



KHYBER MEDICAL UNIVERSITY

PROTHETICS & ORTHOTICS CURRICULUM

YEAR ONE STUDY GUIDE

(SEMESTER 1)

16 Weeks Activity Planner

2021-22

**CENTRAL CURRICULUM & ASSESSMENT COMMITTEE FOR
NURSING, REHABILITATION SCIENCES & ALLIED HEALTH SCIENCES**



Table of Contents

INTRODUCTION

1. KMU VISION	2
2. KMU MISSION	2
3. CENTRAL CURRICULUM COMMITTEE	2

PROTHETICS & ORTHOTICS PROGRAM

4. INTRODUCTION	3
5. OBJECTIVES	3
6. FIRST SEMESTER SUBJECTS	4

APPLIED PROTHETICS & ORTHOTICS

7. INTRODUCTION	6
8. GENERAL LEARNING OUTCOMES	6
9. TOS	7

ANATOMY

10. INTRODUCTION	9
11. GENERAL LEARNING OUTCOMES	9
12. TOS	10

PHYSIOLOGY

13. INTRODUCTION	18
14. GENERAL LEARNING OUTCOMES	18
15. TOS	19

ENGLISH

16. INTRODUCTION	27
17. GENERAL LEARNING OUTCOMES	27
18. TOS	28

PAKISTAN STUDIES

19. INTRODUCTION	30
20. GENERAL LEARNING OUTCOMES	30
21. TOS	31

INTRODUCTION TO COMPUTER

22. INTRODUCTION	34
23. GENERAL LEARNING OUTCOMES	34
24. TOS	35

RECOMENDED BOOKS

25. APPLIED PROTHETICS & ORTHOTICS	38
26. ANATOMY	38



27. PHYSIOLOGY	38
28. ENGLISH	38
29. PAKISTAN STUDIES	38
30. INTRODUCTION TO COMPUTER	39



Introduction

KMU VISION

Khyber Medical University will be the global leader in health sciences academics and research for efficient and compassionate health care.

KMU MISSION

Khyber Medical University aims to promote professional competence through learning and innovation for providing comprehensive quality health care to the nation.

CENTRAL CURRICULUM COMMITTEE

Opened new door, for the beginning of new era under the supervision of Prof Dr. Zia ul Haq, VC Khyber Medical University and Dr. Brekhna Jamil Director IH-PE&R the Central Curriculum & Assessment Committee has been formulated. This is first step taken to change the dynamics of Allied Health Sciences and Nursing Education in Pakistan. Committee by using a craft man approach has developed study guide which will provide pathways for other to follow and KMU will preserve the leadership in providing quality education across Pakistan and will be a reference point of quality in future. Committee has developed curricula to promote inter-professional learning, enhancing and improving the quality of life for people by discovering, teaching and applying knowledge related to Nursing, rehabilitation Sciences & Allied Health sciences.

High-quality education is relevant to patient needs and the changing patterns of skills that are demanded by modern health care and aligning assessment and providing quality training to students will definitely will be the outcome. Which will strengthen and enhance quality of Health System across Pakistan.

The Central Curriculum & Assessment Committee is as follows:

Dr. Brekhna Jamil	Chairperson	Director Institute of Health Professions Education & Research, KMU
Prof. Dr. Zia Ul Islam	Member	Professor ENT
Dr. Syed Hafeez Ahmad	Member	Addl. Controller of Examination Khyber Medical University
Dr. Danish Ali Khan	Member	Director/ Principal Northwest Institute of Health Sciences
Sardar Ali	Member	Assistant Professor Institute of Nursing Khyber Medical University
Muhammad Asif Zeb	Member	Lecturer Institute of ParaMedical Sciences Khyber Medical University
Nazish A Qadir	Member	Lecturer Institute of Physical Medicine & Rehabilitation Khyber Medical University
Syed Amin Ullah	Secretary	Assistant Director Academics Khyber Medical University



INTRODUCTION

Prosthetists provide artificial limbs and gait analysis to people who have part or all of a limb missing. Orthotists provide braces and splints to support, correct, or aid the function of people with various conditions of the neuro, muscular and skeletal systems. On this program you will learn how to assess and treat people requiring prosthetic and orthotic care. The strong practical elements of this program will be taught in conjunction with relevant theory and background information.

OBJECTIVES

By the end of this program, students should be able to:

- 1. Demonstrate in-depth knowledge of the basic and clinical sciences relevant to Prosthetics & orthotics, both in their fundamental context and in their application to the discipline of Prosthetics & orthotics.**
 - 2. Understand, correlate and apply theoretical foundations of knowledge to the practice of Prosthetics & orthotics; evaluate and clarify new or evolving theory relevant to Prosthetics & orthotics.**
 - 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 Prosthetics & orthotics 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 Prosthetics & orthotics 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 Prosthetics & orthotics practice and the health care team.**
 - 8. Incorporate and demonstrate positive attitudes and behaviors to all persons.**
- 9. Demonstrate the professional and social skills to adapt to changing health care environments to effectively provide Prosthetics & orthotics program.**



FIRST SEMESTER SUBJECTS

S.No	Subjects	Duration
1	PO 601 APPLIED PROSTHETICS & ORTHOTICS -I 3(3-0)	16 weeks
2	RSC-601 ANATOMY -I 4(3-1)	16 weeks
3	RSC-602 PHYSIOLOGY-I 3(2-1)	16 weeks
4	RSC-604 ENGLISH-I 3(3-0)	16 weeks
5	RSC-605 PAKISTAN STUDIES 2(2-0)	16 weeks
6	RSC-606 INTRODUCTION TO COMPUTER 3(2-1)	16 weeks



1st Semester

PO-601 APPLIED PROTHETICS & ORTHOTICS I 3(3-0)

Course Description

The course is designed to introduced prosthetics and orthotics starting with foot orthotics. Through theory, practical lessons with each other and patient contact sessions, students will learn how to assess the patient, design an appropriate device, cast, modify the cast and manufacture the device. When the device is ready for fitting, the student will learn how to safely fit his or her device, identify common fitting issues and gait deviations and perform the required adjustments. When the optimum fit and alignment has been achieved the student will perform the final finishing of the device and learn the proper procedure for delivering the device to the patient and necessary follow-up.

Cognitive Domain

By the end of this subject, students should be able to:

1. **Differentiate between different types of Prosthetics and Orthotics**
2. **Formulate justification for use of shoe modifications**
3. **Describe the gait cycle with clinical implication**
4. **Explanation of Different types of pathologic gait**
5. **Explanation of foot anatomy, deformities and types of orthotic prescription**
6. **Describe Orthopedic Foot wear in detail**

Affective Domain

By the end of this subject, students should be able to:

1. **Demonstrate punctuality. Follow the specified norms of the IL, SGD teaching & learning.**
2. **Demonstrate the humbleness and use the socially acceptable language**

- during academic and social interactions with human models, colleagues and teachers.
3. **Demonstrate ethically competent decisions when confronted with an ethical, social or moral problem related to professional or personal life.**

PO-601 APPLIED PROTHETICS & ORTHOTICS-I 3(3-0)

S.No	Weeks	Content	Learning Outcome	Domain			MIT's	Time/Hours	Assesment	No of Items
				C	P	A				
TOPIC: INTRODUCTION TO PROSTHETICS & ORTHOTICS										
1	Week-1	Introduction to field	Explanation of field	C2			Interactive Lecture/SGD	3	MCQ's	4
2		Important Terminologies	Explain difference between Prosthetics and orthotics	C2						
3	Week-2	Different between Prosthetics and Orthotics	Describe the Use of Prosthetics and Orthotics	C2			Interactive Lecture/SGD	3	MCQ's	4
4		Orthotics ,Prosthetics and types	Differentiate between different types of Prosthetics and Orthotics	C4						
TOPIC: ORTHOPEDIC FOOT WEAR AND SHOE MODIFICATION										
5	Week-3	Different types of shoe modification	Explanation of shoe Modification	C2			Interactive Lecture/SGD	3	MCQ's	4
6		Different types of Orthopedic foot wear	Describe Orthopedic Foot wear in detail	C2						
7	Week-4	Manufacturing of shoe modifications	Relate different materials used in Process	C4			Interactive Lecture/SGD	3	MCQ's	4
8		Material Uses in Modifications	Formulate justification for use of shoe modifications	C5						
9		Prescription of shoe modifications on the basis of different pathologies								
TOPIC: SURFACE ANATOMY OF FOOT										
10	Week-5	Bones of foot	Explain Bony anatomy	C2			Interactive Lecture/SGD	3	MCQ's	4
11		Muscles of foot	Discuss Muscles of foot	C2						
12		Joints of foot	Explain Joints of foot	C2						
13			Discuss Bony articulations in foot	C2						
TOPIC: GAIT CYCLE										
14	Week-6	Introduction of gait cycle	Explanation of gait cycle	C2			Interactive Lecture/SGD	3	MCQ's	4
15		Phases And events	Details of Phases and events of gait cycle	C2						
16		Tempral- spatial events	Explanation of temporal aspects of gait	C2						
17		Important terminologies	Explanation of spatial Aspects of gait	C2						

S.No	Weeks	Content	Learning Outcome	Domain			MIT's	Time/Hours	Assesment	No of Items
				C	P	A				
TOPIC: DEFORMITIES AND DISABILITIES										
18	Week-7	Cerebral Palsy	Explanation of cerebral palsy, causes and treatment	C2			Interactive Lecture/SGD	3	MCQ's	4
19		Poliomyelitis	Details of poliomyelitis, causes and treatment	C2						
20	Week-8	Club foot	Explanation of CTEV, causes and treatment	C2			Interactive Lecture/SGD	3	MCQ's	4
21		Spinabifida	Explanation of spinabifida, causes and treatment	C2						
22	Week-9	Drop foot	Explanation of drop foot, causes and treatment	C2			Interactive Lecture/SGD	3	MCQ's	4
TOPIC: NORMAL AND PATHOLOGIC GAIT										
23	Week-10	normal gait cycle	Explanation of normal gait cycle	C2			Interactive Lecture/SGD	3	MCQ's	4
24		Phases AND events	Details of normal phases and events of gait	C2						
25		Explanation of pathologic gait	Explanation of gait with pathology	C2						
26		Different types of pathologic gait	Explanation of Different types of pathologic gait	C2						
27	Week-11	Trendelenburg gait	Explanation and observation	C2			Interactive Lecture/SGD	3	MCQ's	4
28		Antalgic gait	Explanation and observation	C2						
29		hemiplegic	Explanation and observation	C2						
30		Crouch	Explanation and observation	C2						
31	Week-12	Scissor	Explanation and observation	C2			Interactive Lecture/SGD	3	MCQ's	4
32		lateral trunk bending	Explanation and observation	C2						
33		Hip Hiking	Explanation and observation	C2						
34		circumduction	Explanation and observation	C2						
TOPIC: LOWER LIMB ORTHOTICS- (FOOT ORTHOSIS)										
35	Week-13	Foot Orthosis	Explanation of foot anatomy, deformities and types of orthotic prescription	C2			Interactive Lecture/SGD	3	MCQ's	4
36	Week-14	Assessment for foot Orthosis	Detail subjective and objective assessment procedure of lower limb	C2			Interactive Lecture/SGD	3	MCQ's	4
37	Week-15	Orthotic Manufacturing Procedure	Explanation of making of orthosis, casting modification molding cutting finishing fitting,	C2			Interactive Lecture/SGD	3	MCQ's	4
38	Week-16	Different types of foot Orthosis	Explanation of Different types of foot orthosis with manufacturing materials.	C2			Interactive Lecture/SGD	3	MCQ's	4
39		Different Types of material	Explanation of certain material use in making orthosis	C2						
40		Foot Orthosis Manufacturing Procedure	Explanation of foot orthosis from casting up to delivery of orthosis- Oral demonstration/	C2						

RSC-601 ANATOMY-I 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, prosected materials and radiographs are utilized to identify anatomical landmarks and configurations of the upper limb and thoracic region.

Cognitive Domain

By the end of this subject, students should be able to:

1. Explain the basic knowledge of human anatomy.
2. Explain the role of the integumentary system in homeostasis of the human body.
3. Identify the principle structures, layers and functions of human skin. Also explain how the skin is involved in thermoregulation.
4. Describe diseases/disorders associated with skin & process of skin repairing.
5. Identify the major bones of the human body & types of joint movement.
6. Describe the processes of bone formation, repair & bone replacement.
7. Explain the role of calcium in homeostasis of the human body.
8. Describe diseases/disorders associated with the skeletal system.
9. Identify the major muscles of the human body. Explain the physiology of muscle contraction & role of the muscular system in homeostasis of the human body.
10. Differentiate between muscle types.
11. Describe the structural and functional properties of cardiovascular system.
12. Explain the distributions of coronary arteries.
13. Explain the mechanism of nerve impulse conduction & role of the ner-

vous system in homeostasis of the human body.

14. Explain the relationship between nerve impulse conduction and muscle contraction.
15. Identify and state the function(s) of the major neurotransmitters.
16. Differentiate between the central and peripheral nervous systems.
17. Describe diseases/disorders associated with the nervous system.
18. Understand the locations, functions and appearances of the thoracic and abdominal viscera through dissection.

Skills Domain

By the end of this subject, students should be able to:

1. Demonstrate the anatomy of shoulder joint, their attached muscles & articulating surfaces.
2. Demonstrate the blood supply of brain.
3. Describe the pathways associated with the human nervous system.
4. Describe the location, major areas & operations of heart valves on an appropriate diagram or model.
5. Demonstrate the anatomy of elbow joint, wrist joint, radioulnar joint, metacarpal joints, interphalangeal joints, acromioclavicular & sternoclavicular joint.
6. Demonstrate the anatomy, including relations, of viscera using medical images (MRI and CT scans).

Affective Domain

By the end of this subject, students should be able to:

1. Demonstrate punctuality. Follow the specified norms of the IL, SGD teaching & learning.
2. Demonstrate the humbleness and use the socially acceptable language during academic and social interactions with human models, colleagues and teachers.
3. Make ethically competent decisions when confronted with an ethical, social or moral problem related to nervous, musculoskeletal & circulatory system in professional or personal life.

TOS -RSC 601 ANATOMY-I 4(3-1)

S.No	Weeks	Content	Learning Outcomes	Domain			MIT's	Hours	Assesment	No of Items
				C	P	A				
TOPIC: GENERAL ANATOMY										
1	Week-1	Terms related to position and movements	Describe the terms used for describing the structure and function of different regions of gross anatomy.	C2			Interactive Lecture/SGD	3	MCQ's	4
2		The skin and subcutaneous tissues	Discuss the structure of skin in detail and its functions.	C2						
3		Layers of skin Integuments of skin	Distinguish between layers of skin and structure associated with it	C3						
4		Glands associated with hair follicle	Discuss skin appendages	C2						
5		Position and Planes	Perform anatomical position and planes independently		P4		Demo	1	OSPE	4
		Perform movements in different anatomical planes independently		P4						
		Demonstrate respect towards teachers and fellows while observing anatomical position			A	Role Play				
TOPIC: BONES AND CARTILAGE										
6	Week-2	Osteology	Discuss in detail structure of bones and its classification	C2			Interactive Lecture/SGD	3	MCQ's	4
7		Functions of Bones	Enlist functions of bones	C1						
8		Classification of bones	Explain structural and regional and developmental classification of bone.	C2						
9		Parts of developing long bones	Describe the structure of long bones	C2						
10		Blood supply of bones Rule of direction of nutrient foramen								
11		Gross structure of long bone								
13		Cartilage	Describe structure of cartilage in detail	C2						
14		Development of bone and cartilage								
15		Lymphatic vessels & nerve supply	Explain nerve supply and lymphatic drainage of bones	C2						
16		Surface marking	Identify surface landmarks of long bones Independently		P4		Demo	1	OSPE	4
17	Adopt how to care and handle bones				A4	Role Play				

S.No	Weeks	Content	Learning Outcomes	Domain			MIT's	Hours	Assesment	No of Items
				C	P	A				
TOPIC: JOINTS										
18	Week-3	Introduction	Discuss basic anatomy of joints	C2			Interactive Lecture/SGD	3	MCQ's	4
19		Functional classifications	Differentiate joint according to structure, region and functions	C3						
20		Structural classification								
21		Structures comprising a Synovial joint								
22		Movements of joints	Explain types of movements at different joints	C2						
23		Blood supply of Synovial joints, their nerve supply and lymphatic drainage	Explain Blood and nerve supply of joints and its applied anatomy.	C2						
24		Factors responsible for joint stability.	Enlist structures and factors which play role in joint stability	C1						
25		Development of joints								
26		Surface marking	Identify surface landmarks of joints Independently		P4		Demo	1	OSPE	4
27	Adopt how to care and handle joints Models				A4	Role Play				
TOPIC: MUSCLE										
28	Week-4	Introduction	Describe structure of muscle and functions of muscles	C2			Interactive Lecture/SGD	3	MCQ's	4
29		Histological Classification Nomenclature.	Discuss in detail general classification of muscles that is striated and non-striated	C2						
30		Functions of muscles in general	Explain functions of muscles	C2						
31		Type of skeletal muscles	Discuss in detail classification of skeletal muscles according to arrangement of fascicule	C2						
32		Parts of skeletal muscle and their action								
33		Tendons •Aponeurosis	Discuss basic anatomy of structure (terms) related to muscle and bones.	C2						
34		Fasciae•Synovial bursae								
35		Tendon Synovial sheaths Epicongyle								
36		Ridge ,fortramen,tubecle,tu-berosity								
37		Process, Spur								
38		Surface anatomy	Identify boundary landmarks on different types of bones independently	P4			Demo	1	OSPE	4
39			Adopt how to care and handle bones Models			A4	Role Play			
40										

S.No	Weeks	Content	Learning Outcomes	Domain			MIT's	Hours	Assesment	No of Items	
				C	P	A					
TOPIC: CARDIOVASCULAR SYSTEM											
41	Week-5	Definition /Division o circulatory system into pulmonary & systemic Heart and its histology	Discuss general anatomy of cardiovascular system	C2			Interactive Lecture/SGD	2	MCQ's	3	
		Function of the Heart									
		Anastomosis									
TOPIC: NERVOUS SYSTEM											
42	Week-6	Definition	Discuss general anatomy of nervous system	C2			Interactive Lecture/SGD	1	MCQ's	1	
43		Outline of cellular architecture	Explain types of cells in nervous system	C2							
44		Land marks	Identify Cardiac and Nevous system from Models and charts			P4		Demo	1	OSPE	4
45			Adopt how to care and handle Models and charts				A4	Role Play			
46		Week-6	Classification of nervous Parts of the central nervous	Classify nervous system, CNS and PNS	C2			Interactive Lecture/SGD	3	MCQ's	4
47	Functional components of a nerve		Describe structure of nerve	C2							
48	Typical spinal nerve		Discuss blood brain barrier and reflex arc	C2							
49	Blood supply		Explain blood and nerve supply of nervous system	C2							
50	Introduction of autonomic nervous system		Explain autonomic nervous system	C2							
51	Land marks		Identify CNS,PNS system and reflex arch from Models and charts			P4					
52		Adopt how to care and handle Models and charts				A4	Role Play				
TOPIC: UPPER LIMB OSTEOLOGY											



S.No	Weeks	Content	Learning Outcomes	Domain			MIT's	Hours	Assesment	No of Items
				C	P	A				
53	Week-7	Detailed description of all bones of upper limb and shoulder girdle along their musculature and ligamentous attachments	Recognize the anatomical features & attachment of muscles tendons/ligaments on Clavicle	C2			Interactive Lecture/SGD	3	MCQ's	4
54			Recognize the anatomical features & attachment of muscles tendons/ligaments on Scapula	C2						
55			Recognize the anatomical features & attachment of muscles tendons/ligaments on Humerus	C2						
56			Recognize the anatomical features & attachment of muscles tendons/ligaments on Radius/Ulna	C2						
57			Recognize the anatomical features & attachment of muscles tendons/ligaments on Carpals/metacarpals/phalanges	C2						
58		Bony landmarks	Identify bony landmarks of upper limb independently		P4		Demo	1	OSPE	4
59	Handling protocol	follow the protocols of handling the bone / models with care			A					
TOPIC: UPPER LIMB MYOLOGY										
60	Week-8	Detailed description of all bones of shoulder girdle along their musculature and ligamentous attachments	Describe origin / insertion/location & action of muscles of shoulder	C2			Interactive Lecture/SGD	3	MCQ's	4
61			Describe origin / insertion/location & action of muscles of posterior scapular region	C2						
62			Describe origin / insertion/location & action of muscles of anterior/medial wall of axilla	C2						
63			Describe origin / insertion/location & action of muscles of lateral & posterior wall of axilla	C2						
64		Bony landmarks	Label the origin and insertion of scapular & axilla muscles independently		P4		Demo	1	OSPE	4
65		Handling protocol	follow the protocols of handling the bone / models with care			A				

S.No	Weeks	Content	Learning Outcomes	Domain			MIT's	Hours	Assesment	No of Items
				C	P	A				
66	Week-9	Detailed description of all bones of Arm and hand along their musculature and ligamentous attachments	Describe origin / insertion/location & action of muscles of anterior/posterior compartment of arm	C2			Interactive Lecture/SGD	3	MCQ's	4
67			Describe origin / insertion/location & action of muscles of anterior/posterior compartment of forearm	C2						
68			Describe origin / insertion/location & action of intrinsic / extrinsic muscles of Hand	C2						
68			Discuss walls and contents of axilla/ cubital fossa/ carpal tunnel	C2						
69		origin & insertion	Label the origin and insertion of muscles of upper limb idenpendently		P4		Demo	1	OSPE	4
70	Protocol	follow the protocols of handling the models with care			A					
TOPIC: NEUROLOGY										
71	Week-10	Course, distribution and functions of all nerves of upper limb	Explain formation of brachial plexus/ parts of brachial plexus/ nerves origina-tion from brachial plexus	C2			Interactive Lecture/SGD	3	MCQ's	4
72			Describe origin , course and distribution of Musculo cutaneous nerve	C2						
73			Describe origin , course and distribution of Radial nerve	C2						
74			Describe origin , course and distribution of axillary nerve	C2						
75			Describe origin , course and distribution of superior/inferior subscapular nerve/ thoraco dorsal nerve/pectoral nerve	C2						
76			Describe origin , course and distribution of ulnar nerve	C2						
77			Describe origin , course and distribution of median nerve	C2						
78		origin & insertion	Label origin , course and distribution of nerves of upper limb idenpendently		P4		Demo	1	OSPE	4
79	Protocol	follow the protocols of handling the models with care			A					
TOPIC: ANGIOLOGY (CIRCULATION)										
80	Week-11	Course and distribution of all arteries and veins of upper limb. Lymphatic drainage of the upper limb	Describe Course and distribution of arteries of upper limb	C2			Interactive Lecture/SGD	3	MCQ's	4
81			Describe Course and distribution of veins of upper limb	C2						
82			Describe Lymphatic drainage of upper limb	C2						
83		arterio-venous supply	Label course and distribution of arterio-venous supply of upper limb idenpendently		P4		Demo	1	OSPE	4
84	Protocol	follow the protocols of handling the models with care			A					
TOPIC: ARTHROLOGY										

S.No	Weeks	Content	Learning Outcomes	Domain			MIT's	Hours	Assesment	No of Items	
				C	P	A					
85	Week-12	Acromioclavicular and sternoclavicular joints/Shoulder joint/Elbow joint/Wrist joint/Radioulnar joints	Explain the structure and function of sternoclavicular / acromioclavicular joint	C2			Interactive Lecture/SGD	3	MCQ's	4	
86			Explain the structure and function of shoulder joint	C2							
87			Explain the structure and function of elbow joint	C2							
88			Explain the structure and function of proximal / distal radioulnar joint	C2							
89			Explain the structure and function of wrist joint	C2							
90		Inter carpal joints/Joints MCP and IP	Explain the structure and function of in-tercar-pal/carpo-metacarpal/interphalangeal joints	C2							
91		Joints of lower limb	Label the structure of joints of upper limb idenpendently		P4		Demo	1	OSPE	4	
92		Protocols	follow the protocols of handling the models with care			A					
TOPIC: APPLIED ANATOMY											
93	Week-13	Applied Anatomy Upper limb	Differciate fractures and dislocation of clavicle/humerus/ radius/ulna	C4			Interactive Lecture/SGD	3	MCQ's	4	
94			Differciate injuries of radial nerve / ulnar nerve	C4							
95			Differciate injuries of median nerve / axillary nerve	C4							
96			Differciate feature of winging scapula / supraspinatus impingement	C4							
97			land marks	Identify redial, ulnar & axillary nerve injury from human Models and charts		P4		Demo	1	OSPE	4
98			Adopt how to care and handle human Models and charts			A4	Role Play				
TOPIC: THORAX											
99	Week-14	Structures of the thoracic wall	Describe the structure of thoracic wall in detail	C2			Interactive Lecture/SGD	3	MCQ's	4	
100		Dorsalspine(Vert brae), costal cartilage and Ribs	Discuss the surface anatomy of dorsal spine, sternum, costal cartilages and ribs.	C2							
101		Sternum	Explain the normal movement of the chest wall in the process of aeration of the lungs.	C2							
102		Intercostal Muscles	Explain origin ,insertion and action of muscles of thoracic wall	C2							
103			land marks	Identify land marks thorax and spine from human Models and charts		P4		Demo	1	OSPE	4
104				Adopt how to care and handle human Models and charts			A4	Role Play			

S.No	Weeks	Content	Learning Outcomes	Domain			MIT's	Hours	Assesment	No of Items
				C	P	A				
105	Week-15	Intercostal Nerves	Explain intercostal nerves	C2			Interactive Lecture/SGD	3	MCQ's	4
106		Diaphragm	Discuss structure of diaphragm in detail	C2						
107		Blood supply of thoracic wall	Explain blood supply of thoracic wall	C2						
108		Lymphatic drainage of thoracic wall	Discuss lymphatic drainage of thoracic wall	C2						
109		Joints of thorax	Discuss in detail functional movements across the joints of thorac wall	C2						
110		Surface anatomy	Locate origin ,insertion of intercostal muscles independently		P4		Demo	1	OSPE	4
111	Identify bony landmarks of dorsal spine independently			P4						
112	Observe thoracic and abdominal wall movements			P1						
113	Identify types of ribs independently			P4						
114	Show respect towards subject while observing thoracic wall movements				A	Role Play				
TOPIC: THORACIC CAVITY										

S.No	Weeks	Content	Learning Outcomes	Domain			MIT's	Hours	Assesment	No of Items				
				C	P	A								
115	Week-16	Mediastinum/Pleura	Describe s the general arrangement of the thoracic viscera and their relationship to one another and to the chest wall.	C2			Interactive Lecture/SGD	3	MCQ's	4				
116			Discuss structures related to anterior ,posterior superior and inferior mediasti-num	C2										
117		Trachea/Lungs	Distinguish thoracic cavity, pleural cavity (pleural space), pericardial cavity, and cost diaphragmatic recess.	C2										
118		Bronchopul-monary segments	Explain broncho pulmonary segment as functional unit of lung	C2										
119		Pericardium	Explain the structure of heart, including its layers ,chambers conducting system,	C2										
120		Heart – Its blood supply, venous drainage & nerve supply	Explain blood supply and nerve supply of hreart	C2										
121		Large veins of thorax, superior and in-ferior vena cava. Pulmonary veins brachiocephalic veins. Large arteries of aorta	Explain the structure and location of largest blood vessels within the thoracic cavity	C2										
122		Applied anatomy	Discuss different pathological conditions related to lungs and heart	C2										
123		Surface anatomy	Identify lobes of lungs independently		P4						Demo	1	OSPE	4
124			locate broncho-pulmonary segments independently		P4									
125	Adopt how to care and handle human Models and charts				A4	Role Play								

RSC-602 PHYSIOLOGY-I 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.

Cognitive Domain

By the end of this subject, students should be able to:

1. **Develop an understanding of cell physiology and its function.**
2. **Explain the homeostasis and control system of the body.**
3. **Describe the role of genes and function in the cell.**
4. **Explain the structure and function of neuron.**
5. **Develop the concept of action potential and how the nerve regeneration and degeneration take place.**
6. **Explain the structure, type of muscle and the mechanism involve in muscle contraction.**
7. **Describe the mechanism of excitation and contraction of skeletal and smooth muscle.**
8. **Explain the physiology of cardiovascular system and clinical significance of cardiac cycle, correlation of ECG and heart sounds to cardiac cycle.**
9. **Develop the understanding of ECG recording and interpretation of nor-**

mal and abnormal ECG.

10. **Discuss the Haemodynamics of blood flow, its control and regulation and what is the effect of hypertension on body.**
11. **Identify the heart sounds and murmurs and what is the clinical significance of heart sounds.**
12. **Understand the foetal circulation and circulatory changes at birth.**

Skills Domain

By the end of this subject, students should be able to:

1. **Demonstrate the nerve conduction studies and explain their clinical importance.**
2. **Demonstrate the ECG recording and interpretation.**
3. **Demonstrate the examination of arterial pulses.**
4. **Demonstrate the arterial blood pressure.**
5. **Demonstrate the normal heart sounds.**

Affective Domain

By the end of this subject, students should be able to:

1. **Demonstrate punctuality. Follow the specified norms of the IL, SGD teaching & learning.**
2. **Demonstrate the humbleness and use the socially acceptable language during academic and social interactions with human models, colleagues and teachers.**
3. **Demonstrate ethically competent decisions when confronted with an ethical, social or moral problem related to CVS in professional or personal life.**

TOS -RSC 602 PHYSIOLOGY-I 3(2-1)

S.No	Weeks	Content	Learning Outcome	Domain			MIT's	Time/Hours	Assesment	No of Items				
				C	P	A								
TOPIC: ANATOMY BASIC AND CELL PHYSIOLOGY														
1	Week-1	Functional organization of human body	Describe cell as a living unit	C2			Interactive Lecture/SGD	2	MCQ's	4				
2			Discuss internal environment of body	C2										
3		Homeostasis	Define hemostasis	C2										
3			Describe homeostatic mechanisms of major functional systems	C2										
4		Control systems in the body	Describe characteristics of control system with examples	C2										
5		Cell membrane and its functions	Explain Intra cellular and extra cellular environment	C2										
6			Define membrane potential	C1										
7			Discuss passive diffusion, active transport, and facilitated transport via a channel or carrier	C2										
8			Explain the Nernst equation	C2										
9			Explain origin of normal resting membrane potential	C2										
10	Examination Cell membrane	Examine the structure of cell membrane under microscope independently		P4		Demo	1	OSPE	4					
	Protocols	Follow the protocols of handling the equipment with care			A	Role Play								
11	Week-2	Cell organelles and their functions	Describe cell organelles	C2			Interactive Lecture/SGD	2	MCQ's	4				
12			Correlate cytoplasmic organelles with their functions	C4										
13		Genes: control and function	Define gene in the cell nucleus	C1										
14			Explain the process of transcription	C2										
15			Describe control of gene function	C2										
16			Explain cell reproduction and differentiation	C2										
17		Examination cell division	Examine the stage of cell under microscope independently		P4						Demo	1	OSPE	4
18		Protocols	Follow the protocols of handling the equipment with care			A					Role Play			
TOPIC: NERVE AND MUSCLE														

S.No	Weeks	Content	Learning Outcome	Domain			MIT's	Time/Hours	Assesment	No of Items
				C	P	A				
19	Week-3	Structure and function of neuron	Explain structural classification of neurons	C2			Interactive Lecture/SGD	3	MCQ's	7
20			Describe functional classification of neuron	C2						
21		Physiological properties of nerve fibers	Explain physiological properties of neurons	C2						
22		Physiology of action potential	Describe stages of action potential	C2						
23			Explain ionic changes during action potential	C2						
24			Describe role of other ions during action potential	C2						
25			Explain propagation of action potential	C2						
26			Explain re-establishment of gradient	C2						
27	Week-4	Conduction of nerve impulse	Explain characteristics of signal transmission through nerve trunk	C2			Interactive Lecture/SGD	3	MCQ's	7
28		Neuromuscular junction and transmission	Describe physiological anatomy of neuromuscular junction	C2						
29			Describe the transmission of impulses from nerve endings to skeletal muscle fibers	C2						
30			Explain Formation and Secretion of acetylcholine at nerve terminals	C2						
31			Describe Action of acetylcholine at postsynaptic membrane	C2						
32			Describe End plate potential	C2						
33			Describe Fatigue of junction	C2						



S.No	Weeks	Content	Learning Outcome	Domain			MIT's	Time/Hours	Assesment	No of Items
				C	P	A				
34	Week-5	Drugs	Describe the physiologic basis of the drugs used in the neuromuscular disorders	C2			Interactive Lecture/SGD	2	MCQ's	4
35			Describe Drugs that stimulate the muscle fiber by acetylcholine like action	C2						
36			Describe Drugs that stimulate neuromuscular junction by inactivating acetyl cholinesterase	C2						
37			Describe the pathophysiology of myasthenia gravis	C2						
38		Nerve degeneration and regeneration	Explain causes and degrees of nerve injuries	C2						
41			Discuss degeneration changes in the neurons	C2						
42			Discuss Criteria and stages of regeneration	C2						
43		Synapses	Define synapse	C1						
44			Describe functions of synapse	C2						
45			Explain types and properties of synapse	C2						
46		Nerve conduction studies	Observe nerve conduction studies			P1				
47	Show respect towards subjects while performing NCS				A	Role Play				
TOPIC: NERVE AND MUSCLE										
48	Week-6	Physiological structure of muscle and Contraction of skeletal muscles	Describe physiological anatomy of muscles	C2			Interactive Lecture/SGD	2	MCQ's	4
49			Describe the mechanics of skeletal muscle contraction	C2						
50			Describe sliding filament model	C2						
51			Identify the characteristics of whole muscle contraction	C2						
52			Describe muscle tone and muscle fatigue	C2						
53			Describe lever systems of the body and positioning of a body part	C2						
54			Differentiate isotonic and isometric exercises	C4						
55		skeletal muscles under microscope	identify structure of skeletal muscles under microscope independently		P4					
56	Follow instruction guidelines of laboratory				A	Role Play				
57	Demonstrate good communication skills while performing the task				A	Role Play				

S.No	Weeks	Content	Learning Outcome	Domain			MIT's	Time/Hours	Assesment	No of Items
				C	P	A				
58	Week-7	Smooth Muscle contraction	Describe the contractile mechanisms in smooth muscles	C2			Interactive Lecture/SGD	2	MCQ's	4
59			Describe excitation and contraction of smooth muscle.	C2						
60			Identify the types of smooth muscles.	C1						
61			Enlist the excitatory and inhibitory transmitter substances secreted at the smooth muscle neuromuscular junction	C1						
62			Describe the nervous and hormonal control of smooth muscle contraction	C2						
63			Describe the chemical and physical basis for smooth muscle contraction	C2						
64		Excitation contraction coupling, Structure and function of motor unit	Describe transverse tubule sarcoplasmic reticular system.	C2						
65	Explain mechanism of release of calcium ions.		C2							
66	Smooth muscles	Identify structure of smooth muscles under microscope independently		P4		Demo	1	OSPE	4	
67		Follow instruction guidelines of laboratory			A	Role Play				
68		Demonstrate good communication skills while performing the task			A					
TOPIC: CARDIOVASCULAR SYSTEM										
69	Week-8	Heart and circulation	Discuss the role of heart as a pump	C2			Interactive Lecture/SGD	2	MCQ's	4
70			Describe the valves of heart and their functions	C2						
71			Explain the mechanism of rhythmical excitation of heart	C2						
72			Explain the nervous regulation of heart pumping	C2						
73			Discuss the effect of temperature on heart functions	C2						
74	Cardiopulmonary resuscitation	Perform Cardiopulmonary resuscitation independently			P4	Demo	1	OSPE	4	
75		follow protocols while performing Cardiopulmonary resuscitation			A	Role Play				



S.No	Weeks	Content	Learning Outcome	Domain			MIT's	Time/Hours	Assesment	No of Items
				C	P	A				
76	Week-9	Function of cardiac muscle	Discuss the role of cardiac muscles as a syncytium	C2			Interactive Lecture/SGD	2	MCQ's	4
77			Describe the function of papillary muscles	C2						
78		Cardiac pacemaker and cardiac muscle contraction	Describe the specialized excitatory and conductive system of the heart	C2						
79			Describe the normal and abnormal pacemakers of heart	C2						
80		Cardiac cycle	Describe all the physiological events occurring in each phase of cardiac cycle	C2						
81			Interpret the graph showing all the events of cardiac cycle independently		P4		Demo	1	OSPE	
82			Comply to SOPs o and properly maintain clean and clear instrument and working bench			A	Role Play			
83	Week-10	ECG: recording and interpretation	Define the characteristics of normal ECG	C1			Interactive Lecture/SGD	2	MCQ's	4
84			Explain the concept of flow of electric current around the heart	C2						
85			Define the normal conductive pathways	C2						
86			Explain Einthoven's triangle	C2						
87			Compare sinus bradycardia and tachycardia	C4						
88			Discuss some of the abnormal finding on the ECG report	C2						
89		ECG	Observe ECG lead placement on the body of the subject		P1		Demo	1	OSPE	
90	Arrange the ECG leads and apparatus before and after placing it on the subject				A	Role Play				

S.No	Weeks	Content	Learning Outcome	Domain			MIT's	Time/Hours	Assesment	No of Items
				C	P	A				
91	Week-11	Common arrhythmias and its mechanism of development	Enlist the causes of cardiac arrhythmias	C1			Interactive Lecture/SGD	2	MCQ's	4
92			Describe different types of heart block	C2						
93			Define premature contractions and its causes	C1						
94			Describe paroxysmal tachy-cardia, fibrillation, flutter and cardiac arrest	C2						
95		Types of blood vessels and their function	Enlist the different types of blood vessels and explain their role as a functional part of cir-culation	C1						
96		Describe the basic theories of circulatory functions	C2							
97		Hemodynamics of blood flow (local control systemic circulation its regulation and control). Peripheral resistance its regulation and effect on circulation	State the different types of blood flow and their role in circulation	C1						
98			Define the Poiseuille's law	C1						
101	Differentiate between total peripheral and total pulmonary resistance		C4							
102	Cardiac arrhythmias	Identify cardiac arrhythmias on ECG		P1		Demo	1	OSPE	4	
103		Arrange the ECG leads and apparatus before and after placing it on the subject			A	Role Play				
104	Week-12	Arterial pulse	Explain the concept of vascular dispensability and its differ-ences among arteries and veins	C2			Interactive Lecture/SGD	2	MCQ's	4
105			Define arterial pressure pulsa-tions and pulse pressure	C1						
106			Enlist the factors that affect pulse pressure	C2						
107			Explain the conditions that cause abnormal pulse pres-sure	C2						
108	Arterial pulse	Perform the method of checking arterial pulse of different subjects independently			P4	Demo	1	OSPE	4	
109		Show respect toward subjects while measuring blood pressure			A	Role Play				



S.No	Weeks	Content	Learning Outcome	Domain			MIT's	Time/Hours	Assesment	No of Items	
				C	P	A					
110	Week-13	Blood pressure and its regulation	Describe the clinical methods for measuring systolic and diastolic pressures	C2			Interactive Lecture/SGD	2	MCQ's	4	
112			Explain venous pressure, venous resistance and venous pump	C2							
113			Define varicose vein and its development	C1							
114			Enlist the parts of circulatory system that act as blood reservoirs	C1							
115			Perform the procedure of measuring blood pressure on a subject under supervision		P3		Demo	1	OSPE		4
116			Show respect toward subjects while measuring blood pressure			A	Role Play				
117			Week-14	Cardiac output and its control	Define cardiac output, venous return and state the normal values of cardiac output	C1			Interactive Lecture/SGD		1
118	Describe the mechanisms that control the cardiac output	C2									
119	Enlist and explain the factors that cause hypo effective and hyper effective heart	C1									
120	Enlist and explain the cardiac and non-cardiac factors that decreases the cardiac output	C1									
121	Define mean circulatory filling pressure	C1									
122	Examine effect of exercise and posture on blood pressure					P4	Demo	2	OSPE	9	
123	Show respect towards subjects while performing					A	Role Play				
124	Week-15	Heart sounds and murmurs Importance in circulation and control of venous return	Describe normal heart sounds and their durations	C2			Interactive Lecture/SGD	1	MCQ's	2	
125			State the chest surface area for auscultation of heart sounds	C1							
126			Describe heart murmurs and its different types	C2							
127			Define hypertrophy of the heart and vulvar lesions	C1			Interactive Lecture/SGD				
128			Perform auscultation on chest of the subject under supervision		P3		Demo	2	OSPE		9
129			Show respect towards subjects while performing			A	Role Play				

S.No	Weeks	Content	Learning Outcome	Domain			MIT's	Time/Hours	Assesment	No of Items
				C	P	A				
130	Week-16	Coronary circulation	Define coronary circulation	C1			Interactive Lecture/SGD	2	MCQ's	4
131		Splanchnic, pulmonary and cerebral circulation	Explain splanchnic, pulmonary, and cerebral circulation and its basic concepts	C2						
132		Triple response and cutaneous circulation	Explain the concept of triple response	C2						
133			Define cutaneous circulation and its role	C1						
134		Fetal circulation and circulatory changes at birth	Describe fetal circulation	C2						
135			Discuss the circulatory changes occurring at the time of birth	C2						
136			Describe congenital heart defects and their causes	C2						
137			Examine Apex beat and normal Hear sounds			P1	Demo	1	OSPE	4
138		Show respect towards subjects while performing			A	Role Play				

RSC-604 ENGLISH-I 3(3-0)

Course Description

This course is designed to acquaint students with the basics of English grammar and its significance for structuring ideas in sentences in the best possible communicative manner. Further, it gives an overview of the parts of speech, structuring sentences to write a unified paragraph. It enhances students' ability to analyze and differentiate between phrases, clauses and sentence in function as well as structure. In addition it explains the rules of spelling and punctuation.

Cognitive Domain

By the end of this subject, students should be able to:

1. Describe basic concept of basic grammar
2. Explain Parts of Speech its types and discuss that how same words use as different parts of speech.
3. Explain Parts of Speech its types and discuss that how same words use as different parts of speech.
4. justify critical thinking and conversational skills
5. Understand the Do's and Don'ts in Presentation
6. Distinguish Descriptive, narrative, expository and Narrative Paragraphs

Skills Domain

By the end of this subject, students should be able to:

1. Practice on general topics and every-day conversation with questions answers sessions.
2. Give presentations individually and in groups to showcase the latent talent
3. Organize the procedure to improve their communication skills

Affective Domain

By the end of this subject, students should be able to:

1. punctuality. Follow the specified norms of the IL, SGD teaching & learning.
2. Demonstrate the humbleness and use the socially acceptable language during academic and social interactions with human models, colleagues and teachers.
3. Demonstrate ethically competent decisions when confronted with an ethical, social or moral problem related to professional or personal life.

TOS -RSC 604 ENGLISH-I 3(3-0)

S.No	Weeks	Content	Learning Outcome	Domain			MIT's	Time/Hours	Assesment	No of Items
				C	P	A				
TOPIC: BASICS OF GRAMMAR										
1	Week-1	Definition	Define Parts of Speech	C1			Interactive Lecture/SGD	3	MCQ's	4
2		Parts of Speech	Explain Parts of Speech its types and discuss that how same words use as different parts of speech.	C2						
3	Week-2	Articles	Discuss Articles its types and rules.	C2			Interactive Lecture/SGD	3	MCQ's	4
4		Sentence with its Types	Discuss Sentence and its types on the basis of structure and function	C2						
5	Week-3	Subject Verb agreement	Explain Subject verb agreement	C2			Interactive Lecture/SGD	3	MCQ's	4
6		Analysis of Phrase, Clause and Sentence Structure	Discuss phrase, clause and sentence with types in detail	C2						
7	Week-4	Transitive and Intransitive Verbs	Discuss transitive and Intransitive verbs and identify them in a sentence.	C2			Interactive Lecture/SGD	3	MCQ's	4
8		Active and Passive Voice	Explain active and passive voice, their structure and rules.	C2						
9	Week-5	Punctuation and Spelling	Discuss Rules of Punctuation and Spelling	C2			Interactive Lecture/SGD	3	MCQ's	4
10		Unified Sentence	Explain unified sentence thoroughly and practice it correctly.	C2						
11		Definition	Define Comprehension	C1						
12		Comprehension procedure	Explain Comprehension and its procedure	C2						
13TOPIC: DISCUSSION14										
13	Week-6	Critical Thinking and Conversational Skills	justify critical thinking and conversational skills	C6			Interactive Lecture/SGD	3	MCQ's	4
14		Practice	Practice on general topics and every-day conversation with questions answers sessions.		P4					
TOPIC: LISTENING										
15	Week-7	Definition	Define Listening skills	C1			Interactive Lecture/SGD	3	MCQ's	4
16		Techniques	Discuss Listening Techniques	C2						
17		Process	Discuss listening process	C2						
TOPIC: TRANSLATION SKILLS										
18	Week-8	Definition	Define Translation	C1			Interactive Lecture/SGD	3	MCQ's	4
19		Education translation	Discuss educational translation	C2						
20		Strength	Discuss strengthen language skills through translation	C2						
TOPIC: PARAGRAPH WRITING										



S.No	Weeks	Content	Learning Outcome	Domain			MIT's	Time/Hours	Assesment	No of Items
				C	P	A				
21	Week-9	Definition	Define Paragraph	C1			Interactive Lecture/SGD	3	MCQ's	4
22		Principles	Explain Unity, Order and Variety of Paragraph	C2						
23	Week-10	Structure/Organization	Identify Topic sentence, supporting sentences and concluding sentence	C2			Interactive Lecture/SGD	3	MCQ's	4
24	Week-11	Loose and Periodic Sentences	Discuss Loose and Periodic Sentences.	C3			Interactive Lecture/SGD	3	MCQ's	4
25	Week-12	Types	Distinguish Descriptive, narrative, expository and Narrative Paragraphs	C4			Interactive Lecture/SGD	3	MCQ's	4
TOPIC: PRESENTATION SKILLS										
25	Week-13	Definition	Define Presentation Skills	C1			Interactive Lecture/SGD	3	MCQ's	4
26		Types	Discuss different types of presentation	C2						
27	Week-14	Structure	Explain the structure presentation	C2			Interactive Lecture/SGD	3	MCQ's	4
28	Week-15	Essentials	Discuss the stage fright and its antidotes	C2			Interactive Lecture/SGD	3	MCQ's	4
29	Week-16	Do's and Don'ts in Presentation	Understand the Do's and Don'ts in Presentation	C2			Interactive Lecture/SGD	3	MCQ's	4
30		Presentation	Give presentations individually and in groups to showcase the latent talent			P4	Demo	3	OSPE	
31		Body Language	Communicate through body language		P1					
32		Communication Skills	Organize the procedure to improve their communication skills		P2					
33		Q & A Session	Respond to different questions in the Q & A session		P2					
34			Show respect towards teachers and fellow			A				
35			Participate in class discussions			A				

RSC-605 PAKISTAN STUDIES 2(2-0)

Course Description

Pakistan Studies as an academic discipline deals with the political, economic, and social conditions related to Pakistan. It enlightens about the fundamental factors that led to the creation of the Two-Nation Theory. More simply, this subject addresses questions like 'What compelled Muslims to think for a separate state? Furthermore, It informs about the sacrifices that Indian Muslims made and the challenges they faced in the struggle of Pakistan.

Cognitive Domain

By the end of this subject, students should be able to:

1. **Develop vision of Historical Perspective, Government, Politics, Contemporary Pakistan, ideological background of Pakistan.**
2. **Study the process of governance, national development, issues arising in the modern age and posing challenges to Pakistan.**
3. **Promote an understanding of the ideology of Pakistan, the Muslim struggle for independence and endeavors for establishing a modern welfare Islamic state.**
4. **Acquaint the students with various phases of Pakistan's historical, political and constitutional developments.**
5. **Discuss Pakistan's strategic position in international politics, especially its relations with neighboring and Muslim countries.**
6. **Inculcate patriotism in the hearts of students so that they may become a good citizen.**

Affective Domain

By the end of this subject, students should be able to:

1. **Demonstrate punctuality.**
1. **Follow the specified norms of the IL, SGD teaching & learning.**
2. **Demonstrate the humbleness and use the socially acceptable language during academic and social interactions with human models, colleagues and teachers.**
3. **Demonstrate ethically competent decisions when confronted with an ethical, social or moral problem related to professional or personal life.**

TOS -RSC-605 PAKISTAN STUDIES 2(2-0)

S.No	Weeks	Content	Learning Outcome	Domain			MIT's	Time/Hours	Assesment	No of Items
				C	P	A				
TOPIC: PAKISTAN STUDIES										
1	Week-1	Importance of Pakistan Studies	Explain the importance of Pakistan Studies as a subject which can help in understanding the origin, creation and development of Pakistan.	C2			Interactive Lecture/SGD	2	MCQ's	4
TOPIC: IDEOLOGY										
2	Week-2	Definition and Significance of Ideology	Define ideology	C1			Interactive Lecture/SGD	2	MCQ's	4
3			Explain the significance of ideology for a nation.	C2						
4	Week-3	Islamic way of life	Explain the concept of sovereignty of Allah in Islam	C2			Interactive Lecture/SGD	2	MCQ's	4
5			Explain how the guiding principles of Islamic way of life (justice, equality and brotherhood) form the basis of Pakistan's ideology.	C2						
6	Week-4	Role of Sir sayed Ahmad Khan in ideology of Pakistan	Explain the contribution of Sir Sayed Ahmad Khan.	C2			Interactive Lecture/SGD	2	MCQ's	4
7	Week-5	Role of Allama Muhammad Iqbal in ideology of Pakistan	Explain the contribution of Allama Muhammad Iqbal in ideology of Pakistan (with reference to Allama Iqbal's 1930 Allahabad Address)	C2			Interactive Lecture/SGD	2	MCQ's	4
8	Week-6	Role of Quaid -i-Azam in ideology of Pakistan	Explain the contribution of Quaid -i-Azam in ideology of Pakistan (with reference to Quaid's address to the Constituent Assembly on August 11, 1947)	C2			Interactive Lecture/SGD	2	MCQ's	4
TOPIC: MUSLIM SEPARATISM										
9	Week-7	Factors leading to Muslim separatism	Discuss the factors that lead to Muslim separation in subcontinent	C2			Interactive Lecture/SGD	2	MCQ's	4
10			Explain the impact of Congress Rule and the Day of Deliverance 1939	C2						
11	Week-8	Pakistan Resolution	Discuss the Pakistan Resolution 1940	C2			Interactive Lecture/SGD	2	MCQ's	4
12			Analyse the importance of the Pakistan Resolution 1940	C2						

S.No	Weeks	Content	Learning Outcome	Domain			MIT's	Time/Hours	Assesment	No of Items
				C	P	A				
TOPIC: STATE IN ISLAM										
13	Week-9	Concept of a Welfare State in Islam	Define a welfare state	C1			Interactive Lecture/SGD	2	MCQ's	4
14			Describe the main functions of a welfare state	C2						
15			Compare an Islamic state and welfare state	C2						
16			Discuss the responsibilities of an individual in a welfare state	C2						
17			Discuss Pakistan's current status as a welfare state and suggest what further steps need to be taken.	C2						
TOPIC: PEOPLE AND LAND										
18	Week-10	Indus Civilization	Explain indus civilization in details	C2			Interactive Lecture/SGD	2	MCQ's	4
19		Muslim advent	Discuss the muslim advent in detail.	C2						
20	Week-11	Location and geo-physical features.	Describe the location and geo-physical features of Pakistan	C2			Interactive Lecture/SGD	2	MCQ's	4
21			locate Pakistan with reference to latitudes 24oN-37oN and longitudes 61oE-78oE;	C1						
22			locate the neighbouring countries of Pakistan on the world map (Afghanistan, India, China, Iran)	C1						
23			Explain the strategic importance of the location of Pakistan	C2						
TOPIC: GOVERNMENT AND POLITICS IN PAKISTAN										
24	Week-12	Government and Politics in Pakistan	Explain the need and importance of constitution for a state	C2			Interactive Lecture/SGD	2	MCQ's	4
25			Discuss the salient featur of Objective Resolution and its significance	C2						
26			Discuss the constitutional phases:1947-58	C2						
27			Discuss the constitutional phases:1958-71	C2						
28	Week-13	Government and Politics in Pakistan	Discuss the constitutional phases:1971-77	C2			Interactive Lecture/SGD	2	MCQ's	4
29			Discuss the constitutional phases:1977-88	C2						
30			Discuss the constitutional phases:1988-99	C2						
31			Discuss the constitutional phases:1999 onward	C2						
TOPIC: CONTEMPORARY PAKISTAN										
32	Week-14	Economic institutions and issues	Discuss the economic institutions and issues in Pakistan	C2			Interactive Lecture/SGD	2	MCQ's	4
33		Society and social structure	Discuss the Society and social struture.	C2						
34		Ethnicity	Discussion vastness of ethnicity in Pakistan	C2						



S.No	Weeks	Content	Learning Outcome	Domain			MIT's	Time/ Hours	Assesment	No of Items
				C	P	A				
35	Week-15	Foreign policy of Pakistan and challenges	Define the determinants of Pakistan's foreign policy;	C2			Interactive Lecture/SGD	2	MCQ's	4
36			Discuss Pakistan relations with immediate neighboring states?	C2						
37			Explain Pakistan's role in the region as an active member of SAARC	C2						
38			Describe Pakistan's relations with China and USA	C2						
39	Week-16	Futuristic outlook of Pakistan	Discuss the futuristic outlook of Pakistan in details	C2			Interactive Lecture/SGD	2	MCQ's	4

RSC-606 INTRODUCTION TO COMPUTER 3(2-1)

Course Description

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

Cognitive Domain

By the end of this subject, students should be able to:

1. Describe numerical, alphabetic, and alpha numeric data
2. Describe Arithmetic Logic Unit – ALU
3. Discuss types of system soft-ware including operating system and translators
4. Describe basic concept of MS word and power point

Skills Domain

By the end of this subject, students should be able to:

1. Examine the different parts of compound microscope and perform basic staining techniques.
2. Demonstrate how to use search engines independently
3. Perform automatic series generation, automatic calculations

Affective Domain

By the end of this subject, students should be able to:

1. Demonstrate punctuality. Follow the specified norms of the IL, SGD teaching & learning.
2. Demonstrate the humbleness and use the socially acceptable language during academic and social interactions with human models, colleagues and teachers.
3. Demonstrate ethically competent decisions when confronted with an ethical, social or moral problem related to professional or personal life.

TOS -RSC 606 INTRODUCTION TO COMPUTER 3(2-1)

S.No	Weeks	Content	Learning Outcome	Domain			MIT's	Time/ Hours	Assesment	No of Items
				C	P	A				
TOPIC: INTRODUCTION TO COMPUTER										
1	Week-1	Basic Definitions & Concepts	Define Computer	C1			Interactive Lecture/SGD	3	MCQ's	7
2			Define Data	C1						
3			Explain numerical, alphabetic, and alpha numeric data	C2						
TOPIC: DATA AND INFORMATION										
4	Week-2	Data, information Processing	Define Information	C1			Interactive Lecture/SGD	3	MCQ's	7
5			Distinguish between data and information	C4						
6			Explain data processing	C2						
TOPIC: BASIC UNITS OF COMPUTER										
7	Week-3	Input, output, memory , ALU, Control Unit	Define Input and output Unit	C1			Interactive Lecture/SGD	3	MCQ's	7
8			Discuss memory	C2						
9			Explain Arithmetic Logic Unit – ALU	C2						
10			Discuss control unit	C2						
TOPIC: LANGUAGE AND NUMBER SYSTEM										
11	Week-4	Characteridtic, Laguage	Enlist characteristics of computer	C1			Interactive Lecture/SGD	3	MCQ's	7
12			Define Languages in computer	C2						
13			Discuss the number system	C2						
TOPIC: SYSTEM SYSTEM AND APPLICATION SOFTWARE										
14	Week-5	Software,operating system, Virus	Define software and its types	C1			Interactive Lecture/SGD	3	MCQ's	7
15			Discuss types of system soft-ware including operating system and translators	C2						
16			Explain the application soft-ware i.e. general and specific purpose software	C2						
17			Explain computer virus and its types	C2						
TOPIC: INTERNET AND SECURITY										
18	Week-6	Netwok	Explain computer network and its types	C2			Interactive Lecture/SGD	2	MCQ's	4
19		installation	Demonstrate step by step antivirus installation and up gradation under supervision		P3		Demo	1	OSPE	4
20		email	Perform to use internet and email independently		P4					
21		search engine	Demonstrate how to use search engines independently		P4					

S.No	Weeks	Content	Learning Outcome	Domain			MIT's	Time/Hours	Assesment	No of Items
				C	P	A				
TOPIC: MS WORD										
22	Week-7	interface, ribbon	Define MS word and its interface	C1			Interactive Lecture/SGD	3	MCQ's	7
23			Discuss ribbon and its parts	C2						
24		toolbar	Discuss use of office button, save, save as and quick access toolbar	C3						
25	Week-8	Home tab, commands	Describe home tab, its groups and commands	C2			Interactive Lecture/SGD	2	MCQ's	4
26			Perform how to cut, copy, paste, bold, italic, font type and size the text undersupervision		P3		Demo	1	OSPE	4
27			Demonstrate text highlighting, text color and text formatting undersupervision		P3					
28			Observe text alignment, bullets, borders, shading and sorting		P1					
29			Demonstrate the insert tab, its groups and commands undersupervision		P3					
30	Observe to make cover page, blank page, page break, page numbers		P1							
31	Week-9	Smart art	Prepare tables, pictures, clip arts, shapes, headers and footers, smart art and charts independently		P4		Demo	3	OSPE	13
32			Perform to make text box, word art, drop cap and symbols independently		P4					
33			Demonstrate to make page layout tab its groups and commands independently		P4					
34	Week-10	Themes	Make themes, colors, fonts and effects margins, orientations, size and columns independently		P4		Demo	3	OSPE	13
35			Perform water mark, page color and page boarders on a document independently		P4					
3TOPIC: MS POWER POINT										
36	Week-11	Group command	Describe home tab, its groups and commands	C2			Interactive Lecture/SGD	3	MCQ's	7
37			Discuss tab its groups and command	C2						
38		MS Power point , interface	Discuss MS Power Point and its Interface	C2						



S.No	Weeks	Content	Learning Outcome	Domain			MIT's	Time/Hours	Assesment	No of Items
				C	P	A				
39	Week-12	New slide, reset, header footer, Art	Observe to prepare new slide, reset and delete slide		P1		Demo	3	OSPE	13
40			Prepare tables, pictures, clip arts, shapes, smart art and charts independently		P4					
41			Insert text box, header, footer, word art, movie and sound independently		P4					
42	Week-13	Slide oreintation	Discuss page setup, slide orientations and themes	C2			Interactive Lecture/SGD	2	MCQ's	4
43			Prepare background styles and hide background graphics independently		P4		Demo	1	OSPE	4
44			Insert animation tab its groups and commands indepentdently		P4					
45			Custom animations and transitions indepentdently		P4					
46	Week-14	Group and commands	Put transition's sound and speed indepentdently		P4		Demo	3	OSPE	13
47			Demonstrate slide show tab its groups and commands independently		P4					
48			Demonstrate slide show from beginning, from current slide and custom slide show indepentdently		P4					
49			Setup slide show and hide slides indepentdently		P4					
TOPIC: MS EXCEL										
50	Week-15	Cell, rows, columns and sheets	Define cell, rows, columns and sheets	C1			Interactive Lecture/SGD	3	MCQ's	7
51			Explain formula	C2						
52			Discuss cell styles, sort and filter, find and select	C2						
53			Discuss how to merge cells, conditional formatting, format as table	C2						
54	Week-16	Series generation, automatic calculations	Discuss how to create DMCs and merit lists	C2			Interactive Lecture/SGD	2	MCQ's	4
55			Observe automatic series generation, automatic calculations`		P1		Demo	1	OSPE	4
56			Participate in class discussion			A				
57			Show respect towards teachers and fellows			A				

Recommended Text Books

APPLIED PROSTHETICS & ORTHOTICS

- ICRC Physical Rehabilitation Programme, Lower Limb Orthotics – Foot Orthotics - ICRC
- AAOS Atlas of Orthoses and Assistive Devices by Hsu, Michael and Fisk, 4th Edition
- Atlas of Amputations and Limb Deficiencies by Smith, Michael and Bowker, 3rd Edition
- Orthotics and Prosthetics Rehabilitation by Lusardi, Jorge and Nielsen, Elsevier

ANATOMY

- 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

- 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

- Practical English Grammar by A.J. Thomson and A.V. Martinet. Exercises 1. Third edition. Oxford University Press. 1997. ISBN 0194313492
- Practical English Grammar by A.J. Thomson and A.V. Martinet. Exercises 2. Third edition. Oxford University Press. 1997. ISBN 0194313506
- 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.
- Reading. Upper Intermediate. Brian Tomlinson and Rod Ellis. Oxford Supplementary Skills. Third Impression 1992. ISBN 0 19 453402 2.
- 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 Richard Yorke.

PAKISTAN STUDIES

- 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.
- Mehmood, Safdar. Pakistan Political Roots & Development. Lahore, 1994.
- Wilcox, Wayne. The Emergence of Bangladesh., Washington: American Enterprise, Institute of Public Policy Research, 1972.
- Mehmood, Safdar. Pakistan Kayyun Toota, Lahore: Idara-e-Saqafat-e-Islamia, Club Road, nd.
- Amin, Tahir. Ethno - National Movement in Pakistan, Islamabad: Institute of Policy Studies, Islamabad.
- Ziring, Lawrence. Enigma of Political Development. Kent England: Wm Dawson & sons Ltd, 1980.
- Zahid, Ansar. History & Culture of Sindh. Karachi: Royal Book Company, 1980.
- Afzal, M. Rafique. Political Parties in Pakistan, Vol. I, II & III. Islamabad: National Institute of Historical and cultural Research, 1998.
- Sayeed, Khalid Bin. The Political System of Pakistan. Boston: Houghton Mifflin, 1967.



- Aziz, K.K. Party, Politics in Pakistan, Islamabad: National Commission on Historical and Cultural Research, 1976.
- Muhammad Waseem, Pakistan Under Martial Law, Lahore: Vanguard, 1987.
- Haq, Noor ul. Making of Pakistan: The Military Perspective. Islamabad: National Commission on Historical and Cultural Research, 1993.

INTRODUCTION TO COMPUTER

- 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.

ISLAMIC STUDIES/ ETHICS

- 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).



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