cochlear nerve.

j. Define Vestibule and explain Vestibular system disorders

k. Define and explain Tinnitus

l. Explain Meiniers disease

34) EXPLAIN HABILITATION OF HEARING IMPAIRED

I. a. Definitions and goals in aural rehabilitation

b. Classification of hearing handicap.

c. Compare Unisensory and Multisensory approach

d. Explain Acoupedic approach

e. Compare Manual and oral form of communication manual communication: Systems that parallel English, (Manual alphabet); interactive systems (cued speech : Rochester method): Those alternative to English (ASL) Indian Sign Language;

f. Explain Total Communication and write its examples

II. Explain Methods of teaching language to the hearing impaired

a. Natural method: maternal reflective method.

b. Structured method (grammatical method) : Fitzgerald key, box technique, others

c. Computer aided method.

III. Explain Educational placement of hearing impaired children:

i. Preschool training

ii. Integration

iii. Partial integration

iv. Segregation : day school Vs residential school

v. Criteria for recommending the various educational placements.

IV. Explain Factors affecting hearing impaired children

V. Demonstrate Educational problems of hard of hearing in Pakistan.

i. Counseling the parents and teachers regarding the education of the hearing handicapped.

ii. Setting up class rooms for the hearing handicapped.

iii. Home training – need, preparation of lessons, correspondence programs, follow-up.

VI. Demonstrate classroom acoustics, preferential seating and adequate illumination.

VII. Explain classroom amplification devices.

FIFTH SEMSTER

COURSE CODE	SUBJECTS	CREDIT HOURS
RS 501	PATHOLOGY & MICROBIOLOGY-I	**2(2-0)**
SLP 501	SPEECH DISORDERS-I	**3(3-0)**
SLP502	LANGUAGE DISORDERS-I	**3(3-0)**
RS 601	MEDICINE- I	**3(3-0)**
SLP 503	ASSESSMENT AND DIAGNOSIS OF SPEECH RELATED DISORDER	**3(2-1)**
SLP 504	SUPERVISED CLINICAL PRACTICE-I	**3**
		17

PATHOLOGY & MICROBIOLOGY-I

Course Description:

Students will develop an understanding of pathology underlying clinical disease states and involving the major organ systems. Epidemiological issues will be presented and discussed. Students will learn to recognize pathology signs and symptoms that are considered “red flags” for serious disease. Students will use problem-solving skills and information about pathology to decide when referral to another health care provider or alternative intervention is indicated. Students will be expected to develop the ability to disseminate pertinent information and findings, and ascertain the appropriate steps to follow.

GENERAL PATHOLOGY

1) Cell injury and death:
    a. Causes of cell injury
    b. Necrosis
    c. Apoptosis
    d. Subcellular responses
2) Cell adaptations:
    a. Hyperplasia
    b. Hypertrophy
    c. Atrophy
    d. Metaplasia
    e. Intracellular accumulation
3) Inflammation:
    a. Acute inflammation
        i. Vascular events
        ii. Cellular events
        iii. Chemical mediators
    b. Chronic inflammation
        i. General
        ii. Granulomatous
    c. Morphologic patterns of acute and chronic inflammation
4) Healing and repair:
    a. Normal controls
    b. Repair by connective tissue
    c. Wound healing
5) Haemodynamic disorders
    a. Edema
    b. Hyperemia / congestion
    c. Hemorrhage
    d. Thrombosis
    e. Embolism
    f. Infarction

g. Shock

6) Diseases of immunity
   a. General features
   b. Hypersensitivity reactions
   c. Immune deficiencies
   d. Autoimmunity
   e. Amyloidosis

7) Neoplasia:
   a. Nomenclature
   b. Molecular basis
   c. Carcinogenic agents
   d. Clinical aspects

MICROBIOLOGY

1) The Bacteria
   a. Bacterial cell structure
   b. Bacterial forms and function
   c. Bacterial identification and classification
   d. The gram stain
2) Methods of studying micro-organism
   a. Culturing, inoculation and identification
   b. Types of medicine
   c. Physical states of media
3) Microbial growth
   a. Stages in the normal growth curve
4) Microbial genetics
   a. Prokaryotic transcriptions and translations
   b. Conjugations
   c. Mutation and its causes
   d. Mechanism of drug resistances
5) Pathogenesis

a. Gateway to infection
b. Resident flora
c. Mechanism of invasions
d. Classic stages of clinical infection

6) Sterilization and disinfection

SPEECH DISORDERS-I

1. Define speech

2. Write down the names of speech disorders and explain speech disorders.

3. Explain normal development of articulation and phonology.

4. Demonstrate models of phonological development

5. Explain Fundamentals of articulatory phonetics, Co-articulation, Acoustic considerations of speech and supra-segmentals.

6. Demonstrate Transcription requirement related to perceptual analysis.

7. What is speech Perception.

8. Explain Theories of Speech Perception- motor theory, analysis – by – synthesis theory, action theory, Quantum theory.

9. Give Brief introduction to Distinctive features, phonological processes. Acoustics aspects of production and perception of speech sounds.

10. Explain Factors related to articulation and phonological disorders : Structural, Cognitive – linguistic and psychological factors.

11. Explain Phonological Processes with examples

12. Explain Phonological delay and disorders.

13. Demonstrate Factors affecting input, perception and processing; models of speech processing (Stackhouse & Wells, 1997); assessment models and approaches; description and categorization of profiles.

14. Explain Assessment procedures for articulation and phonological disorders:

- Types of assessment
- sampling procedures,
- scoring procedures,
- criteria for selection of assessment instruments,

- construction of instruments.

15. Explain Assessment of associated skill areas such as oral peripheral mechanism, speech sound discrimination, stimulability and oral stereognosis.

16. Demonstrate formal assessment tools for articulation and phonological disorders.

17. Explain Speech Disorders in individuals with hearing loss.

18. Explain Craniofacial anomalies: Definition of terms, gross anatomy of velopharyngeal sphincter, classification of cleft types, linguistic development, speech developments, velopharyngeal dysfunction, team members and roles, assessment techniques and procedure.

19. Explain Intervention : Stages of treatment and measuring improvement, Long term goals, Short-term goals and activities for achieving goals in cases with misarticulation.

20. Explain Issues in maintenance and generalization of misarticulation.

21. Demonstrate Team approach and professional communication (Inter, intra professional and client oriented)

Approaches to treatment: Motokinesthetic, Traditional (Van Riper), Integral stimulation, Phonological, Distinctive feature, Minimal Contrast therapy, Learning theories, Programmed, paired – stimuli. Computerized intervention packages.

LANGUAGE DISORDERS-I

Course Contents:

1. **Definitions, causes and characteristics of: Childhood Language Disorders:**

   a. Developmental language disorders: Definition, Assessment, Diagnosis, Differential Diagnosis and Intervention strategies.

   b. Explain Browns stages of language development

   c. Specific Language Impairment: Definition, Assessment, Diagnosis, Differential Diagnosis and Intervention strategies.

   d. Language disorders in ADHD: Definition, Assessment, Diagnosis, Differential Diagnosis and Intervention strategies.

   e. Language disorders in ASD: Definition, Assessment, Diagnosis, Differential Diagnosis and Intervention strategies.

f. Social Communication Disorder: Definition, Assessment, Diagnosis, Differential Diagnosis and Intervention strategies.

g. Define Receptive Language Disorders and Expressive Language disorders and also explain Causes, Assessment, Intervention strategies.

h. Demonstrate CELF, Renfrew and other Formal language assessment tools.

2. Acquired Neurological speech language disorders in children

a. Acquired Childhood Aphasia: Neuropathology, Linguistic Characteristics and Prognosis.

b. Define Acquired Childhood Aphasia and also explain Assessment and Treatment

c. Define and explain Speech and Language Disorders following Childhood Closed Head

d. Explain Communicative Disorders in Childhood Infectious Diseases

e. Demonstrate Linguistic Status following Acute Cerebral Anoxia in Children

f. Explain Linguistic Problems Associated with Childhood Metabolic Disorders

g. Explain Communicative Impairments in Neural Tube Disorders

h. Explain Speech and Language Disorders in Childhood Brain Tumours

i. Explain Effect of CNS Prophylaxis on Speech and Language Function in children

j. Explain Acquired Childhood Speech Disorders

k. Define and explain Dysarthria

MEDICINE-I

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
- Pharangitis
- Acute laryngeo-trcheobronchitis
- 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*

ASSESSMENT AND DIAGNOSIS OF SPEECH RELATED DISORDERS

CREDIT HOURS 3(2-1)

Course Content:

1. Give a brief overview of X-ray findings of Larynx, Thyroid and Lungs.
2. Give overview of CT and MRI Investigations of Brain and spinal cord.
3. Demonstrate Imaging investigation of CVA specifically of Middle cerebral artery, Site of lesion in conduction aphaisa, Broca's aphasia, Wernicke's aphaisa, Trans cortical sensory and Trans cortical motor aphasia and mixed aphasia.
4. Demonstrate Imaging Investigation of Traumatic brain injury, Hydrocephalus, Tumors, Encephalitis, Meningitis etc.
5. Explain Barium Swallow Video fluoroscopy
6. Explain the indications and contraindications for the videofluoroscopic swallowing study.
7. Demonstrate the advantages and limitations of the videofluoroscopic swallowing study.
8. Explain the elements of a comprehensive videofluoroscopic swallowing study.
9. Demonstrate the risks of aspiration.
10. Explain the study based on the severity of aspiration and/or ineffectiveness of therapeutic techniques.
11. Explain Abnormal findings as related to underlying anatomy and pathophysiology.
12. Demonstrate additional instrumental swallowing examinations (e.g.,FEES).
13. Explain swallowing function in videofluoroscopic study.
14. Explain use of videofluoroscopy as a tool to educate patients, family, other caregivers, and staff
15. Explain the recorded videofluoroscopic swallow study.

SUPERVISED CLINICAL PRACTICE

SIXTH SEMESTER

COURSE CODE	SUBJECTS	CREDIT HOURS
SLP 551	SPEECH DISORDERS-II	**2(2-0)**
SLP 552	LANGUAGE DISORDERS-II	**2(2-0)**
SLP 553	VOICE DISORDERS	**2(2-0)**
SLP 554	EVIDENCE BASED PRACTICE	**3(3-0)**
RS 603	BIOSTATISTICS-I	**3(3-0)**
RS 651	MEDICINE-II	**3(3-0)**
SLP 555	SUPERVISED CLINICAL PRACTICE-II	**3**
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SPEECH DISORDERS-II

Course content

1) Explain Lower Motor Neuron Disorders/Flaccid Dysarthria
   - myasthenia gravis
   - brainstem disorders
   - peripheral disorders
2) Explain Upper Motor Neuron Disorders
   - spastic dysarthria
   - pseudobulbar palsy

- cerebral palsy
- PSP (*progressive supranuclear palsy*)
- unilateral upper motor neuron dysarthria
- apraxia of speech

3) Explain Cerebellar Disorders/Ataxic Dysarthria

- Friedreich's ataxia
- OPCA

4) Explain Basal Ganglia Disorders

- hypokinetic dysarthria
- Parkinson's disease
- hyperkinetic dysarthria
- Huntington's disease
- Tourette's syndrome

5) Explain Multiple Lesion Sites/Mixed Dysarthria

- Amyotrophic lateral sclerosis
- Multiple sclerosis
- Multiple systems atrophy (MSA)

6) Explain other neurogenic speech disorders

- neurogenic mutism
- neurogenic dysfluency
- palilalia
- aprosodia associated with RH lesions
- pseudoforeign accent

7) Demonstrate Assessment of motor speech disorders

- motor speech exam
- specific assessment protocols for dysarthria & apraxia
- differential diagnosis

8) Demonstrate Intervention planning

- general approaches to management of motor speech disorders
- selection & sequencing of treatment goals

9) Explain Treatment methods: a symptom-based approach for dysarthria

- managing respiratory deficits
- managing phonatory deficits

- managing resonance deficits
- managing articulatory deficits
- managing prosodic deficits
- communication-oriented treatment

10) Explain developmental speech disorders; Nature and assessment of developmental dysarthria, phonological disorder and developmental verbal dyspraxia

11) Explain Acquired Apraxia of speech: models, controversies, interventions and outcomes.

12) Explain Developmental Verbal Dyspraxia: Description, assessment and classification; associated factors and consequences; approaches to assessment: structuring and implementing assessment.

13) Explain treatment approaches for apraxia of speech.

LANGUAGE DISORDER-II **CREDIT HOURS 2(2-0)**

Course Content:

- Definitions of aphasia
- Explain etiology of aphasia
- Explain clinical features (linguistic, psycho-social and neurobehavioral) and Differential diagnosis
- Explain classification of aphasia based on anatomical, linguistic and psycholinguistic aspects.
- Explain approaches to aphasia assessment, including, discourse analysis, cognitive neuropsychological frameworks and quality of life measures; issues surrounding diagnostic testing and classificatory labels.
- Explain psychosocial issues in aphasia, including depression, employment, and the disabled identity in aphasia
- Explain recovery, the effects of SLT intervention and outcome research design
- Explain cognitive ability in aphasia
- Explain Aphasia in bilingual population
- Demonstrate Assessment of skills (linguistic, cognitive and communicative) informal and formal procedures.
- Explain Intervention :
    - Prognostic indicators
    - spontaneous recovery
    - General Principles _

    - Specific approaches / techniques
    - Group therapy
    - AAC
    - Role of family.
- Demonstrate Linguistic investigations in aphasia.
- Explain associated problems in aphasia.
- Define and explain Primary Progressive Aphasia.
- Demonstrate Research design in adult acquired language deficits and aspects of diagnosis
- Define traumatic brain injury and explain communication features, with particular reference to discourse, relationship between communication difficulties and other sequelae; assessment and clinical management
- Define Aging and dementias an explain communication decline and disorder, the role of the speech and language therapist in assessment and management.
- Explain right hemisphere: language lateralization, communication and associated functions of the right hemisphere,
- Demonstrate communication features in right brain damage with particular reference to discourse; assessment and clinical management
- Define Schizophrenia and effects on communication and relation to thought disorder
- Demonstrate Acquired alexia and Agraphia and explain factors contributing to reading and writing disorders in neurological damage, functional and cognitive neuropsychological approaches to theory, assessment and treatment.

VOICE DISORDERS **CREDIT 2(2-0)**

Course content

1. **Define and explain** Anatomy of the respiratory, phonatory and resonatary systems
    - Development of voice and factors influencing
    - Theories of phonation
    - Characteristics of normal voice. Physiological, acoustical, and Aerodynamic correlates of voice.
2. **Give Evaluation of voice and implication to abnormal voice.**
    - Definition of normal and abnormal voice
    - Causes and classification of abnormal voice.
    - Incidence and prevalence of abnormal voice.
    - Causes, diagnosis, differential diagnosis, and therapy for
    - Hysterical Aphonia
    - Spasmodic dysphonia
    - Plica Ventricularis
    - Mutational voice disorders
    - Diplophonia
3. **Explain Vocal hyperfunctional disorders**
    - Vocal abuse
    - Vocal Nodule, vocal polyp, contact ulcer
4. **Explain Neurological problems resulting in voice disorders**
5. **Explain Paralysis of the vocal cords, causes, types, characteristics, differential diagnosis and management.**
6. **Explain Voice disorders in other conditions:**
    - Voice disorders related to resonatory problems
    - Voice problems in conditions like Cerebral palsy, Hearing impaired, mentally retarded, Cleft lip and palate
    - Voice problems in Endocrine disorders
    - Voice problems in geriatrics
7. **Define and explain Congenital voice disorders.**

8. **Define and explain Resonatory disorders,**
    - hypernasality,
    - hyponasality,
    - causes,
    - characteristics
    - Management.
9. **Explain Evaluative procedures and Instrumentation for:**
    - Invasive procedures – endoscopic procedures
    - Non-invasive (Acoustic, perceptual, aerodynamic, Electro Glotto Gram, Inverse
    - filtering procedures)
10. **Compare normal and abnormal voice patterns based on the above procedures**
11. **Explain Management of the problems of professional voice users.**

Define and explain Laryngectomy

- Definition incidence and prevalence
- Causes and symptoms of laryngeal cancer
- Types and characteristics of laryngectomy surgery
- Total laryngectomy, definition, characteristics, associated problems
- Assessment of laryngectomy

Give Management of laryngectomy

- Esophageal speech – anatomy, candidacy, types of air intake procedures speech characteristics in esophageal speech.
- Tracheo esophageal speech – anatomy, candidacy, different types of TEP, fitting of prosthesis, speech characteristics, complications in TEP.
- Artificial larynx – different types, selection of artificial larynx, speech characteristics.
- Pharyngeal speech, bucal speech, ASAI speech, gastric speech
- Pre and postoperative counseling

EVIDENCE BASED PRACTICE **CREDITS 3(3-0)**

Course Description:

This course introduces the concept of evidence-based practice in speech language pathology 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.

1-5 Course Content

Evidence-Based Speech Language Therapy

- An introduction about evidence-based practice in Speech Language Therapy:
  - What is 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
- Types of Evidence
- Types of Practice
- History of Evidence-Based Health Care
- Steps for evidence-based practice in Speech Language Therapy
- Relevant clinical questions
- Importance of evidence-based practice in Speech Language Therapy:
  - For patients
  - For Speech Language therapists and the profession
  - For funders of Speech Language therapy services
- Principles of involving clients/carers in decision making;
- Principles of inter-professional collaboration;
- Understanding of the expectations, support, difficulties of the newly qualified speech and language therapist;
- Critical appraisal of research articles

BIOSTATISTICS-I **CREDITS 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, Historigram, 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


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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.

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


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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.

MEDICINE-II **Credits 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
- Vitilogo
- Pityriasis
- Hyperhydrosis

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*

SUPERVISED CLINICAL PRACTICE-II

SEVENTH SEMESTER

COURSE CODE	SUBJECTS	CREDIT HOURS
SLP 601	NEUROLOGY & COMMUNICATION	**3(2-1)**
SLP 602	SWALLOWING AND FEEDING DISORDER	**2(1-1)**
SLP 603	CRANIOFACIAL ABNORMALITIES	**2(1-1)**
RS 653	BIOSTATICS II	**3(3-0)**
RS 701	SCIENTIFIC INQUIRY & RESEARCH METHODOLOGY	**3(2-1)**
RSC 553	TEACHING METHODOLOGY & COMMUNITY MEDICINE	**2(2-0)**
SLP 604	SUPERVISED CLINICAL PRACTICE III	**3**
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NEUROLOGY OF COMMUNICATION

Course Content:

- Define and explain Neuro-anatomical bases of language.
- Demonstrate Cerebral blood supply.
- Explain Neuro - physiological, Neuro - chemical and Neuro-psychological aspects of language in the brain
- Demonstrate Hemispheric functions, cerebral dominance, models of language processing
- Explain Brocas area
- Explain Wernicke's area
- Explain Pathophysiology of neurological lesions affecting speech, language and hearing – relearning and recovery.
- Demonstrate General and specific neurological examination (Higher functions, cranial nerves, motor and sensory systems, reflexes and fundus)
- Demonstrate Neurological investigations – Electrophysiology (EEG, Evoked potentials) and imaging (CT and MRI)

- Demonstrate Theoretical considerations in neuro - communication disorders (competence Vs performance, loss Vs interference, regression hypothesis, multi - lingualism, unidimensional Vs multidimensional break down.
- Define and explain aphasia
- Explain etiology of aphasia
- Demonstrate Clinical features (linguistic, psycho-social and neurobehavioral)
- Demonstrate Classification of aphasia based on anatomical, linguistic and psycholinguistic aspects.
- Explain Assessment of skills (linguistic, cognitive and communicative) informal and formal procedures.
- Definition, classification, clinical features, assessment and management of : Agnosia b) Alexia c) Agraphia
- Define and explain Dementia
- Define and explain Traumatic Brain Injury
- Demonstrate Differential Diagnosis of childhood and Adult Neuro – communicative Disorders.

SWALLOWING AND FEEDING DISORDERS

Course content:

1. Define and explain Dysphagia
2. Write down Etiologies and prevalence of dysphagia
3. Explain Anatomical structures for swallow
4. Explain Neurological innervation of swallowing
5. Explain Physiology of swallowing
6. Explain Swallowing skills in the infant and child
7. Demonstrate Age-related swallowing problems
8. Explain Neuromuscular and anatomic swallowing disorders
9. Explain the following phases of Dysphagia;
    - Oral phase disorders
    - Pharyngeal phase disorders
    - Cervical esophageal phase disorders
10. Explain Swallowing disorders associated with neurologic lesions & disease
    - Stroke

- Closed head trauma
- Cervical spinal cord injury
- Cerebral palsy
- Alzheimer disease and other dementias
- Parkinson's disease
- Multiple sclerosis
- Myasthenia Gravis
- ALS
- Pediatric motor neuron disease
- Muscular dystrophy
- COPD

11. Give Evaluation of swallowing function

- Clinical evaluation
- Screening/prefeeding evaluation
- Trial swallows
- Instrumental evaluation
- Imaging procedures
- Non-imaging procedures

12. Give Guidelines for evaluation of specific patient groups

- infants and children
- severe dysphagia
- oral feeders
- patients with tracheostomy
- Evaluation of Dysphagia in Adults

13. Explain Documentation and recommendations of dysphagia

14. Explain Management and treatment strategies of;

- Compensatory strategies
- postural changes
- improving oral sensory awareness
- food consistency/diet changes/feeding modifications
- Therapy procedures

- oral motor exercises
- sensory-motor integration procedures
- swallow maneuvers
- Therapy for specific neurologic lesions & diseases

CRANIOFACIAL ABNORMALITIES

Course content

- Define cleft lip
- Define cleft palate
- Explain Etiological factors of cleft lip and palate
- Explain Incidence of cleft palate and background to the condition
- Explain Development of the child with cleft palate.
- Explain Developmental biology of the face and palate.
- Demonstrate Anatomy of oral cavity and ganto-dental development
- Explain the relationship between mouth, teeth and articulation
- Demonstrate Syndromes – Pierre – Robin's, Treacher – Collin's , Crouzon's disease.
- Explain the velopharyngeal mechanism- muscles and functions.
- Explain the Types of cleft lip and cleft palate.
- Explain Classification system of cleft lip and palate
- Explain Team management- composition, responsibilities, co-ordinator.
- Explain Speech and language problems of individuals with cleft.
- Demonstrate Associated problems of individuals with cleft – hearing, dental, psychosocial, physical.
- Demonstrate Diagnostic procedures and instruments used in assessment at speech.
- Give Diagnosis of different types of cleft palate
- Explain Treatment Concepts – Surgical repair of cleft lip, palate and velopharyngeal (Outline)
- Briefly explain Treatment procedures for speech.
- What are the Prosthetic speech appliances for patients with cleft palate.

- Demonstrate Relationship between anatomical, neurological functional deviations
- Explain the Clinical evaluation of speech, articulation, resonance, oral facial structure, hearing and Velopharyngeal function
- Write down the types of nasality
- Demonstrate Compensatory articulation
- What are Indication for secondary surgical intervention
- Explain Analysis of nasality and articulatory deviations in connection with velopharyngeal dysfunction and cleft palate
- Demonstrate early contact with child and the family
- Counsels the patient's family regarding feeding and oral motor exercises
- Why is team management so important for individuals with the history of cleft lip and palate
- Explain Speech disorder in cleft palate
- Demonstrate Planning, carrying out management plan of adult and children with nasality disorder and cleft
    - Improving velopharyngeal valving
    - Correcting dental problems
    - Speech and language therapy
- Explain surgical treatment of cleft palate

BIOSTATICS II

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 R2. Correlation. Coefficient of linear correlation, its estimation and interpretation. Multiple regression and interpretation of its parameters. Examples

SCIENTIFIC INQUIRY & RESEARCH METHODOLOGY

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 Diffrences; The basics
- Statistical Analysis of Diffrences; 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
- 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

TEACHING METHODOLOGY & COMMUNITY MEDICINE

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 –K Park

SUPERVISED CLINICAL PEACTICE-III

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EIGHT SEMESTER

COURSE CODE	SUBJECTS	CREDIT HOURS
SLP 651	CLINICAL DECISION MAKING & DIFFERENTIAL DIAGNOSIS	**3(3-0)**
SLP 652	REHABILITATION OF HEARING IMPAIRED	**2(2-0)**
SLP 653	MANAGEMENT & DOCUMENTATION	**2(2-0)**
SLP 654	ALTERNATIVE & AUGMENTATIVE COMMUNICATION	**2(2-0)**
SLP 655	SUPERVISED CLINICAL PRACTICE IV	**3**
SLP 656	RESEARCH PROJECT	**6**
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CLINICAL DECISION MAKING & DIFFERENTIAL DIAGNOSIS

Course content:

University study is integrated with clinical practice goals and includes:

- Application of knowledge to clinical problem solving in order to identify and meet clients' needs and formulate management rationales;
- Definition and scope of counselling, the place of empathic responding, and the application of counselling skills in speech and language contexts, with specific reference to adults with acquired neurological communication disorders;
- Explain normal and abnormal swallowing: assessment, diagnosis and management;
- Demonstrate Basic introduction to prosody, its components and functions, prosodic impairment and appropriate assessment and treatment procedures;
- Explain Prosodic transcription systems;
- What are the Development of basic perceptual analysis skills for prosody;
- Explain Extension of phonetic transcription skills in disordered speech in conjunction with acoustic analyses.
- What are the clinical presentation of Disorders of communication
- How to Make a Diagnosis
- Explain Models and strategies for clinical problem solving, including;
    - Assimilation of relevant contextual information and influences on decision making, including personal values and belief systems, client expectations, population needs
    - Making differential diagnoses
    - Assessing likely outcomes of intervention
    - Incorporating research evidence in clinical decision making
    - Case load prioritisation management
    - The importance of collaboration with other team members
    - Skills in judging when to modify, suspend or terminate intervention, and assessing quality of life issues
- Implementing Formal Assessment tools for Speech, Language and Swallowing disorders, Designing Checklists/ Rating scales for Informal assessments
- Designing Individualized Therapeutic Intervention plan and devising IEPs
- How Multidisciplinary team works
- **Demonstrate Counseling**
    - Theories and approaches to counseling
    - Structure of counseling situations
    - Stages of a counseling relationship
    - Development of counseling skills

- Stress and stress management
- Specific applications relevant to Speech and Language Therapy
- Grief counseling
- Family systems therapy

HEARING IMPAIRED AND REHABILITATION OF HEARING IMPAIRED

CREDIT 3

1. Definitions and goals in aural rehabilitation, classification of hearing handicap.

Early identification and its importance in aural rehabilitation.

(a) Unisensory Vs Multisensory approach:

(b) Acoupedic approach

(c) Manual Vs oral form of communication manual communication:

Systems that parallel English, (Manual alphabet); interactive systems (cued speech : Rochester method): Those alternative to English (ASL) Pakistan Sign Language; Contrived system (SEE-I, SEE-II, Signed English)

(d) Total Communication

- Methods of teaching language to the hearing impaired
- Natural method: maternal reflective method.
- Structured method (grammatical method) : Fitzgerald key, box technique, others.
- Computer aided method.

2. Educational problems of hard of hearing in Pakistan.
3. Counseling the parents and teachers regarding the education of the hearing handicapped.
4. Setting up class rooms for the hearing handicapped.
5. Home training – need, preparation of lessons, correspondence programs, follow-up.
6. Classroom acoustics, preferential seating and adequate illumination.Classroom amplification devices.
7. Management of hearing impaired children with special needs.
8. Management of children with central auditory processing problems
9. Speech reading
10. **Auditory learning**
    - Definitions and historical background

- Role of audition in speech and language development in normal children and its application in education of the hearing impaired.
- Factors in auditory training : Motivation of the case, intelligence, age, knowledge of progress, etc.
- Methods of auditory training.
- Individual Vs Group auditory training

11. Auditory training activities

- For patients of different age groups
- In patients with congenital and acquired hearing losses.
- Verbal Vs Nonverbal material
- For individual Vs Group activities

12. Rehabilitation of the hearing impaired – Elderly population

13. Introduction to speech acoustics;

14. Development of a basic level of operation of a range of acoustic techniques for assessment and treatment of speech and voice disorders, including aerodynamic measures, spectrography, F_0 and energy extraction, automatised analysis systems and voice analysis (on the basis of Praat and Kay Elemetrics systems – Multispeech, Multi-Dimensional Voice Program, Motor Speech Profiles, Real-Time Pitch and Phonatory Airflow System);

15. Integration of perceptual and acoustic analysis of prosodic as well as segmental features;

16. Exploration of how acoustic techniques can support treatment by providing biofeedback (e.g. Visipitch & CSL Games);

17. Sensory Processing Disorder.

18. ASD sensory issues

19. Visual impairment. Speech and language considerations.

MANAGEMENT & DOCUMENTATION

Course content:

- Explain Functions of management
- Explain Budgeting and administration tasks such as receiving goods, purchasing control, storing goods, stock control, petty cast and sale of goods/aids or equipments
- Explain Personnel management such as selection of personnel and interviewing, training, investigation of staff needs, promotion and career structure etc.
- Explain Forward planning and organization of speech and language department
- Explain the purposes of documentation
- Explain Fundamental elements of documentations
- Explain Content of documentation such as general information, assessment, reassessment, planning, implementation of treatment, discontinuation of service.
- Write down the types of documentation such as assessment notes/reports, treatment plan, progress note, treatment records, discharge summaries.
- Explain Co-operation with allied professions to facilitate the planning of the patients total treatment programme.
- Explain The responsibility of the speech and language pathologist towards his/her technical staff and/ or support staff to enable them to make maximum use of their skills in the treatment programme.
- Explain Communication skills (definition/type)

Principles of speech and development therapy

- Speech therapy principles, underlying the treatment of patients suffering from all types of developmental psychological and psychiatric conditions.
- Correlation of speech therapy principles with the treatment policy of developmental team
- A particular knowledge of the variations in mental and developmental treatment and the need for a flexible approach when planning speech therapy

Planning of treatment programmes

- The planning of individual and group treatment programmes considering the total needs of patients suffering from a variety of clinical syndromes.

- The provision of realistic programmes to meet the requirements of age, sex educational, social and working backgrounds and duration of illness.

The planning of individual and group programmes to meet the requirements of patients in hospitals, institutions, special schools and community based centers

ALTERNATIVE & AUGMENTATIVE COMMUNICATION

Course content:

- Explain AAC assessment and intervention – principles and practices
- Demonstrate Communicative competence as applied to AAC
- Explain Vocabulary selection of AAC
- Explain Conversation and interaction styles
- Demonstrate AAC and specific client groups, e.g. aphasia, progressive neurological disorders, learning disabilities)
- Explain AAC and development of literacy skills
- Describe Consultation and advocacy
- Describe Inclusion and participation
- Elaborate Social and cultural issues
- Elaborate Efficacy of AAC interventions
- Elaborate Technical aids in speech/ language pathology and compensation for handicaps such as damage to the voice or speech organs.
- Elaborate Awareness and handling of different technical aids for communication, both to improve speech and voice function(voice amplifier) and augmentative communication aids to replace speech .
- Explain Computer based aids, speech synthesis. Prescribing and using aids.

SUPERVISED CLINICAL PRACTICE-IV CREDIT HOURS 3

RESEARCH PROJECT **CREDIT HOURS 6**