

CURRICULUM
OF
DOCTOR OF
PHYSICAL THERAPY (DPT)
5-YEARS DEGREE PROGRAMME



HIGHER EDUCATION COMMISSION
ISLAMABAD – PAKISTAN

CURRICULUM DIVISION, HEC

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PREFACE

The curriculum of subject is described as a throbbing pulse of a nation. By viewing curriculum one can judge the stage of development and its pace of socio-economic development of a nation. With the advent of new technology, the world has turned into a global village. In view of tremendous research taking place world over new ideas and information pours in like of a stream of fresh water, making it imperative to update the curricula after regular intervals, for introducing latest development and innovation in the relevant field of knowledge.

In exercise of the powers conferred under Section 3 Sub-Section 2 (ii) of Act of Parliament No. X of 1976 titled “**Supervision of Curricula and Textbooks and Maintenance of Standard of Education**” the erstwhile University Grants Commission was designated as competent authority to develop review and revise curricula beyond Class-XII. With the repeal of UGC Act, the same function was assigned to the Higher Education Commission under its Ordinance of 2002 Section 10 Sub-Section 1 (v).

In compliance with the above provisions, the HEC undertakes revamping and refurbishing of curricula after regular intervals in a democratic manner involving universities/DAIs, research and development institutions and local Chamber of Commerce and Industry. The intellectual inputs by expatriate Pakistanis working in universities and R&D institutions of technically advanced countries are also invited to contribute and their views are incorporated where considered appropriate by the National Curriculum Revision Committee (NCRC).

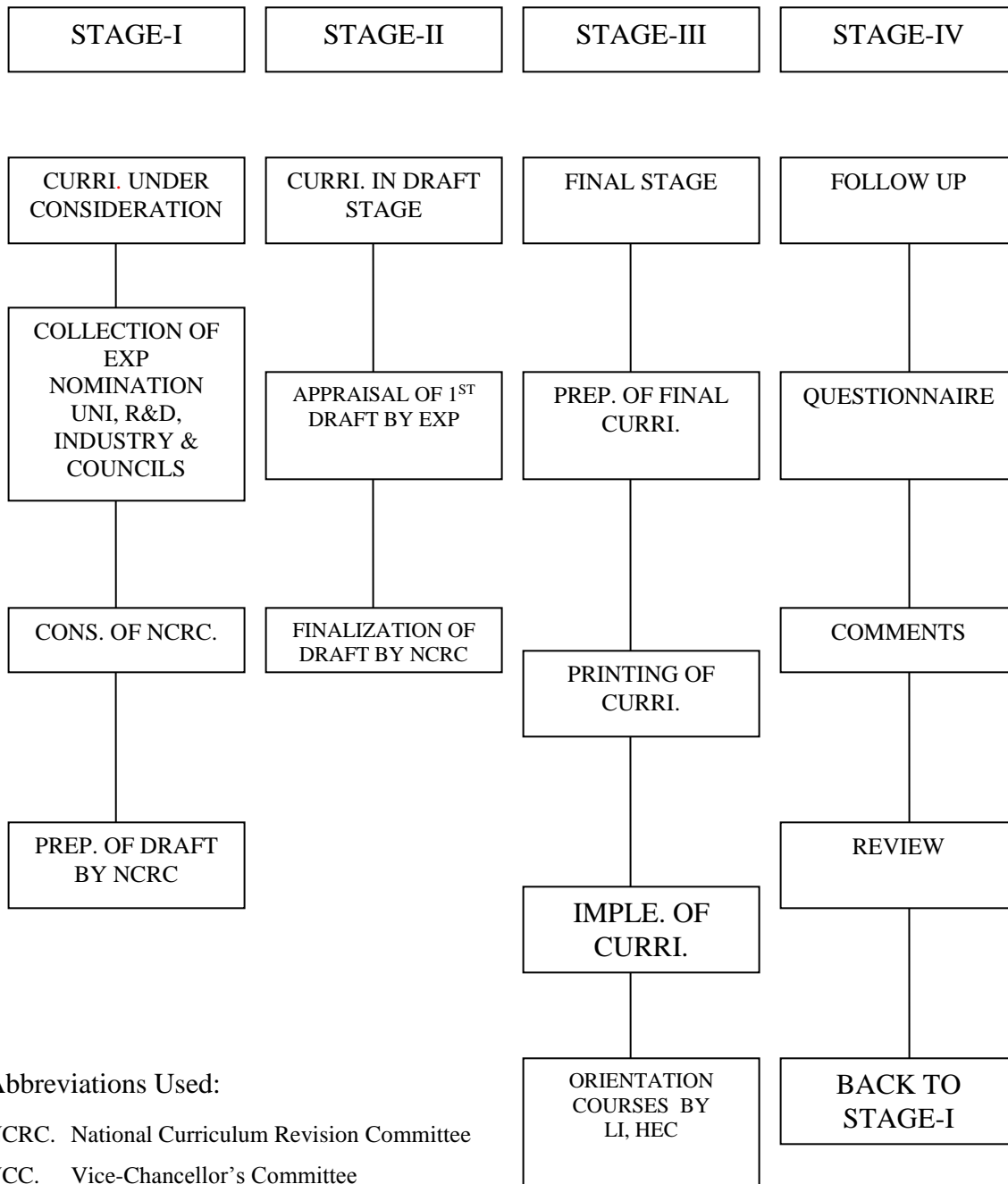
To bring international compatibility to qualifications held from Pakistani universities/DAIs for promotion of student’s mobility and job seekers around the globe, a Committee comprising of Conveners of the National Curriculum Revision Committee of HEC met in 2009 and developed a unified template for standardized 5-years/10-semesters DPT degree programmes. This unified template was aimed to inculcate broader base of knowledge in the subjects like English, Sociology, Philosophy, Economics etc in addition to major discipline of study. The DPT degree course requires to be completed in 5-years/10-semesters, and shall require qualifying of 175 credit hours of which 77% of the curriculum will constitute discipline specific and remaining 23% will comprise compulsory and general courses.

In line with above, NCRC comprising senior university faculty and experts from various stakeholders and the respective accreditation councils has finalized the curriculum for DPT 5-years in Physical Therapy. The same is being recommended for adoption by the universities/DAIs channelizing through relevant statutory bodies of the universities.

MUHAMMAD JAVED KHAN
Adviser (Academics)

June, 2011

CURRICULUM DEVELOPMENT



Abbreviations Used:

- NCRC. National Curriculum Revision Committee
- VCC. Vice-Chancellor’s Committee
- EXP. Experts
- COL. Colleges
- UNI. Universities
- PREP. Preparation
- REC. Recommendations
- LI Learning Innovation
- R&D Research & Development Organization
- HEC Higher Education Commission

INTRODUCTION

Final meeting of National Curriculum Revision Committee to review and revise the Curriculum for Physical Therapy at degree level was held at HEC Regional Centre, Karachi from May 04-06, 2011. List of participants of meeting is as under:-

Sr.	Name	
1.	Mr. Riaz Baig Chughtai Principal, College of Physiotherapy, Jinnah Post Graduate Medical Centre (JPMC), Karachi.	Convener
2.	Mr. Akhtar Rasul Assistant Professor/HOD, Department of Physiotherapy, University of Faisalabad, Faisalabad.	Member
3.	Mr. Khalid Aziz Assistant Professor, Ziauddin College of Physical Therapy, Ziauddin Medical University, Karachi.	Member
4.	Dr. Fareeha Shah, DPT (USA) (Fatima Memorial Hospital), Institute of Allied Health Sciences, College Building, Room No. 10-B, Shadman, Lahore.	Member
5.	Dr. Awais Bin Inam Lecturer / Incharge, Department of Physical Therapy, Sarghoda Medical College, University of Sargodha, Sargodha.	Member
6.	Mr. Khalid Saeed Khan Principal, School of Physiotherapy, Mayo Hospital, Lahore.	Member
7.	Mr. Syed Hasan Abbas Principal, Liaquat National School of Physiotherapy, Liaquat National Hospital (LNH) Karachi.	Member

8.	Mrs. Samira Malik Consultant Physiotherapist, Department of Rheumatology and Physical Medicine, Pakistan Institute of Medical Sciences, Islamabad.	Member
9.	Dr. Muhammad Naveed Babur, Principal / Assistant professor, ISRA University, ISRA School of Rehabilitation Sciences (ISRS), Islamabad Campus.	Member
10.	Mr. Muhammad Bin Afsar Jan, Institute of Physical Medical & Rehabilitation, Khyber Medical University, Block-IV, PDA Building, Phase-V, Hayatabad, Peshawar.	Member
11.	Syed Ali Shah Senior Lecturer, College of Physiotherapy, JPMC, Coordinator Academics Pakistan, Physiotherapy Society.	Member
12.	Muhammad Asif Assistant Professor, Deputy General Secretary, Pakistan Physiotherapy Society.	Member
13.	Dr. Asghar Khan, Director, PT, DPT (USA), Riphah College of Rehabilitation, Riphah International University, Sector I-14, Islamabad.	Secretary

The meeting started with recitation from the Holy Quran by Dr. Naveed Babur. Mr. Muhammad Javed Khan, Adviser (Academics) welcomed the participants and informed the members of the committee about procedure for review and revision. He also informed the members of the committee regarding legal obligations as assigned to the Commission under its law and in accordance with the provisions of Act No. XII of 1976 titled Federal Supervision of Curricula & Text Books. He emphasized the need for preparation of curriculum in academics of Physical Therapy knowledge, new techniques and methodologies evolving world over dictating the professionals to keep pace with time and adopt these changes for the need of future professionals. He emphasized for the semester based undergraduate curriculum in a standardized format/scheme of studies set by HEC.

Mr. Riaz Baig Chughtai, Principal College of Physiotherapy Jinnah Post Graduate Medical Centre (JPMC), Karachi, Convener and Dr. Asghar Khan, Director, Riphah College of Rehabilitation Sciences (RCRS), Riphah International University, Islamabad, Secretary NCRC briefly described the history of physiotherapy being taught in the world class universities of the world, scheme of studies, duration and curriculum. The Convener and the Secretary thanked the members for reposing confidence and assure them of their fullest cooperation and intellectual inputs during the course of proceedings. The house unanimously agreed to adopt 5 years program Doctor of Physical Therapy (DPT).

Malik Arshad Mahmood, Director Curriculum HEC Islamabad thanked to the Convener, Secretary and the member of the Committee for sparing their time and lot of professional contribution towards preparation of the final draft curriculum for Physical Therapy.

The committee unanimously approved the final draft of Curriculum of Physical Therapy. The committee highly appreciated the efforts made by the officials of HEC Regional Center, Karachi and Mr. Malik Arshad Mahmood, Director, Curriculum for making nice arrangements to facilitate the committee and comfortable stay of the members at Karachi.

All members of NCRC really admire the efforts of Director Curriculum being made from day one to End of all activities of members.

The Meeting ended with the vote of thanks to the HEC, Convener, Secretary and members of National Curriculum Revision Committee. Committee has really admired the contribution of HEC for the ignored field of Physical Therapy.

Proceedings of NCRC (Physical Therapy)

Day-01

04-May- 2011.

Technical session -1, the NCRC members discussed the scheme of study at structural level in detail. All the members submitted their suggestion, after a long discussion; committee reviewed the Scheme of study for the Doctor of Physical Therapy degree programme in Pakistan at graduate level and in the technical session –II, NCRC members reviewed the contents of Doctor of Physical Therapy (DPT) courses along with the recent books available for the first five semesters of DPT.

The session ended at 06:00 pm.

Day -02

05-May-2011.

Technical Session-III: Meeting started with the recitation from the Holy Quran. NCRC members reviewed the final draft of course contents along with recommended books in the technical session for 6th to 10th semester of DPT.

Technical Session-IV: The members drafted the supervised clinical practice document from 5th to 10th semester and finalized the course contents along with the recommended books. The session ended at 7:00 p.m.

Day -03

06-May-2011

Technical Session-V: Proceeding started with recitation of the Holy Quran. In the technical session the committee debated on the contents of all the subjects included in the DPT curriculum and also discussed the module of clinical practice at graduate level from 5th to 10th semester.

Technical Session-VI: The final draft of curriculum was reviewed and submitted to the Director curriculum at the end of the session.

RATIONALE

Physical therapy is an essential segment of modern health care system. It is a “science of healing and art of caring”. It pertains to the clinical examination, evaluation, assessment, diagnosis and treatment of musculoskeletal, Neurological, Cardio-Vascular and Respiratory systems’ functional disorders including symptoms of pain, edema, physiological, structural and psychosomatic ailments. It deals with methods of treatment based on movement, manual therapy, physical agents, and therapeutics modalities to relieve the pain and other complications.

Hence, Physical therapy covers basic parameters of healing sciences i.e. preventive, promotive, diagnostic, rehabilitative, and curative.

GOALS OF THE PROGRAMME:

THE PURPOSE OF THE DOCTOR OF PHYSICAL THERAPY PROGRAMME (DPT) IS TO PREPARE PHYSICAL THERAPISTS WHO WILL:

1. Be primary providers of physical therapy care.
2. Serve as responsible members in the professional community and are willing and able to assume leadership roles in the communities they serve.
3. Identify researchable problems, advocate and participate in research, and incorporate research findings into clinical practice.
4. Understand and place in context the social, economic and cultural issues of practice and effectively advocate for changes in policy.
5. Correlate theory with practice and think creatively about, react to, adapt or shape new practice environments.
6. Participate in and provide education for communities, patients, peers, students and others.

OBJECTIVES OF THE PROGRAMME:

GRADUATES OF THE DOCTOR OF PHYSICAL THERAPY PROGRAMME WILL:

1. Demonstrate in-depth knowledge of the basic and clinical sciences relevant to physical therapy, both in their fundamental context and in their application to the discipline of physical therapy.

2. Understand, correlate and apply theoretical foundations of knowledge to the practice of physical therapy; evaluate and clarify new or evolving theory relevant to physical therapy.
3. Demonstrate the behaviors of the scholarly clinician by developing and utilizing the process of critical thinking and inquiry, particularly focused on the improvement of the practice of physical therapy and the delivery of health care.
4. Engage in reflective practice through sound clinical decision making, critical self-assessment and commitment to lifelong learning.
5. Demonstrate mastery of entry level professional clinical skills. Provision of these services is based on the best available evidence and includes physical therapy examination, evaluation, diagnosis, prognosis, intervention, prevention activities, wellness initiatives and appropriate health care utilization.
6. Prepared to influence the development of human health care regulations and policies that are consistent with the needs of the patient and of the society.
7. Demonstrate leadership, management, and communication skills to effectively participate in physical therapy practice and the health care team.
8. Incorporate and demonstrate positive attitudes and behaviours to all persons.
9. Demonstrate the professional and social skills to adapt to changing health care environments to effectively provide physical therapy care.

SCHEME OF STUDIES FOR 5-YEARS DOCTOR OF PHYSICAL THERAPY (DPT) PROGRAMME

SEMESTER/YEAR	NAME OF SUBJECT	CREDITS
	FIRST PROFESSIONAL YEAR	
FIRST	ANATOMY –I	4(3-1)
	PHYSIOLOGY-I	3(2-1)
	KINESIOLOGY-I	3(2-1)
	ENGLISH-I (FUNCTIONAL ENGLISH)	3(3-0)
	PAKISTAN STUDIES	2(2-0)
	BIOSTATISTICS-I	3(3-0)
		18
SECOND	ANATOMY –II	4(3-1)
	PHYSIOLOGY-II	3(2-1)
	KINESIOLOGY-II	3(2-1)
	ENGLISH-II (COMMUNICATION SKILLS)	3(3-0)
	ISLAMIC STUDIES / ETHICS	2(2-0)
	BIOSTATISTICS-II / UNIVERSITY OPTIONAL	3(3-0)
		18
	SECOND PROFESSIONAL YEAR	
THIRD	ENGLISH-III ((Technical Writing & Presentation Skills)	3(3-0)
	INTRODUCTION TO COMPUTER	3(2-1)
	ANATOMY –III	3(2-1)
	PHYSIOLOGY-III	3(2-1)
	BIOMECHANICS & ERGONOMICS-I	3(3-0)
	BIOCHEMISTRY & GENETICS I	2(2-0)
		17
FOURTH	ANATOMY-IV (Neuro Anatomy)	3(2-1)
	BIOMECHANICS & ERGONOMICS-II	3(2-1)
	BEHAVIORAL SCIENCES (<i>Psychiatry & Psychology</i>)	3(3-0)
	BIOCHEMISTRY& GENETICS II	2(2-0)
	EXERCISE PHYSIOLOGY	3(3-0)
	MEDICAL PHYSICS	3(2-1)
		17
	THIRD PROFESSIONAL YEAR	
FIFTH	PATHOLOGY & MICROBIOLOGY I	2(2-0)
	PHARMACOLOGY I	3(3-0)
	PHYSICAL AGENTS & ELECTROTHERAPY I	3(2-1)
	THERAPEUTIC EXERCISES & TECHNIQUES	3(2-1)
	SOCIOLOGY	2(2-0)

	HEALTH & WELLNESS	2(2-0)
	SUPERVISED CLINICAL PRACTICE I	3(0-3)
		18
SIXTH	PATHOLOGY & MICROBIOLOGY II	3(2-1)
	PHARMACOLOGY II	2(2-0)
	PHYSICAL AGENTS & ELECTROTHERAPY -II	3(2-1)
	MANUAL THERAPY	3(2-1)
	TEACHING METHODOLOGY & COMMUNITY MEDICINE	3(3-0)
	SUPERVISED CLINICAL PRACTICE II	3(0-3)
		17
	FOURTH PROFESSIONAL YEAR	
SEVENTH	MEDICINE I	3(3-0)
	SURGERY I	3(3-0)
	RADIOLOGY & DIAGNOSTIC IMAGING	3(2-1)
	MUSCULOSKELETAL PHYSICAL THERAPY	3(2-1)
	HUMAN GROWTH, DEVELOPMENT & COMMUNITY BASED REHABILITATION	2(2-0)
	SUPERVISED CLINICAL PRACTICE III	3(0-3)
		17
EIGHT	MEDICINE II	3(3-0)
	SURGERY II	3(3-0)
	NEUROLOGICAL PHYSICAL THERAPY	3(2-1)
	EVIDENCE BASED PRACTICE	3(2-1)
	PROSTHETICS & ORTHOTICS	2(2-0)
	SUPERVISED CLINICAL PRACTICE IV	3(0-3)
		17
	FIFTH PROFESSIONAL YEAR	
NINTH	CARDIOPULMONARY PHYSICAL THERAPY	3(2-1)
	EMERGENCY PROCEDURES & PRIMARY CARE IN PHYSICAL THERAPY	2(2-0)
	CLINICAL DECISION MAKING & DIFFERENTIAL DIAGNOSIS	3(3-0)
	SCIENTIFIC INQUIRY & RESEARCH METHODOLOGY	3(2-1)
	PROFESSIONAL PRACTICE (LAWS , ETHICS &ADMINISTRATION)	2(2-0)
	INTEGUMENTRY PHYSICAL THERAPY	2(2-0)
	SUPERVISED CLINICAL PRACTICE V	3(0-3)
		18
TENTH	OBSTETRICS & GYNAECOLOGICAL PHYSICAL THERAPY	2(2-0)

	PAEDIATRIC PHYSICAL THERAPY	2(2-0)
	GERONTOLOGY & GERIATRIC PHYSICAL THERAPY	2(2-0)
	SPORTS PHYSICAL THERAPY	2(2-0)
	SUPERVISED CLINICAL PRACTICE VI	4(0-4)
	RESEARCH PROJECT	6
		18
	TOTAL CREDITS	175

Note *

- *This scheme of curriculum is also applicable to annual system; in which two consecutive semesters will be considered as one professional year.*
- *Credit hours distribution is as following:*
 - **Theory:** one credit hour shall be equal to one hour of teaching per week throughout the semester.
 - **Practical / lab:** one credit hour shall be equal to two hours of lab work per week throughout the semester.
 - **Clinical:** one credit hour shall be equal to three hours of clinical work per week throughout the semester.
 - **Research:** One credit hour shall be equal to three hours of research work per week throughout the semester.

HOUSE JOB

One year of house job will be incorporated at the end of five year degree programme.

FIRST SEMESTER

1. ANATOMY -I
2. PHYSIOLOGY-I
3. KINESIOLOGY-I
4. ENGLISH-I (FUNCTIONAL ENGLISH)
5. PAKISTAN STUDIES
6. BIOSTATISTICS-I

DETAIL OF COURSES

ANATOMY- I CREDIT HOURS 4 (3-1)

COURSE DESCRIPTION:

The focus of this course is an in-depth study and analysis of the regional and systemic organization of the body. Emphasis is placed upon structure and function of human movement. A comprehensive study of human anatomy with emphasis on the nervous, 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, prosecuted materials and radiographs are utilized to identify anatomical landmarks and configurations of the upper limb and thoracic region.

CELL BIOLOGY

GENERAL ANATOMY:

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

BONES AND CARTILAGES:

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

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

THE MUSCLE:

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

STRUCTURES RELATED TO MUSCLES & BONES:

- Tendons
- Aponeurosis
- Fasciae
- Synovial bursae
- Tendon Synovial sheaths
- Raphae
- Ligaments
- Condyle
- Epicondyle
- 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
- Elbow joint
- Wrist joint
- Radioulnar joints
- Inter carpal joints
- Joints MCP and IP
- Surface Anatomy of upper limb
- Surface marking of upper limb

DEMONSTRATIONS:

- Demonstration on Shoulder joint, attached muscles and articulating surfaces.
- Demonstration on Elbow joint
- Demonstration on Wrist joint
- Demonstration on Radioulnar joint
- Demonstration on MCP and IP joints
- Demonstration on acromioclavicular joint
- Demonstration on sternoclavicular joint
- Demonstration on Brachial plexus
- Demonstration of blood supply of brain
- Demonstration on Structure of bones

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 inferior 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:

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

PHYSIOLOGY- I **CR. HR. 3 (2-1)**

COURSE DESCRIPTION:

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

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

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

COURSE OUTLINE:

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:

1. Perform nerve conduction studies and explain their clinical importance
2. Myopathies and neuropathies
3. Peripheral nerve injuries

CARDIOVASCULAR SYSTEM:

- Heart and circulation
- Function of cardiac muscle
- Cardiac pacemaker and cardiac muscle contraction
- Cardiac cycle
- ECG: recording and interpretation
- Common arrhythmias and its mechanism of development
- Types of blood vessels and their function
- Haemodynamics of blood flow (local control systemic circulation its regulation and control). Peripheral resistance its regulation and effect on circulation
- Arterial pulse
- Blood pressure and its regulation
- Cardiac output and its control
- Heart sounds and murmurs Importance in circulation and control of venous return.

- Coronary circulation
- Splanchnic, pulmonary and cerebral circulation
- Triple response and cutaneous circulation
- Foetal circulation and circulatory changes at birth

Clinical Module:

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

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:

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

KINESIOLOGY- I
CREDIT HOURS 3 (2-1)

COURSE DESCRIPTION:

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

their distinguishing characteristics; group action of muscles arthrokinematics and osteokinematics of human movement.

COURSE OUTLINE:

INTRODUCTION TO KINESIOLOGY

- Definition of kinesiology
- Definition of rehabilitation

MECHANICS:

Mechanical Principles and Mechanics of Position

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

Mechanics of movement

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

INTRODUCTION TO MOVEMENT:

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

STARTING POSITIONS:

- Definition
- Fundamental positions
- Standing
- Kneeling
- Sitting

- Lying
- Hanging
- The pelvic tilt

POSTURE:

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

MUSCLE STRENGTH AND MUSCLE ACTION:

- Types of Muscles contraction
- Muscles tone
- Physiological application to postural tone
- Group action of muscles
- Overview of muscle structure
- Types of muscle work
- Range of muscle work
- Group action of muscles
- Two joint muscle work
- Active and passive insufficiency
- Group movement of joints
- Muscular weakness and paralysis

PRACTICAL TRAINING/ LAB WORK:

- Fundamentals of muscle testing
- Methods of muscle recording
- Basic muscle grading system
- Evaluation of posture
- Regional upper limb muscle testing as the region is covered in Anatomy I
- Practical demonstrations of muscles work and its ranges
- Practical demonstrations of various fundamental positions and posture analysis.

RECOMMENDED TEXT BOOKS:

1. *Practical exercise therapy* by Margaret Hollis
2. *Brunnstrom's Clinical Kinesiology*
3. *Clinical kinesiology and anatomy* by Lynn S Lippert

4. *Joint structure and function: a comprehensive analysis* by: Pamela. K. Levangie and Cynthia. C. Norkin.
5. *Muscle function testing by:* Cunningham and Daniel.
6. *Human movement explain* by kim jonas and karenbaker
7. *The principles of exercise therapy* by: M. Dena Gardiner, 4th Edition.

ENGLISH- I
FUNCTIONAL ENGLISH
CREDIT HOURS 3 (3-0)

Objectives:

Enhance language skills and develop critical thinking.

COURSE CONTENTS:

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

Comprehension

- Answers to questions on a given text

Discussion

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

Listening

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

Translation skills

- Urdu to English

Paragraph writing

- Topics to be chosen at the discretion of the teacher

Presentation skills

- Introduction

Note: *Extensive reading is required for vocabulary building.*

RECOMMENDED TEXT BOOKS:

Functional English
 Grammar

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

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

Writing

1. Writing. Intermediate by Marie-Christine Boutin, Suzanne Brinand and Françoise Grellet. Oxford Supplementary Skills. Fourth Impression 1993. ISBN 0 19 435405 7 Pages 20-27 and 35-41.
2. Reading/Comprehension
3. Reading. Upper Intermediate. Brian Tomlinson and Rod Ellis. Oxford Supplementary Skills. Third Impression 1992. ISBN 0 19 453402 2.
4. Speaking.

PAKISTAN STUDIES (COMPULSORY) **CREDIT HOURS 2 (2-0)**

Introduction/Objectives:

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

COURSE OUTLINE:

- **Historical Perspective**
 - Ideological rationale with special reference to Sir Syed Ahmed Khan, Allama Muhammad Iqbal and Quaid-e-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:

1. Burki, Shahid Javed. *State & Society in Pakistan*, The Macmillan Press Ltd 1980.
2. Akbar, S. Zaidi. *Issue in Pakistan's Economy*. Karachi: Oxford University Press, 2000.
3. S. M. Burke and Lawrence Ziring. *Pakistan's Foreign policy: An Historical analysis*. Karachi: Oxford University Press, 1993.
4. Mehmood, Safdar. *Pakistan Political Roots & Development*. Lahore, 1994.
5. Wilcox, Wayne. *The Emergence of Banglades.*, Washington: American Enterprise, Institute of Public Policy Research, 1972.
6. Mehmood, Safdar. *Pakistan Kayyun Toota*, Lahore: Idara-e-Saqafat-e-Islamia, Club Road, nd.
7. Amin, Tahir. *Ethno - National Movement in Pakistan*, Islamabad: Institute of Policy Studies, Islamabad.
8. Ziring, Lawrence. *Enigma of Political Development*. Kent England: WmDawson & sons Ltd, 1980.
9. Zahid, Ansar. *History & Culture of Sindh*. Karachi: Royal Book Company, 1980.
10. Afzal, M. Rafique. *Political Parties in Pakistan*, Vol. I, II & III. Islamabad: National Institute of Historical and cultural Research, 1998.
11. Sayeed, Khalid Bin. *The Political System of Pakistan*. Boston: Houghton Mifflin, 1967.
12. Aziz, K.K. *Party, Politics in Pakistan*, Islamabad: National Commission on Historical and Cultural Research, 1976.
13. Muhammad Waseem, *Pakistan Under Martial Law*, Lahore: Vanguard, 1987.
14. Haq, Noor ul. *Making of Pakistan: The Military Perspective*. Islamabad: National Commission on Historical and Cultural Research, 1993.

BIOSTATISTICS – I CREDIT HOURS 3 (3-0)

COURSE DESCRIPTION:

To provide the students with the necessary concepts of statistics to enable them to realize a research project in the field of Physiotherapy. It involves selection of appropriate statistical techniques to address questions of medical relevance; select and apply appropriate statistical techniques for managing common types of medical data; use various software packages for statistical analysis and data management; interpret the results of statistical analyses and critically evaluate the use of statistics in the medical literature; communicate effectively with statisticians and the wider medical community, in writing and orally through presentation of results of statistical analyses; explore current and anticipated developments in medical statistics. It is designed to teach entry-level physical therapy students the fundamentals of reading and understanding research methods, design, and statistics.

COURSE OUTLINE:

WHAT IS STATISTICS?

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

PRESENTATION OF DATA:

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

MEASURES OF CENTRAL TENDENCY:

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

MEASURES OF DISPERSION:

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

PROBABILITY AND PROBABILITY DISTRIBUTIONS.

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

SAMPLING AND SAMPLING DISTRIBUTIONS:

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

RECOMMENDED TEXT BOOKS:

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