UNIVERSITY OF THE PUNJAB

NOTIFICATION

It is hereby notified that the Syndicate at its meeting held on 28-03-2025 has approved the recommendations of the Academic Council made at its meetings dated 27-01-2025 regarding Curriculum/Schemes of Studies/Syllabi/Courses of Reading of following Programs prepared in the light of HEC's Undergraduate Education Policy, 2023 w.e.f. Session, 2025 to be offered at the Department of Allied Health Sciences:-

i. BS in Medical Laboratory Technology (4-years Program)
ii. BS in Audiology (4-years Program)
iii. BS in Optometry & Vision Sciences (4-years Program)
iv. Doctor of Physiotherapy (5-years Program)

The Syllabi and Scheme of Studies of above Programs are enclosed herewith as Annexure-'A'.

Sd/-
Registrar

Admin. Block,
Quaid-i-Azam Campus,
Lahore.
No. D/3707 /Acad. **Dated: 14-5- /2025.**

Copy of the above is forwarded to the following for information and necessary action:-

1. Dean, Faculty of Health Sciences
2. Chairman, Department of Allied Health Sciences.
3. Controller of Examinations
4. Director, IT for placement at website
5. Secretary to the Vice-Chancellor
6. Private Secretary to the Registrar
7. Assistant Registrar (Statutes)
8. Admin. Officer (Syllabus)

14/5/25

Assistant Registrar (Academic)
for Registrar

Program Curriculum
Doctor of Physiotherapy

Department of Allied Health Sciences
University of the Punjab
Lahore

Programme	**Doctor of Physiotherapy**				
Duration	5 Years	**Semesters**	10	**Credit hours**	**188(140+48)**
Department	**Department of Allied Health Sciences**				
Faculty	**Faculty of Health Sciences**				

Department Introduction

The Department of Allied Health Sciences, established in 2017 within the umbrella of the Faculty of Health Sciences at the University of the Punjab, Lahore, offers comprehensive programs in Doctor of Physiotherapy (DPT) and various Allied Health Sciences. These programs are designed to provide students with a strong foundation in healthcare, preparing them for impactful careers in the ever-evolving medical field.

Department Vision

The vision of the Department of Allied Health Sciences is to be a leading institution in health education, fostering innovation and excellence in allied health practices. We aim to develop highly skilled, compassionate professionals who will contribute to improving healthcare outcomes through evidence-based practices, research, and holistic patient care. Our commitment is to empower students with the knowledge, critical thinking, and practical skills necessary to excel in diverse healthcare settings, promote health and well-being, and advance the field of allied health sciences globally.

Department Mission

The mission of the Department of Allied Health Sciences is to provide high-quality education and training in the fields of Doctor of Physiotherapy (DPT) and Allied Health Sciences. We are dedicated to fostering a supportive learning environment that emphasizes academic excellence, hands-on clinical experience, and research-driven innovation. Our goal is to equip students with the necessary skills, knowledge, and ethical values to become competent healthcare professionals. Through collaboration, community engagement, and a commitment to lifelong learning, we aim to improve healthcare delivery, promote wellness, and contribute to the advancement of the allied health professions.

Department Goals

The goals of the Department of Allied Health Sciences are:

1. **Academic Excellence**: To deliver high-quality, evidence-based education that prepares students for professional practice in allied health fields.
2. **Skilled Workforce Development**: To develop competent, compassionate, and ethical healthcare professionals through comprehensive programs in DPT and Allied Health Sciences.
3. **Clinical Competence**: To provide hands-on clinical training that enhances students' practical skills and enables them to deliver effective patient care.
4. **Research and Innovation**: To foster a culture of research and critical thinking, encouraging students and faculty to contribute to advancements in healthcare practices.
5. **Community Engagement**: To actively engage with local and global communities to address healthcare challenges, promote wellness, and improve patient outcomes.
6. **Lifelong Learning**: To cultivate an environment of continuous learning, professional development, and leadership within the allied health professions.
7. **Global Contribution**: To produce graduates who are prepared to meet the evolving healthcare needs and contribute to the global health workforce.

Program Introduction

Doctor of Physiotherapy 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, and 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, promotional, diagnostic, rehabilitative, and curative.

Program Objectives

Graduates of the Doctor of Physiotherapy program will:

- 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.
- 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.

- 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.
- Engage in reflective practice through sound clinical decision making, critical self-assessment and commitment to lifelong learning.
- 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.
- 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.
- Demonstrate leadership, management, and communication skills to effectively participate in physical therapy practice and the health care team.
- Incorporate and demonstrate positive attitudes and behaviors to all persons.
- Demonstrate the professional and social skills to adapt to changing health care environments to effectively provide physical therapy care.

Market Need / Rationale of the Program

The Doctor of Physiotherapy (DPT) is a clinical doctoral degree (entry level degree) that reflects the growth in the body of knowledge and expected responsibilities that a professional physical therapist must master to provide best practice to the consumer. All physical therapists are obligated to engage in the continual acquisition of knowledge, skills, and abilities to advance the science of physical therapy and its role in the delivery of healthcare. The qualified physical Therapist can be placed in:

- Government sector: Physical Therapists are appointed in hospitals in government sectors as Physical Therapists in Grade – 17 as the initial grade of appointment.
- Physical Therapy Institutes as demonstrator: As lecturer, Senior Lecture, Assistant Professor, Associate Professor and Professor depending upon their educational qualification and experience.
- Hospital and Clinics: As Clinical Therapists, senior Therapist and Supervisor of the facility according to their qualification and experience.
- Sports Sector: As Sports Physical Therapist, team Physical Therapist and clinical Heads of sports clinic.
- Rehabilitation Centers: As Rehabilitation specialist both in adult and pediatric.
- Women Health: A newly emerging field where Physical therapist provide specialized care in Obs/Gynae and urinary /Bladder incontinent issues related to women.
- ICU/CCU/PICU/NICU: As Respiratory Therapist where a Physical Therapist play a life-saving role.
- Geriatric and Neurological Rehabilitation Center: Old age in itself is been considered a separate branch of medicine where a physical therapist play an important role in diagnosing, giving assessment and management of conditions while keeping in mind the age related abnormalities of the individuals. In addition to that a lot of Neurological conditions including Stoke, Parkinson's, MS, MND are mostly related to the individuals with older age groups.
- School Systems and Special Education institutes: Physical Therapists are involved in the physical assessment of the students and their management as it is necessary for timely screening of the students so that necessary help be advised to the parents.
- Private Practice: Physical Therapist can also establish their own private practice as per rules and regulation of the government.
- Nursing Care: In addition to these, Physical Therapists are working in Nursing care Facilities, Skilled Nursing Facilities, and Long Term Care Facilities.
- Home Healthcare services: Physical Therapist also involve in home health care as most of the patient in their old age or with some neurological deficit unable to attend Out-patient Physical Therapy Care and it is mandatory to provide physical therapy services to these patients at home.

Admission Eligibility Criteria

- 12 years of study completed
- Study Program/Subject F.Sc. Pre Medical or equivalent
- Entry Test
- Any other (if applicable)

Categorization of Courses as per HEC Recommendation and Difference

Semester	Courses	Category(Credit Hours)					
		Core Courses	Basic Courses	Major Electives	Minor Electives	Any Other	Semester Load
1	8	1(0)	4(9)	1(3)	2(6)		**18(15+3)**
2	8	1(1)	4(10)	1(3)	2(6)		**20(16+4)**
3	8	1(0)	3(9)	1(3)	3(8)		**20(17+3)**
4	8	1(1)	2(4)	1(3)	4(11)		**18(14+4)**
5	8	1(0)	-	3(9)	4(10)		**19(14+5)**
6	7	1(1)	-	4(11)	2(5)		**18(13+5)**
7	7	1(0)	-	3(9)	3(9)		**18(12+6)**
8	7	1(1)	-	4(11)	3(8)		**20(15+5)**
9	8	1(0)	-	6(17)	-		**20(11+9)**
10	8	1(1)	-	6(13)	-		**17(13+4)**
PU	**77**	**10**	**32**	**82**	**63**		**188(140+48)**
HEC Guidelines		**6**	**32**	**≥72**	**≥12**		
Difference (HEC &) PU		**4**	**0**	**10**	**51**		

Core: Compulsory, Basic: Foundation, Major Electives: Professional Minor Electives: Specialization
Note: The course/column heads are customizable according to nature and level of the program.

Scheme of Studies

S. #.	Course Code	Title of the Course	Credit Hours
1.	GENG-101	Functional English	3(3+0)
2.	GISL-101 / GETH-101	Islamic Studies / Ethics (for Non-Muslims)	2(2+0)
3.	GICP-101	Ideology & Constitution of Pakistan	2(2+0)
4.	DPT-101	Anatomy-I	3(2+1)
5.	DPT-102	Physiology-I	3(2+1)
6.	DPT-103	Kinesiology-I	3(2+1)
7.	DPT-104	Medical Sociology	2(2+0)
8.	HQ-001	Tarjuma-e-Quran	0
9.	GQR-101	Quantitative Reasoning-I	3(3+0)
10.	DPT-105	Anatomy-II	3(2+1)
11.	DPT-106	Physiology-II	3(2+1)
12.	DPT-107	Kinesiology-II	3(2+1)
13.	DPT-108	Behavioral Sciences (Psychology& Ethics)	2(2+0)
14.	DPT-109	Bio Physics	3(2+1)
15.	DPT-110	Pakistan Studies	2(2+0)
16.	HQ-002	Tarjuma-e-Quran	1
17.	GQR-202	Quantitative Reasoning-II	3(3+0)
18.	GENG-201	Expository Writing	3(3+0)
19.	GICT-201	Applications of ICT	3(2+1)
20.	DPT-201	Biomechanics & Ergonomics-I	3(3+0)
21.	DPT-202	Biochemistry-I	2(2+0)
22.	DPT-203	Anatomy –III	3(2+1)
23.	DPT-204	Physiology-III	3(2+1)
24.	HQ-003	Tarjuma-e-Quran	0
25.	GENT-101	Entrepreneurship	2(2+0)
26.	GCCE-101	Civics and Community Engagement	2(2+0)
27.	DPT-205	Biomechanics & Ergonomics-II	3(2+1)
28.	DPT-206	Biochemistry-II	3(2+1)
29.	DPT-207	Anatomy-IV (Neuro Anatomy)	3(2+1)
30.	DPT-208	Exercise Physiology	3(2+1)
31.	DPT-209	Molecular Biology and Genetics	2(2+0)
32.	HQ-004	Tarjuma-e-Quran	1
33.	DPT-301	Nutrition	3(3+0)
34.	DPT-302	Biostatistics-I	3(3+0)
35.	DPT-303	Supervised Clinical Practice-I	3(0+3)
36.	DPT-304	Physical Agents & Electrotherapy –I	3(2+1)
37.	DPT-305	Pharmacology & Therapeutics-I	2(2+0)
38.	DPT-306	Pathology & Microbiology-I	2(2+0)
39.	DPT-307	Therapeutic Exercises & Techniques	3(2+1)
40.	HQ-005	Tarjuma-e-Quran	0
41.	DPT-308	Supervised Clinical Practice-II	3(0-3)
42.	DPT-309	Physical Agents & Electrotherapy –II	3(2-1)
43.	DPT-310	Manual Therapy – I	3(2-1)
44.	DPT-311	Pharmacology & Therapeutics-II	2(2-0)
45.	DPT-312	Pathology & Microbiology-II	3(2-1)
46.	DPT-313	Community Medicine and Rehabilitation	3(3-0)
47.	HQ-006	Tarjuma-e-Quran	1
48.	DPT-401	Supervised Clinical Practice-III	3(0-3)
49.	DPT-402	Surgery-I	3(3-0)
50.	DPT-403	Medicine-I	3(3-0)
51.	DPT-404	Musculoskeletal Physical Therapy – I	3(2-1)
52.	DPT-405	Evidence based practice	3(2-1)
53.	DPT-406	Radiology and Diagnostic Imaging	3(2-1)

54.	HQ-007	Tarjuma-e-Quran	0
55.	DPT-407	Supervised Clinical Practice-IV	3(0-3)
56.	DPT-408	Scientific Inquiry & Research Methodology	2(2+0)
57.	DPT-409	Surgery-II	3(3-0)
58.	DPT-410	Medicine-II	3(3-0)
59.	DPT-411	Emergency Procedures & Primary Care in Physical Therapy	2(2+0)
60.	DPT-412	Neurological Physical Therapy – I	3(2+1)
61.	DPT-413	Musculoskeletal Physical Therapy – II	3(2+1)
62.	HQ-008	Tarjuma-e-Quran	1
63.	DPT-414	Cardiopulmonary Physical Therapy	3(2+1)
64.	DPT-415	Integumentary Physical Therapy	2(2+0)
65.	DPT-416	Clinical decision making and differential diagnosis/Obstetrics & Gynecological PT-I/ (non HEC)	3(3+0)
66.	DPT-417	Manual Therapy – II (Spine)	3(2+1)
67.	DPT-418	Supervised Clinical Practice-V	3(0+3)
68.	DPT-419	Neurological Physical Therapy – II	3(2+1)
69.	DPT-420	Internship	3 (0+3)
70.	HQ-009	Tarjuma-e-Quran	0
71.	DPT-421	Pediatric Physical Therapy	3(2+1)
72.	DPT-422	Gerontology & Geriatric PT	2(2+0)
73.	DPT-423	Obstetrics & Gynecological PT	2(2+0)
74.	DPT-424	Prosthetics and Orthotics	2(2+0)
75.	DPT-425	Professional Practice in Physical Therapy	2(2+0)
76.	DPT-426	Sports Physical Therapy	2(2+0)
77.	DPT-427	Capston Project	3(0+3)
78.	HQ-010	Tarjuma-e-Quran	1
Total Credit Hours			**188(140+48)**

Scheme of Studies / Semester-wise workload

#	Code	Course Title	Course Type	Prerequisite	Credit hours		Total
Semester I							
1.	GENG-101	Functional English	General		3(3+0)		
2.	GISL-101 / GETH-101	Islamic Studies / Ethics (for Non-Muslims)	General		2(2+0)		
3.	GICP-101	Ideology & Constitution of Pakistan	General		2(2+0)		
4.	DPT-101	Anatomy-I	Interdisciplinary		3(2+1)		
5.	DPT-102	Physiology-I	Interdisciplinary		3(2+1)		
6.	DPT-103	Kinesiology-I	Major		3(2+1)		
7.	DPT-104	Medical Sociology	General		2(2+0)		
8.	HQ-001	Tarjuma-e-Quran	Compulsory		0		
Total Credit Hours							**18(15+3)**
Semester II							
1.	GQR-101	Quantitative Reasoning-I	General		3(3+0)		
2.	DPT-105	Anatomy-II	Interdisciplinary		3(2+1)		
3.	DPT-106	Physiology-II	Interdisciplinary		3(2+1)		
4.	DPT-107	Kinesiology-II	Major		3(2+1)		
5.	DPT-108	Behavioral Sciences (Psychology& Ethics)	General		2(2+0)		Art & Hum
6.	DPT-109	Bio Physics	General		3(2+1)		Natural Sci
7.	DPT-110	Pakistan Studies	General		2(2+0)		General
8.	HQ-002	Tarjuma-e-Quran	Compulsory		1		
Total Credit Hours							**20(16+4)**
Semester III							
1.	GQR-202	Quantitative Reasoning-II	General		3(3+0)		
2.	GENG-201	Expository Writing	General		3(3+0)		
3.	GICT-201	Applications of ICT	General		3(2+1)		
4.	DPT-201	Biomechanics & Ergonomics-I	Major		3(3+0)		
5.	DPT-202	Biochemistry-I	Interdisciplinary		2(2+0)		
6.	DPT-203	Anatomy -III	Interdisciplinary		3(2+1)		
7.	DPT-204	Physiology-III	Interdisciplinary		3(2+1)		
8.	HQ-003	Tarjuma-e-Quran	Compulsory		0		
Total Credit Hours							**20(17+3)**
Semester IV							
1.	GENT-101	Entrepreneurship	General		2(2+0)		Entrepreneur

#	Code	Course Title	Course Type	Prerequisite	Credit hours		Total
2.	GCCE-101	Civics and Community Engagement	General		2(2+0)		Civics & CE
3.	DPT-205	Biomechanics & Ergonomics-II	Major		3(2+1)		
4.	DPT-206	Biochemistry-II	Interdisciplinary		3(2+1)		
5.	DPT-207	Anatomy-IV (Neuro Anatomy)	Interdisciplinary		3(2+1)		
6.	DPT-208	Exercise Physiology	Interdisciplinary		3(2+1)		
7.	DPT-209	Molecular Biology and Genetics	Interdisciplinary		2(2+0)		
8.	HQ-004	Tarjuma-e-Quran	Compulsory		1		
Total Credit Hours							**18(14+4)**
Semester V							
1.	DPT-301	Nutrition	Interdisciplinary		3(3+0)		
2.	DPT-302	Biostatistics-I	Interdisciplinary		3(3+0)		
3.	DPT-303	Supervised Clinical Practice-I	Major		3(0+3)		
4.	DPT-304	Physical Agents & Electrotherapy –I	Major		3(2+1)		
5.	DPT-305	Pharmacology & Therapeutics-I	Interdisciplinary		2(2+0)		
6.	DPT-306	Pathology & Microbiology-I	Interdisciplinary		2(2+0)		
7.	DPT-307	Therapeutic Exercises & Techniques	Major		3(2+1)		
8.	HQ-005	Tarjuma-e-Quran	Compulsory		0		
Total Credit Hours							**19(14+5)**
Semester VI							
1.	DPT-308	Supervised Clinical Practice-II	Major		3(0-3)		
2.	DPT-309	Physical Agents & Electrotherapy – II	Major		3(2-1)		
3.	DPT-310	Manual Therapy - I	Major		3(2-1)		
4.	DPT-311	Pharmacology & Therapeutics-II	Interdisciplinary		2(2-0)		
5.	DPT-312	Pathology & Microbiology-II	Interdisciplinary		3(2-1)		
6	DPT-313	Community Medicine and Rehabilitation	Major		3(3-0)		
7.	HQ-006	Tarjuma-e-Quran	Compulsory		1		
Total Credit Hours							**18 (13+5)**
Semester VII							
1.	DPT-401	Supervised Clinical Practice-III	Major		3(0-3)		
2.	DPT-402	Surgery-I	Interdisciplinary		3(3-0)		
3.	DPT-403	Medicine-I	Interdisciplinary		3(3-0)		
4.	DPT-404	Musculoskeletal Physical Therapy - I	Major		3(2-1)		
5.	DPT-405	Evidence based practice	Major		3(2-1)		
6.	DPT-406	Radiology and Diagnostic Imaging	Interdisciplinary		3(2-1)		

#	Code	Course Title	Course Type	Prerequisite	Credit hours		Total
7.	HQ-007	Tarjuma-e-Quran	Compulsory		0		
Total Credit Hours							**18 (12+6)**
Semester VIII							
1.	DPT-407	Supervised Clinical Practice-IV	Major		3(0-3)		
2.	DPT-408	Scientific Inquiry & Research Methodology	Interdisciplinary		2(2+0)		
3.	DPT-409	Surgery-II	Interdisciplinary		3(3-0)		
4.	DPT-410	Medicine-II	Interdisciplinary		3(3-0)		
5.	DPT-411	Emergency Procedures & Primary Care in Physical Therapy	Major		2(2+0)		
6.	DPT-412	Neurological Physical Therapy – I	Major		3(2+1)		
	DPT-413	Musculoskeletal Physical Therapy - II	Major		3(2+1)		
7.	HQ-008	Tarjuma-e-Quran	Compulsory		1		
Total Credit Hours							**20 (15+5)**
Semester IX							
1.	DPT-414	Cardiopulmonary Physical Therapy	Major		3(2+1)		
2.	DPT-415	Integumentary Physical Therapy	Major		2(2+0)		
3.	DPT-416	Clinical decision making and differential diagnosis/Obstetrics & Gynecological PT-I/ (non HEC)	Major		3(3+0)		
4.	DPT-417	Manual Therapy – II (Spine)	Major		3(2+1)		
5.	DPT-418	Supervised Clinical Practice-V	Major		3(0+3)		
6.	DPT-419	Neurological Physical Therapy – II	Major		3(2+1)		
7.	DPT-420	Internship	Compulsory		3 (0+3)		
8.	HQ-009	Tarjuma-e-Quran	Compulsory		0		
Total Credit Hours							20 (11+9)
Semester X							
1.	DPT-421	Pediatric Physical Therapy	Major		3(2+1)		
2.	DPT-422	Gerontology & Geriatric PT	Major		2(2+0)		
3.	DPT-423	Obstetrics & Gynecological PT	Major		2(2+0)		
4.	DPT-424	Prosthetics and Orthotics	Major		2(2+0)		
5.	DPT-425	Professional Practice in Physical Therapy	Major		2(2+0)		
6	DPT-426	Sports Physical Therapy	Major		2(2+0)		
7.	DPT-427	Capston Project	Compulsory		3(0+3)		
8.	HQ-010	Tarjuma-e-Quran	Compulsory		1		
				Total credit hours			**17 (13+4)**

1. Type of course may be core (compulsory), basic (foundation), major elective (professional), minor elective (specialization) etc.

Research Thesis / Project /Internship

Details (credit hours, semesters etc.)

- Internship (3 Credit Hours) in 7th Semester
- Capstone Project (3 Credit Hours) in Final Semester

Award of Degree

Degree awarding criteria stating:

As per PU undergraduate policy
Thesis /Project/Internship (Compulsory)
Any other requirement (if applicable)

NOC from Professional Councils (if applicable)

The required NOC will be processed accordingly.

Faculty Strength

Degree	Area/Specialization	Total
PhD	1. Human Genetics 2. Molecular Biology 3. Biochemistry 4. Molecular Biology and Molecular Genetics	**5**
MPhil	1. Molecular Biology	**1**
Total		**6**

Present Student Teacher Ratio in the Department

Total Faculty	**6**	**Total Students**	**NA**	**Ratio**	**NA**

Initial Startup of the Program.

Course Outlines separately for each course

Programme	DPT	Course Code	DPT-101	Credit Hours	3(2+1)
Course Title	**Anatomy-I**				

Course Introduction

This course offers a comprehensive and advanced exploration of the general and organ wise anatomical organization of the human body, with a particular focus on the intricate interplay between structure and function in facilitating human body movement. It delves into the microscopic and developmental aspects of anatomy, including histology and embryology, while emphasizing the detailed analysis of the nervous, musculoskeletal, and circulatory systems. Foundational principles of general anatomy are reinforced through integrative, hands-on methodologies such as cadaveric dissection, augmented by the utilization of anatomical charts, three-dimensional models, preserved specimens, and radiographic imaging. The course places particular emphasis on the precise identification and understanding of anatomical configurations and key landmarks of the upper limb, equipping students with a robust framework for clinical and academic applications.

Learning Outcomes

- Develop an understanding of anatomical terminology and technical language.
- Explain the structural organization, composition, and functional roles of various organs within the human body.
- Grasp the principles and conceptual frameworks underlying different categories of anatomical structures.
- Demonstrate proficiency in identifying surface landmarks of clinically significant structures on live models, correlating anatomical features with their functional implications.
- Elaborate on the fundamental concepts of embryology and histology.
- Accurately identify and interpret histological slides of human tissues.
- Analyze the interrelation and functional synergy between structural components of the upper limb.

	Course Content	Assignments/Readings
Week 1	**General Anatomy and Functional Anatomy** • Terminology associated with positions and movements. • The skin and its subcutaneous layers. • Structural organization of skin layers. • Functional properties of the integumentary system. • Skin glands associated with hair follicles. • Microscopic anatomy of the skin.	Read General Anatomy. Review skin histology resources.
Week 2	**Bones and Cartilages** • Overview of osteology. • Functions and classifications of bones. • Anatomical and functional regions of long bones. • Vascular and neural supply to bones. • Pathways of lymphatic vessels and nerve innervation. • Structural and functional significance of nutrient foramina. • Gross anatomy of long bones. • Surface landmarks of bones. • Characteristics of cartilage. • Structural composition and developmental processes of bones and cartilage. • Microscopic analysis of cartilage and bone.	Study osteology charts. Complete the bone identification worksheet.
Week 3	**The Muscle** • Introduction to muscle anatomy. • Classification and functional roles of muscles. • Microscopic and histological features of muscle types. • General muscle functions and types. • Skeletal muscle anatomy and their associated actions. • Functional characteristics of non-mammalian muscle systems.	Read Muscle Anatomy. Complete muscle function exercises.

	• Microscopic structure of muscles.	
Week 4	**Structures Related to Muscles and Bones** • Tendons and their functional anatomy. • Aponeuroses and their structural significance. • Synovial bursae and their clinical importance. • Tendon synovial sheaths. • Raphae and their anatomical relevance. • Ligaments and their biomechanical functions. • Specific anatomical landmarks such as condyles, epicondyles, and ridges.	Review tendon histology. Write a summary on synovial bursae.
Week 5	**The Joints** • Overview and Introduction • Functional Classification of Joints • Structural Classification of Joints • Key Components of a Synovial Joint • Mechanics of Joint Movements • Synovial Joint Blood Supply, Nerve Connections, and Lymphatic Drainage • Key Factors Influencing Joint Stability • Joint Development Processes	Study types of joints and their classification. Complete a worksheet on synovial joint mechanics.
Week 6	**Cardiovascular System** • Definition and Overview • Division of the Circulatory System: Pulmonary vs. Systemic Circulation • Classification of Blood Vessels with Microscopic Features • Structure and Histology of the Heart • Functions of the Heart • Anatomic and Functional Anastomoses	Read Circulatory System. Complete heart histology diagram.
Week 7	**Nervous System** • Definition and Introduction • General Cellular Structure of the Nervous System • Classification of Nervous System Components • Functional Parts of the Brain: Cerebrum, Cerebellum, and Spinal Cord • Nerve Functional Properties • Anatomy of a Typical Spinal Nerve • Nerve Microstructure • Overview of the Autonomic Nervous System • Neuromuscular Junction Anatomy	Study neuroanatomy diagrams. Write a report on the autonomic nervous system.
Week 8	**General Histology** • Cellular Structure and Function • Epithelium: Types and Roles • Connective Tissue Characteristics • Bone Tissue Structure and Function • Overview of Muscle Tissue	Review histology slides. Complete tissue identification exercise.
Week 9	**General Embryology** • Male and Female Reproductive Organs • Cellular Division and Gametogenesis • Fertilization, Cleavage, Blastocyst Formation, and Implantation of the Embryo • Developmental Stages During the Second and Third Weeks of Intrauterine Life	Read Embryology. Complete a timeline of fetal development.

	• Fetal Membranes: Amniotic Cavity, Yolk Sac, Allantois, Umbilical Cord, and Placenta • Developmental Defects	
Week 10	**Upper Limb Osteology** • Comprehensive Description of the Bones of the Upper Limb and Shoulder Girdle • Muscular and Ligamentous Attachments of the Upper Limb	Study the upper limb bones and their features. Complete an osteology quiz.
Week 11	**Myology** • Muscles Connecting the Upper Limb to the Axial Skeleton • Muscles Around the Shoulder Joint • Walls and Contents of the Axilla • Muscles of the Brachial Region • Muscles in the Forearm • Muscles of the Hand • Retinacula and Palmar Aponeurosis • Extensor Hood and Dorsal Digital Expansion	Read Myology. Complete muscle action diagrams.
Week 12	**Neurology** • Course, Distribution, and Functions of Nerves in the Upper Limb • Anatomy of the Brachial Plexus	Study the brachial plexus anatomy. Review nerve distribution patterns.
Week 13	**Angiology (Circulation)** • Pathways and Distribution of All Arteries and Veins in the Upper Limb • Lymphatic Drainage of the Upper Limb • Anatomy of the Axillary Lymph Nodes • Structure and Function of the Cubital Fossa	Review upper limb circulation diagrams. Complete a lymphatic drainage worksheet.
Week 14	**Arthrology** • Acromioclavicular and Sternoclavicular Joint Anatomy • Shoulder Joint Structure • Elbow Joint Overview • Wrist Joint Details	Study joint structures. Complete a joint comparison table.
Week 15	**Joints** • Radioulnar Joints • Intercarpal Joints • Metacarpophalangeal (MCP) and Interphalangeal (IP) Joints • Surface Anatomy of the Upper Limb • Surface Markings of the Upper Limb	Review joint movements. Complete surface anatomy assignments.
Week 16	**Demonstrations** • Shoulder Joint: Muscles, Articulating Surfaces, and Attachments • Elbow Joint Anatomy • Wrist Joint Structure • Radioulnar Joint Overview • Metacarpophalangeal (MCP) and Interphalangeal (IP) Joints • Acromioclavicular Joint Details • Sternoclavicular Joint Anatomy • Brachial Plexus Components • Blood Supply of the Brain • Structure of Bones	Attend joint and muscle demonstrations. Review muscle and joint anatomy

Lab Work

- 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

Textbooks and Reading Material

Textbooks.

1. **Netter's Atlas of Human Anatomy** by Frank H. Netter
2. **Atlas of Anatomy** by Anne M. Gilroy, Brian R. MacPherson, and Lawrence M. Ross
3. **Grant's Atlas of Anatomy** by Anne M.R. Agur and Arthur F. Dalley
4. **Last's Anatomy: Regional and Applied** by Chummy S. Sinnatamby
5. **Essential Clinical Anatomy** by Keith L. Moore, Anne M.R. Agur, and Arthur F. Dalley
6. **Junqueira's Basic Histology: Text and Atlas** by Anthony L. Mescher
7. **Color Atlas of Histology** by Leslie P. Gartner and James L. Hiatt
8. **Histology: A Text and Atlas** by Michael H. Ross and Wojciech Pawlina
9. **Before We Are Born: Essentials of Embryology and Birth Defects** by Keith L. Moore, T.V.N. Persaud, and Mark G. Torchia
10. **Human Embryology and Developmental Biology** by Bruce M. Carlson

Teaching Learning Strategies

- **Interactive Lectures**
  Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
- **Collaborative Learning**
  Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
- **Case Studies**
  Use case studies to explore real-life examples of communication in business, academic, and casual settings.
- **Role-Playing and Simulations**
  To practice persuasive speaking, public speaking, and informal conversations.
- **Technology Integration**
  Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

- Quiz-1
- Quiz-II
- Presentation
- Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-102	Credit Hours	3(2+1)
Course Title	**Physiology-I**				

Course Introduction

This course focuses on understanding the functions of the human body at the cellular, tissue, and system levels. It aims to help students grasp the complexity of cells, tissues, and major organ systems, emphasizing the molecular mechanisms that regulate physiological processes. Additionally, it highlights critical issues influencing the normal functioning of the human body.

Learning Outcomes

- Explain terminology associated with the structure and function of the human body systems.
- Differentiate between the structural and functional features of various human body cells.
- Relate basic chemical principles to the structural and functional aspects of the blood and neuromuscular systems.
- Examine the relationships among body organ systems, emphasizing the integration of structure and function in maintaining homeostasis.
- Apply advanced techniques to analyze body functions and interpret diagnostic data for medical applications.
- Understand the principles underlying medical instruments and their usage in physiological studies.

	Course Content	Assignments/Readings
Week 1	**Cell Physiology** • Functional organization of the human body.	Assignment: Describe the human body's functional organization in detail.
Week 2	**Cell Physiology** • Homeostasis and its importance. • Control mechanisms in the body.	Assignment: Write a report on the mechanisms involved in maintaining homeostasis.
Week 3	**Cell Physiology** • Cellular components and their roles. • General cell structure and functions.	Assignment: Create a diagram labeling cellular components and their functions.
Week 4	**Cell Physiology** • Functional properties of the integumentary system.	Assignment: Research and present on the different functions of the integumentary system.
Week 5	**Cell Physiology** • Skin glands associated with hair follicles.	Assignment: Prepare a detailed description of skin glands and their relation to hair follicles.
Week 6	**Cell Physiology** Microscopic anatomy of the skin.	Assignment: Prepare a report on the microscopic structure of skin and its functions.
Week 7	**Nerve and Muscle Physiology** • Structure and function of neurons.	Assignment: Write a paper on the anatomy of neurons and their roles in the body.
Week 8	**Nerve and Muscle Physiology** • Physiological characteristics of nerve fibers.	Assignment: Create a chart comparing different types of nerve fibers and their characteristics.
Week 9	**Nerve and Muscle Physiology** • Action potentials. • Nerve impulse conduction.	Assignment: Explain the process of action potential generation and nerve impulse conduction in detail.
Week 10	**Nerve and Muscle Physiology** • Mechanisms of nerve degeneration and repair. • Role and function of synapses in signal transmission. • Structural and physiological properties of muscles.	Assignment: Research and summarize mechanisms of nerve degeneration and repair.

Week 11	**Nerve and Muscle Physiology** • Contraction mechanisms in skeletal muscles. • Comparison of skeletal, cardiac, and smooth muscle contraction.	Assignment: Write a comparative essay on the contraction mechanisms of skeletal, cardiac, and smooth muscles.
Week 12	**Nerve and Muscle Physiology** • Functionality of neuromuscular junctions and signal relay. • Process of excitation-contraction coupling.	Assignment: Explain the process of excitation-contraction coupling and the role of neuromuscular junctions.
Week 13	**Nerve and Muscle Physiology** • Anatomy and physiology of motor unit function.	Assignment: Research and describe the function of a motor unit and its role in muscle contraction.
Week 14	**Blood** • Overview of blood composition and its general functions. • Roles and functions of plasma proteins. • Production of red blood cells and the process of erythropoiesis. • Structure, production, and functional differences of hemoglobin types. • Mechanisms of iron absorption, storage, and metabolism. • Platelet function, production, and role in hemostasis.	Assignment: Write a detailed report on the composition of blood and its various functions.
Week 15	**Blood** • Blood clotting pathways and mechanisms. • Functions and roles of white blood cells in immunity. • Blood grouping and transfusion processes. • Understanding transfusion incompatibility, including ABO and Rh systems.	Assignment: Prepare a report on blood clotting mechanisms and their clinical importance.
Week 16	**Blood** • Functional anatomy and roles of the reticuloendothelial system, focusing on organs like tonsils, lymph nodes, and the spleen. • Hematopoiesis and the development of the reticuloendothelial system.	Assignment: Research and summarize the functions of the reticuloendothelial system and its related organs.
Lab Work		
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 **Hematology** • Use of the microscope • Determination of haemoglobin • Determination of erythrocyte sedimentation rate • Determining packed cell volume • Measuring bleeding and clotting time • RBC count • Red cell indices • WBC count • Leukocyte count		

- Prothrombin and thrombin time

Respiratory System

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

Textbooks and Reading Material

Textbooks.

1. **Vander's Human Physiology: The Mechanisms of Body Function** by Eric P. Widmaier, Hershel Raff, and Kevin T. Strang
2. **Medical Physiology** by Walter F. Boron and Emile L. Boulpaep
3. **Essentials of Medical Physiology** by K. Sembulingam and Prema Sembulingam

Teaching Learning Strategies

- **Interactive Lectures**
  Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
- **Collaborative Learning**
  Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
- **Case Studies**
  Use case studies to explore real-life examples of communication in business, academic, and casual settings.
- **Role-Playing and Simulations**
  To practice persuasive speaking, public speaking, and informal conversations.
- **Technology Integration**
  Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

- Quiz-1
- Quiz-II
- Presentation
- Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-103	Credit Hours	3(2+1)
Course Title	**Kinesiology – I**				

Course Introduction

This course emphasizes the study of mechanical and anatomical principles in human movement. It equips students with the knowledge and skills needed to assess kinesiology-related issues and address muscular imbalances or dysfunctions in clinical practice. The curriculum integrates the analysis of individual and group movements, focusing on the impact of forces like gravity and resistance on the human body. By mastering these principles, students will gain the confidence and competence to design exercises aimed at enhancing physical rehabilitation outcomes.

Learning Outcomes

- Explain the mechanical principles governing human motion.
- Illustrate the mechanics of movement and how it occurs in the body.
- Understand the importance of posture, its effects, and practical applications.
- Differentiate between effective and ineffective body movements and adopt strategies for rehabilitation.
- Cultivate critical thinking in selecting and evaluating techniques suitable for rehabilitation.
- Describe the anatomy of muscles, focusing on their role in countering gravity and external forces.

Course Content		Assignments/Readings
Week 1	**Introduction to Kinesiology** • Overview of Physical Therapy and Rehabilitation. • Definition and Scope of Kinesiology.	Assignment: Write a brief on Physical Therapy and Rehabilitation.
Week 2	**Mechanics** • Fundamental Principles of Mechanics and Body Postures. • Forces: Types, Sources, and Practical Applications. • Understanding Center of Gravity and its Relevance. • Analysis of Stability, Balance, and Equilibrium.	Assignment: Analyze a body posture and identify forces acting on it.
Week 3	**Fixation and Stabilization** • Principles of stabilizing the body during movement. • Mechanical foundations of movement control.	Assignment: Case study on stabilization during a physical activity.
Week 4	**Movement Mechanics** • Axes and planes of motion. • Key concepts: Speed, velocity, and acceleration. • Properties of motion: Momentum, inertia, and friction.	Assignment: Create diagrams of axes and planes of motion.
Week 5	**Movement Mechanics** • Application of levers and pulleys in the human body. • Factors influencing the angle of pull.	Assignment: Research on levers and their types in the human body.
Week 6	**Introduction to Movement** • Categories of posture and movement. • Movement patterns and their coordination.	Assignment: Identify and describe common human movement patterns.
Week 7	**Introduction to Movement** • Timing and rhythm in human motion. • The role of the nervous system in controlling movement.	Assignment: Discuss the role of the nervous system in a specific movement.
Week 8	**Introduction to Movement** • Categories of posture and movement. • Movement patterns and their coordination.	Assignment: Analyze a movement pattern and its coordination.
Week 9	**Introduction to Movement** • Timing and rhythm in human motion. • The role of the nervous system in controlling movement.	Assignment: Create a report on the role of timing in sports performance.

Week 10	**Starting Positions** • Defining basic and advanced positions. • Key foundational postures: Standing, kneeling, sitting, lying, and hanging.	Assignment: List key postures and their variations in daily activities.
Week 11	**Starting Positions** • Exploring the pelvic tilt and its relevance to movement.	Assignment: Write a detailed report on pelvic tilt and its impact on movement.
Week 12	**Posture** • Comparison of active and inactive postures. • Mechanisms of maintaining proper posture.	Assignment: Observe and compare postural habits in different individuals.
Week 13	**Posture** • Identifying patterns of postural alignment. • Fundamentals of re-education for posture correction.	Assignment: Develop a posture correction plan.
Week 14	**Posture** • Techniques for preventing muscle wasting. • Understanding abnormal postures and their implications.	Assignment: Research abnormal postures and suggest corrective exercises.
Week 15	**Muscle Strength and Action** • Different types of muscle contractions.	Assignment: Create a table comparing different types of muscle contractions.
Week 16	**Muscle Strength and Action** • Different types of muscle contractions. • Overview of muscle tone and its importance in movement.	Assignment: Analyze muscle tone in different types of physical activities.

Lab work

- Evaluation of posture
- Practical demonstrations of muscles work and its ranges
- Practical demonstrations of various fundamental positions and posture analysis.

MANUAL MUSCLE TESTING

- Fundamentals of muscle testing
- Methods of muscle recording
  - Upper Extremity
  - Lower Extremity
- Practical demonstrations of the techniques of passive movements
- Practical demonstrations of relaxation procedures
- Practical demonstrations of various derived positions

Goniometry

- Introduction to Goniometry
- Basic concepts in Goniometry
- Joint motion
- Range of motion
- Factors affecting ROM
- End-feel
- Capsular and non capsular pattern of ROM limitation
- Procedures
- Positioning
- Stabilization
- Measurements Instruments
- Alignment
- Recording
- Procedures
- Validity and Reliability
- Reliability Studies
- Mathematical methods of evaluation measurement reliability

- Exercise to evaluate reliability
- Measurement of upper extremity
- Measurement of lower extremity
- Measurement of tempomendibular joint
- Measurement of the cervical spine
- Measurement of the thoracic spine
- Measurement of the lumber joint
- Average range of motion
- Joint measurement by body position

Textbooks and Reading Material

Textbooks.

- Therapeutic Exercise: Foundations and Techniques by Carolyn Kisner and Lynn Allen Colby
- Kinesiology of the Musculoskeletal System: Foundations for Rehabilitation by Donald A. Neumann
- Joint Range of Motion and Muscle Length Testing by Nancy Berryman Reese and William D. Bandy
- Muscles: Testing and Function with Posture and Pain by Florence Peterson Kendall, Elizabeth Kendall McCreary, and Patricia Geise Provance
- Fundamentals of Biomechanics: Equilibrium, Motion, and Deformation by Duane Knudson

Teaching Learning Strategies

- **Interactive Lectures**
  Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
- **Collaborative Learning**
  Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
- **Case Studies**
  Use case studies to explore real-life examples of communication in business, academic, and casual settings.
- **Role-Playing and Simulations**
  To practice persuasive speaking, public speaking, and informal conversations.
- **Technology Integration**
  Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

- Quiz-1
- Quiz-II
- Presentation
- Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-104	Credit Hours	2(2+0)
Course Title	Medical Sociology				

Course Introduction

Medical Sociology is an essential course for students pursuing a Doctor of Physiotherapy(DPT) degree. It provides an in-depth understanding of the social, cultural, and economic factors that influence health, illness, and the healthcare system. The course will explore the relationship between society and health, focusing on how social factors like class, race, gender, and culture affect access to healthcare, health outcomes, and the delivery of medical services. It will also introduce students to the role of healthcare professionals in the broader social context.

Learning Outcomes

By the end of this course, students will:

- **Understand the Sociological Aspects of Health**: Learn how various social determinants, including class, race, gender, and culture, impact health and well-being.
- **Analyze the Healthcare System**: Gain knowledge of how healthcare systems are structured and the societal forces that shape them.
- **Develop Cultural Competency**: Understand the role of cultural competence in healthcare and how to address health disparities across diverse populations.
- **Explore Health Inequality**: Examine the factors contributing to health disparities and how these affect treatment, rehabilitation, and overall health outcomes.
- **Understand the Role of Professionals**: Reflect on the role of healthcare professionals, including physical therapists, in addressing both the social and clinical aspects of health.
- **Explore Social Change in Healthcare**: Investigate current and emerging social trends in healthcare and the challenges faced by health systems and professionals.

Course Content (Theory)		Assignments/Readings
Week 1	Introduction to Medical Sociology (Sociological perspectives on health, role of healthcare professionals)	500-word reflection on personal healthcare experiences; Read: Introduction to Medical Sociology
	Social Determinants of Health (Impact of income, education, environment on health)	Identify a social determinant and analyze its impact; Read: Social Determinants of Health
Week 2	Class, Race, Gender, and Health (Socioeconomic status, health disparities, gender roles)	Research and present on a specific health disparity; Read: Race, Class, Gender, and Health
	Healthcare Systems and Policies (Types of healthcare systems, health insurance models)	Compare healthcare systems of two countries; Read: Healthcare Systems and Policy
Week 3	Health Inequality and Disparities (Causes and consequences of health disparities)	Write an essay on health inequalities in rehabilitation; Read: Health Inequality and Disparities
	Cultural Competence in Healthcare (Improving cultural competence in physical therapy)	Create a cultural competence plan for a clinic; Read: Cultural Competence in Healthcare
Week 4	Social Construction of Illness and Disability (Illness and disability in society)	Analyze a case where disability was socially constructed; Read: Social Construction of Illness and Disability
	The Medicalization of Society (Defining human conditions as medical problems)	Discuss an example of medicalization in physical therapy; Read: The Medicalization of Society
Week 5	Healthcare and Social Stigma (Stigma in healthcare, its impact on access)	Case study on stigma's effect on rehabilitation; Read: Stigma and Healthcare
	Health and the Aging Population (Healthcare needs of the elderly, role of PT)	Research an elderly health challenge and how PT addresses it; Read: Health and Aging

Week 6	Mental Health and Society (Mental health issues in healthcare, PT's role)	Analyze PT's role in mental health rehabilitation; Read: Mental Health and Society
	Global Health and Social Issues (Global health crises, social determinants)	Write on PT's role in a global health crisis; Read: Global Health Issues
Week 7	Technology in Healthcare (Impact of telemedicine, digital health records)	Research telehealth in PT and present a case study; Read: Technology and Healthcare
	Patient-Provider Relationships (Trust, empathy, therapeutic communication)	Conduct a patient interview simulation; Read: The Patient-Provider Relationship
Week 8	Social Change in Healthcare (Social movements, innovations in healthcare)	Paper on how social change will impact PT practices; Read: Social Change and Healthcare
	Midterm Exam Preparation (Recap of key concepts)	Study for midterm exam; Review all previous chapters
Week 9	Health and Social Networks (Role of family, friends in health outcomes)	Case study on social networks impacting rehabilitation; Read: Social Networks and Health
	Health Behavior and Socialization (Socialization processes and health behavior change)	Research a health behavior change model for PT; Read: Health Behavior and Socialization
Week 10	Health, Disease, and the Environment (Environmental impacts on health)	Investigate environmental factors affecting rehab outcomes; Read: Health, Disease, and the Environment
	Social Roles in Healthcare (Roles of patients, doctors, therapists in care)	Write about PT's role in chronic disease management; Read: Social Roles in Healthcare
Week 11	Chronic Illness and Disability (Long-term care, chronic illness impact)	Case study of chronic illness and its sociological impact; Read: Chronic Illness and Disability
	Health and Social Policy (How health policies affect social groups)	Analyze a health policy's effect on PT care; Read: Health and Social Policy
Week 12	Healthcare Access and Equity (Factors influencing access, health equity)	Research barriers to healthcare access and suggest improvements; Read: Healthcare Access and Equity
	Rehabilitation and Society (Social factors influencing rehab outcomes)	Discuss how social factors affect rehab strategies; Read: Rehabilitation and Society
Week 13	Social Epidemiology (Social factors in disease distribution)	Write an essay on PT's contribution to disease prevention; Read: Social Epidemiology
	Behavioral Health and Social Contexts (Link between behavior and society)	Create a treatment plan for a patient with behavioral health challenges; Read: Behavioral Health and Social Contexts
Week 14	Social Theory and Health (Applying sociological theories to healthcare)	Apply a sociological theory to a PT patient care scenario; Read: Social Theory and Health
	Health Promotion and Public Health (Principles of health promotion)	Analyze a public health initiative and its impact; Read: Health Promotion and Public Health
Week 15	Sociology of Health Behavior (Social norms and health behavior)	Discuss how social norms influence rehab practices; Read: Sociology of Health Behavior

	Health, Gender, and Sexuality (Impact of gender and sexuality on health)	Discuss how gender affects healthcare access in PT; Read: Health, Gender, and Sexuality
Week 16	Social Influences on Health Policies (Role of social forces in shaping health policies)	Evaluate a health policy and discuss social influences; Read: Social Influences on Health Policies
	Review and Final Exam Preparation (Recap and exam prep)	Study for final exam; Review all previous chapters

Textbooks and Reading Material

- The Sociology of Health and Illness Critical Perspectives,11th Edition byPeter Conrad, Valerie Leiter Published: June 2023
- Medical Sociology by William Cockerham, 15th Edition. B/W IllustrationsPublished September 30, 2021, by Routledge.
- A Sociology of Health by David Wainwright, 2008
- The Sociology of Health, Illness, and Health Care: A Critical Approach, 7th Edition by Rose Weitz, 2016.

Teaching Learning Strategies

1. **Interactive Lectures**
   Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
2. **Collaborative Learning**
   Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
3. **Case Studies**
   Use case studies to explore real-life examples of communication in business, academic, and casual settings.
4. **Role-Playing and Simulations**
   To practice persuasive speaking, public speaking, and informal conversations.
5. **Technology Integration**
   Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments: Types and Number with Calendar

1. Quiz-1
2. Quiz-II
3. Presentation
4. Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%.
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-105	Credit Hours	3(2+1)
Course Title	**Anatomy-II**				

Course Introduction

This course offers an extensive examination of the regional and systemic anatomical organization of the human body, with a particular emphasis on the structural and functional dynamics underpinning human movement. A detailed exploration of human anatomy is undertaken, focusing on the nervous, musculoskeletal, and circulatory systems to establish a holistic understanding. The foundational principles of general anatomy are further developed through the integration of practical methodologies, including the dissection and precise identification of anatomical structures utilizing advanced tools such as manikins and smart board systems. Complemented by the study of anatomical charts, models, preserved specimens, and radiographic imaging, the course prioritizes the identification and interpretation of anatomical landmarks and configurations specific to the lower limb, abdomen, and pelvic regions.

Learning Outcomes

- Analyze the gross anatomical organization of the neuro-musculoskeletal and circulatory systems of the lower limb, abdominal wall, and pelvis.
- Accurately identify and interpret anatomical landmarks and structural configurations of the lower limb, abdominal wall, and pelvic regions through detailed dissection and exploration using advanced instructional tools, such as manikins, anatomical charts, preserved specimens, and radiographic imaging.
- Elucidate the key stages of embryological development pertaining to the lower limb, emphasizing the integration and formation of neurological and vascular systems within the region

	Course Content	Assignments/Readings
Week 1	**Lower Limb Osteology** • Comprehensive analysis of all bones of the lower limb and pelvis, including their anatomical landmarks and structural details.	Comprehensive analysis of all bones of the lower limb and pelvis, including their anatomical landmarks and structural details.
Week 2	**Myology** • Muscles of the gluteal region. • Muscles surrounding the hip joint. • Muscles of the thigh. • Muscles of the lower leg and foot.	Muscles of the gluteal region. Muscles surrounding the hip joint. Muscles of the thigh. Muscles of the lower leg and foot.
Week 3	**Neurology** • Course, distribution, and functional significance of all nerves within the lower limb. • Structural and functional overview of the lumbosacral plexus.	Course, distribution, and functional significance of all nerves within the lower limb. Structural and functional overview of the lumbosacral plexus.
Week 4	**Angiology** • Vascular anatomy detailing the course, distribution, and drainage patterns of arteries, veins, and lymphatic vessels within the lower limb.	Vascular anatomy detailing the course, distribution, and drainage patterns of arteries, veins, and lymphatic vessels within the lower limb.

Week 5	**Arthrology**
	• Anatomical and functional analysis of:
	  ○ Hip joint.
	  ○ Knee joint.
	  ○ Ankle joint.
	  ○ Joints of the foot.
	• Surface anatomy and structural landmarks of the lower limb for clinical correlation.
		Anatomical and functional analysis of: Hip joint, Knee joint, Ankle joint, Joints of the foot. Surface anatomy and structural landmarks of the lower limb for clinical correlation.

Week 6	**Abdomen** **Abdominal Wall:** • Detailed analysis of the structures of the anterior abdominal wall, including superficial and deep musculature.	Detailed analysis of the structures of the anterior abdominal wall, including superficial and deep musculature. Examination of the

	• Examination of the rectus sheath and its structural organization.	rectus sheath and its structural organization.
Week 7	**Abdomen** **Abdominal Wall:** • Structural overview of the posterior abdominal wall. • Anatomy of the lumbar spine (vertebrae).	Structural overview of the posterior abdominal wall. Anatomy of the lumbar spine (vertebrae).
Week 8	**Abdomen** **Abdominal Wall:** • Concise overview of the abdominal viscera.	Concise overview of the abdominal viscera.
Week 9	**Pelvis:** • Comprehensive description of the anterior, posterior, and lateral pelvic walls.	Comprehensive description of the anterior, posterior, and lateral pelvic walls.
Week 10	**Pelvis:** • Study of the inferior pelvic wall and pelvic floor musculature.	Study of the inferior pelvic wall and pelvic floor musculature.
Week 11	**Pelvis:** • Structural and functional overview of the sacrum.	Structural and functional overview of the sacrum.
Week 12	**Pelvis:** • Detailed anatomy of the perineum and associated nerves	Detailed anatomy of the perineum and associated nerves.
Week 13	In-depth exploration of human developmental stages, including: • Gametogenesis, spermatogenesis, and oogenesis.	In-depth exploration of human developmental stages, including: Gametogenesis, spermatogenesis, and oogenesis.
Week 14	In-depth exploration of human developmental stages, including: • Fertilization and its sequential phases.	In-depth exploration of human developmental stages, including: Fertilization and its sequential phases.
Week 15	Embryology: • Germ layer differentiation.	Germ layer differentiation.
Week 16	Embryology: • Limb development, along with muscular and nervous system formation.	Limb development, along with muscular and nervous system formation.

Lab Work

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

Textbooks and Reading Material

1. **Gray's Anatomy for Students** by Richard L. Drake, A. Wayne Vogl, and Adam W. M. Mitchell
2. **Clinically Oriented Anatomy** by Keith L. Moore, Arthur F. Dalley, and Anne M. R. Agur
3. **Atlas of Human Anatomy** by Frank H. Netter
4. **Rohen's Photographic Anatomy Flash Cards** by Johannes W. Rohen and Elke Lütjen-Drecoll
5. **Essential Clinical Anatomy** by Keith L. Moore and Anne M. R. Agur
6. **Langman's Medical Embryology** by T.W. Sadler
7. **The Developing Human: Clinically Oriented Embryology** by Keith L. Moore, T.V.N. Persaud, and Mark G. Torchia
8. **Anatomy Trains: Myofascial Meridians for Manual Therapists and Movement Professionals** by Thomas W. Myers
9. **Snell's Clinical Anatomy by Regions** by Lawrence E. Wineski

Teaching Learning Strategies

- **Interactive Lectures**
  Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.

- **Collaborative Learning**
  Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
- **Case Studies**
  Use case studies to explore real-life examples of communication in business, academic, and casual settings.
- **Role-Playing and Simulations**
  To practice persuasive speaking, public speaking, and informal conversations.
- **Technology Integration**
  Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

- Quiz-1
- Quiz-II
- Presentation
- Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-106	Credit Hours	3(2+1)
Course Title	**Physiology-II**				

Course Introduction

This course Focuses on understanding human body functions at the molecular, cellular, tissue, and system levels. Emphasizes the relationship between the cardiovascular, gastrointestinal, and endocrine systems. Highlights physiological responses in both normal and diseased states with an integrative approach throughout the course.

Learning Outcomes

- Explain the roles of the gastrointestinal, endocrine, and cardiovascular systems.
- Analyze physiology at molecular, metabolic, cellular, tissue, and systemic scales.
- Distinguish physiological responses in healthy and pathological conditions.

	Course Content	Assignments/Readings
Week 1	**Gastrointestinal tract** • Overview of gastrointestinal system functions. • Role of the enteric nervous system. • Mechanisms of gastrointestinal movement and secretions.	Read: (Gastrointestinal System Functions). Assignment: Review of Enteric Nervous System and Its Role.
Week 2	**Gastrointestinal tract** • Regulation and control of swallowing. • Functions, motility, and secretion of the stomach. • Small intestine: functions, motility, and secretions.	Read: (Swallowing Mechanism and Stomach Functions). Assignment: Analysis of Small Intestine Functions.
Week 3	**Gastrointestinal tract** • Large intestine: motility and absorption. • Gastrointestinal hormones and their functions. • Vomiting reflex and pathways involved. • Defecation process and control mechanisms	Read: (Large Intestine and Hormones). Assignment: Case Study on Vomiting Reflex and Control Mechanisms.
Week 4	**Gastrointestinal tract** • Functions of the gallbladder and bile production. • Pancreatic endocrine and exocrine functions in digestion. • Dysphagia and related causes. • Acid-peptic disease: physiological basis	Read: (Gallbladder Functions and Pancreatic Secretions). Assignment: Case Analysis of Dysphagia and Peptic Disease.
Week 5	**Cardiovascular system** • Circulation and heart function • Cardiac muscle roles	Read: (Heart Function and Circulation). Assignment: Analysis of Cardiac Muscle Function.
Week 6	• Pacemaker and cardiac muscle contraction • Cardiac cycle dynamics	Read: (Cardiac Cycle and Pacemaker Function). Assignment: ECG Interpretation Exercise.

Week 7	• ECG: interpretation and recording
	• Common arrhythmias
	• Blood vessels and their roles
	• Blood flow regulation and control
	  ○ Local and systemic circulation
	  ○ Peripheral resistance and its impact
		Read: (ECG and Blood Flow Regulation). Assignment: ECG Case Studies and Blood Flow Regulation Analysis.

Week 8	• Arterial pressure • Blood pressure regulation	Read: (Blood Pressure and Regulation). Assignment: Case Study on Hypertension and Blood Pressure Control.
Week 9	• Cardiac output and its regulation • Heart sounds and murmurs: clinical relevance	Read: (Cardiac Output and Heart Sounds). Assignment: Heart Murmur Identification and Case Study.

Week 10	• Coronary circulation • Cerebral, pulmonary, and splanchnic circulation • Triple response and cutaneous blood flow	Read: (Coronary and Cerebral Circulation). Assignment: Review of Cutaneous Blood Flow and Response Mechanisms.
Week 11	**Endocrinology** • Endocrine Gland Classification • Hormone Secretion Mechanisms	Read: (Endocrine Glands and Hormone Mechanisms). Assignment: Endocrine Gland Review and Classification Exercise.
Week 12	• Feedback loops in hormone regulation • Hypothalamus functions	Read: (Hormone Feedback Mechanisms). Assignment: Analysis of Hypothalamic Function in Hormone Regulation.
Week 13	• Roles of anterior and posterior pituitary glands • Thyroid gland physiology • Parathyroid gland functions	Read: (Pituitary and Thyroid Glands). Assignment: Case Study on Thyroid Disorders and Pituitary Functions.
Week 14	• Calcium regulation and hormone action • Adrenal cortex and medulla: secreted hormones	Read: (Calcium Regulation and Adrenal Function). Assignment: Review of Calcium Homeostasis and Adrenal Disorders.
Week 15	• Pancreas function and blood sugar regulation • Kidney endocrine functions	Read: (Pancreatic and Kidney Functions). Assignment: Case Study on Diabetes and Kidney Endocrine Role.
Week 16	• Growth Physiology	Read: (Growth and Development Physiology). Assignment: Review of Growth Regulation Mechanisms.

Lab Work

Nervous System

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

Special Senses

- Measurement of the field of vision.
- Measurement of light reflex.
- Ophthalmoscopy.
- Colour vision.
- Hearing tests and Testing taste and smell.

Textbooks and Reading Material

Textbooks.

1. **Vander's Human Physiology: The Mechanisms of Body Function** by Eric P. Widmaier, Hershel Raff, and Kevin T. Strang
2. **Ganong's Review of Medical Physiology** by Kim E. Barrett, Susan M. Barman, Scott Boitano, and Heddwen Brooks
3. **Principles of Physiology** by Robert M. Berne and Matthew N. Levy (latest edition)
4. **Medical Physiology: A Systems Approach** by Rodney A. Rhoades and David R. Bell
5. **Essentials of Medical Physiology** by K. Sembulingam and Prema Sembulingam

Teaching Learning Strategies

- **Interactive Lectures**
  Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
- **Collaborative Learning**
  Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.

- **Case Studies**
  Use case studies to explore real-life examples of communication in business, academic, and casual settings.
- **Role-Playing and Simulations**
  To practice persuasive speaking, public speaking, and informal conversations.
- **Technology Integration**
  Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

- Quiz-1
- Quiz-II
- Presentation
- Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-107	Credit Hours	3(2+1)
Course Title	**Kinesiology-II**				

Course Introduction

This course delves into the intricacies of human motion, examining the diverse types of movements with respect to axes and planes. It offers a deeper exploration into the interdependence of kinematic variables and motion analysis, aiming to cultivate a profound understanding of the biomechanical and physiological principles underlying human activities.

Learning Outcomes

- Elaborate on the range of motion (ROM) and various classifications of human movements, encompassing different types of exercises and their practical applications.
- Distinguish between agonists, antagonists, and synergists within muscular activity, integrating theoretical knowledge with the practical observation of human motion during routine and specialized physical tasks.
- Demonstrate advanced relaxation methodologies, analyze derived postures, and evaluate the biomechanical effectiveness of different walking patterns.
- Identify and illustrate coordinated versus uncoordinated motor responses, highlighting their implications for overall motor function and rehabilitation practices.

	Course Content	Assignments/Readings
Week 1	**Types of movement & exercises** • Voluntary and involuntary movements • Active and passive movements • Classification and techniques of exercises • Principles, techniques, and effects of assisted exercises	Readings on types of movements; Assignment on classification of exercises
Week 2	**Types of movement & exercises** • Principles, techniques, and effects of resisted exercises • Variations in muscle power across different body parts • Progressive Resistance Exercise • Reflex Movement • The Reflex Arc	Readings on resisted exercises; Assignment on variations in muscle power
Week 3	**Passive movement** • The principles, types, and techniques of passive exercises and their effects • Definition of passive manual mobilization and manipulative techniques • Controlled sustained stretching: principles, effects, and applications	Readings on passive exercises; Assignment on passive mobilization techniques
Week 4	**Relaxation** • Definition • Muscle tone • Postural tone • Voluntary movement	Readings on muscle and postural tone; Assignment on voluntary movement
Week 5	**Relaxation** • Mental attitudes • Levels of relaxation • Pathological tension in muscles • Techniques of relaxation • General relaxation • Local relaxation	Readings on relaxation techniques; Assignment on levels of relaxation
Week 6	**Derived positions** • Purpose of derived positions • Positions derived from standing by altering the arms, legs, and trunk	Readings on derived positions; Assignment on positions from standing and kneeling

	• Positions derived from kneeling • Positions derived from sitting by altering the legs and body posture	
Week 7	**Derived positions** • Positions derived from lying by altering the arms and legs' alignment • Positions derived from hanging • Other positions with weight taken partially on the arm	Readings on lying and hanging positions; Assignment on altered body postures
Week 8	**Suspension therapy** • Applications of suspension therapy • Suspension of inclined plane • The fixed point suspension system • Supporting ropes and their types • The use of sling	Readings on suspension therapy; Assignment on types of suspension
Week 9	**Suspension therapy** • Types of suspension: axial and vertical • Techniques for upper limb and lower limb suspension	Readings on suspension techniques; Assignment on axial and vertical suspension
Week 10	**Suspension therapy** • Impact of suspension on muscle performance and joint mobility	Readings on muscle performance in suspension; Assignment on joint mobility
Week 11	**Neuromuscular coordination** • Coordinated movements • Group actions of muscles	Readings on neuromuscular coordination; Assignment on coordinated movements
Week 12	**Neuromuscular coordination** • Nervous system control	Readings on nervous system control of movement; Assignment on coordination
Week 13	**Neuromuscular coordination** • In-coordinated movements • Re-education of motor skills	Readings on in-coordination; Assignment on motor skill re-education
Week 14	**Neuromuscular coordination** • Re-education of motor skills • Frenkel's exercises	Readings on Frenkel's exercises; Assignment on motor skills re-education
Week 15	**Walking aids** • Crutches • Walking sticks	Readings on walking aids; Assignment on crutches and walking sticks
Week 16	**Walking aids** • Tripod or quadra pod • Frames	Readings on walking aids; Assignment on frames and mobility aids
Lab Work		

MANUAL MUSCLE TESTING
• Fundamentals of muscle testing
• Methods of muscle recording
  o Spine
  o Abdomen
  o Temporomandibular Joint
• Basic muscle grading system
• Practical demonstrations of the techniques of active, movements
• Practical demonstrations gait analysis		

Textbooks and Reading Material		
Textbooks. **1. Kinesiology of the Musculoskeletal System: Foundations for Rehabilitation** by Donald A. Neumann **2. Therapeutic Exercise: Foundations and Techniques**y Carolyn Kisner and Lynn Allen Colby		

3. **Muscles: Testing and Function with Posture and Pain** by Florence Peterson Kendall, Elizabeth Kendall McCreary, Patricia Geise Provance, Mary, Rodgers, and William Romani
4. **Joint Structure and Function: A Comprehensive Analysis** by Pamela K. Levangie and Cynthia C. Norkin (Alternate Edition)
5. **Clinical Sports Medicine** by Peter Brukner and Karim Khan

Teaching Learning Strategies

- **Interactive Lectures**
  Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
- **Collaborative Learning**
  Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
- **Case Studies**
  Use case studies to explore real-life examples of communication in business, academic, and casual settings.
- **Role-Playing and Simulations**
  To practice persuasive speaking, public speaking, and informal conversations.
- **Technology Integration**
  Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

- Quiz-1
- Quiz-II
- Presentation
- Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-108	Credit Hours	2(2+0)
Course Title	**Behavioral Sciences (Psychology & Ethics)**				

Course Introduction

This course aims to raise awareness about the psychosocial challenges individuals face, as well as those experienced by their key reference groups, across the health and disability spectrum. It explores personal and professional attitudes, values, and their impact on forming therapeutic relationships. Effective communication skills are emphasized to enhance interaction with clients, healthcare professionals, and others.

Learning Outcomes

1. Explain the psychological and ethical factors that influence values related to health promotion, wellness, illness, and disability.
2. Demonstrate the necessary skills for fostering effective relationships between physical therapists and clients to improve healthcare outcomes.

	Course Content	Assignments/Readings
Week 1	**Introduction of behavioral sciences** • Define behavioral sciences • Discuss its importance in health • Discuss bio-psycho-social model of healthcare	Reading: Define behavioral sciences and the bio-psycho-social model in healthcare. Assignment: Write a summary on the importance of behavioral sciences in health.
Week 2	**Behavior of individual** Nature/nurture debate Behaviorism and learning theories Behavioral modifications	Reading: Study the nature/nurture debate and key learning theories in behaviorism. Assignment: Compare and contrast behaviorism and other learning theories.
Week 3	**Cognition** • Cognition • Cognitive development throughout lifespan	Reading: Study the stages of cognitive development throughout the lifespan. Assignment: Write an essay on how cognition develops in different life stages.
Week 4	**Science of relationship** • Define and discuss communication skills, its types, • Modes, • Barriers • And factors affecting	Reading: Study different communication skills and barriers to effective communication. Assignment: Practice and analyze communication skills in health settings.
Week 5	**Science of relationship** • Discuss counseling: steps, contraindications in health setting • Scope • Indications	Reading: Study the steps and contraindications in counseling in health settings. Assignment: Analyze counseling cases and outline steps for effective counseling.
Week 6	**Science of relationship** • Discuss conflict management: dealing with real life crisis and conflict situations in health settings • Discuss interviewing and its psychosocial factors in health care.	Reading: Study conflict management strategies and the role of interviewing in healthcare. Assignment: Role-play conflict management in a healthcare scenario.
Week 7	**Science of relationship** • Define clinician-patient/client relationship • Discuss concept of boundaries and psychological reactions in clinician-patient relationship such as transference and counter transference.	Reading: Study clinician-patient relationships and the concept of psychological boundaries. Assignment: Discuss examples of transference and countertransference in healthcare.

Week 8	**Science of relationship** Discuss problem solving and decision making strategies in healthcare	Reading: Study different problem-solving and decision-making strategies used in healthcare. Assignment: Analyze a case and apply decision-making strategies.
Week 9	**Stress management** • Define and classify stress • Discuss effects of stress on health and • Coping strategies	Reading: Study the classification of stress and its effects on health. Assignment: Research and list effective stress management strategies in healthcare.
Week 10	**Stress management** • Discuss relationship of stress and stressors with illness • Define anxiety • Discuss psychological defense mechanisms, adjustment and maladjustment	Reading: Study the link between stress and illness, anxiety, and psychological defense mechanisms. Assignment: Write a paper on the effects of stress on physical and mental health.
Week 11	**Application of behavioral principles in health and disease** • Importance of psychological consideration in physical therapy • Management of mentally, emotionally and physically compromised patients • terminally ill and home bound patients	Reading: Study the role of psychological considerations in physical therapy. Assignment: Discuss the management of mentally compromised patients in a physical therapy setting.
Week 12	**Ethics** • Define ethics, • Medical ethics, and values, • Value system, • virtues, mores, • Moral rules and morality	Reading: Study the concepts of ethics, medical ethics, and moral rules. Assignment: Write an essay on the role of ethics in healthcare professions.
Week 13	**Ethics** Discuss principle based approach for physical therapist in ethics such as: non-maleficence, beneficence, autonomy, fidelity, veracity, paternalism, and justice	Reading: Study the principle-based ethical approach for healthcare professionals. Assignment: Analyze real-life healthcare scenarios using ethical principles.
Week 14	**Ethics** • Discuss ethical theories • Discuss code of ethics for physical therapist	Reading: Study the main ethical theories and the code of ethics for physical therapists. Assignment: Write a report on the code of ethics for physical therapists.
Week 15	**Ethics** • Discuss ethical dimension of the physical therapist patient relationship, • Confidentiality	Reading: Study the ethical dimensions of the physical therapist-patient relationship, focusing on confidentiality. Assignment: Discuss confidentiality in physical therapy practice.
Week 16	**Ethics** • Information sharing • informed consent and • Ethical dilemmas	Reading: Study information sharing, informed consent, and ethical dilemmas in healthcare. Assignment: Write a case study on an ethical dilemma in healthcare involving informed consent.

Textbooks and Reading Material

1. Rana MH, Ali S & Mustafa M. A handbook of behavioral sciences for medical and dental students. 2nd ed. Lahore: university of health sciences; 2013.
2. Dowrick C. Medicine in society: behavioral sciences for medical students. CRC Press; 2001
3. Purtilo RB & Doherty RF. Ethical dimensions: in the health professions. 6th ed. St. Louis: Elsevier; 2016

Teaching Learning Strategies
Interactive Lectures Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors. **Collaborative Learning** Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations. **Case Studies** Use case studies to explore real-life examples of communication in business, academic, and casual settings. **Role-Playing and Simulations** To practice persuasive speaking, public speaking, and informal conversations. **Technology Integration** Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.
Assignments
Quiz-1 Quiz-II Presentation Professional Writing Assignments
Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-109	Credit Hours	2(2+0)
Course Title	**Bio Physics**				

Course Introduction

The Biophysics course for Allied Health Sciences undergraduates provides a foundation in the physical principles governing biological systems. It explores the intersection of physics, biology, and chemistry, covering topics like energy transfer, biomechanics, nerve impulses, and medical imaging technologies such as X-rays and MRIs.

Learning Outcomes

- Understand key biophysical principles and apply them to biological systems.
- Explain the physics behind human physiological processes.
- Assess and describe medical technologies and their biophysical foundations.
- Use biophysical techniques to study biological materials.
- Solve problems using mathematical and physical reasoning in health contexts.
- Communicate biophysical concepts clearly in academic or clinical settings.
- Understand how biophysics relates to health, disease, and medical treatments.

Course Content		Assignments/Readings
Week 1	Basic principles of different forms of energy - Heat and Thermodynamics	Read textbook chapters on energy forms and thermodynamics. Assignment on energy conversion in biological systems.
Week 2	Concept of entropy	Read about entropy in biological processes. Solve problems related to entropy in living organisms.
Week 3	Enthalpy and Gibb's free energy	Review thermodynamic principles of enthalpy and Gibbs free energy. Assignment on calculating Gibbs free energy.
Week 4	Boltzmann distribution	Study Boltzmann distribution in biological systems. Complete problems on energy distribution.
Week 5	Molecular Transport in living cells	
Week 6	Diffusion, random motion, diffusion equation	Read chapters on diffusion and random motion. Assignment on diffusion equation and its biological applications.
Week 7	Osmosis, osmotic pressure in liquid and gas	Review osmosis principles. Complete problem sets on osmotic pressure in cells.
Week 8	Diffusion across membrane	Study membrane transport processes. Complete assignment on diffusion across biological membranes.
Week 9	Membrane potential	Read about membrane potential and its role in cellular function. Solve problems on membrane potentials.
Week 10	Methods of studying macromolecules	
Week 11	Viscosity measurements	Read about viscosity in macromolecular systems. Complete assignment on viscosity measurement techniques.
Week 12	Chromatographic methods; and free-boundary electrophoresis	Review chromatographic methods and electrophoresis. Complete an assignment on separation techniques.

Week 13	Sedimentation velocity, and sedimentation equilibrium	Study sedimentation techniques in molecular biology. Complete problem set on sedimentation velocity.
Week 14	Interactions of molecules in 3-D space - determining binding and dissociation constants	
Week 15	Intermolecular interactions	Read about intermolecular interactions in biomolecules. Assignment on calculating binding constants.
Week 16	Intramolecular interactions	Study intramolecular forces and interactions. Complete assignment on molecular forces within proteins.

Textbooks and Reading Material

1. **Introduction to Biophysics** by Arthur W. B. Jackson – Covers foundational biophysical principles including thermodynamics and molecular transport.
2. **Physical Biology of the Cell** by Rob Phillips, Jane Kondev, and Julie Theriot – Explores physical principles behind cellular processes and biomolecular structure

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-110	Credit Hours	2 (2+0)
Course Title	Pakistan Studies				

Course Introduction

This course is designed to provide students with a comprehensive exploration of Pakistan`s identity, spanning geographical, historical, and cultural dimensions. It delves into the diverse landscapes, ancient civilizations, and rich cultural heritage that define Pakistan. Moreover, it examines the socio-cultural and political transformations in Pakistan over time including democratic transitions and military interventions. The aim of this course is to inculcate in students a nuanced understanding of Pakistan`s, present, and potential future trajectories, enabling them to critically evaluate the complex dynamics shaping the development.

Learning Outcomes

On the completion of the course, the students will:

1. Have enhanced knowledge of the geographical, historical, and political aspects of Pakistan.
2. Understand the society and culture of Pakistan.
3. Understand explain the Socio-economic developments in Pakistan.
4. Explore contemporary issues and challenges faced by Pakistan and their implications for the future..

Course Content

1. **Introduction to Pakistan**
   - Geographical location and significance.
   - Historical background ancient civilizations in the region.
   - Factors leading to the creation of Pakistan
2. **Political History of Pakistan:**
   - Formative phase.
   - Military interventions and democratic transitions.
3. **Geography of Pakistan:**
   - Physiography: Mountains, Plains, Plateaus, deserts, valleys and coastal areas.
   - River systems: Indus River and its tributaries.
   - Climatic regions of Pakistan.
4. **Society and Culture of Pakistan:**
   - Socio-cultural diversity.
   - Languages and literature of Pakistan.
5. **Economic Development of Pakistan:**
   - Agriculture and industrial sectors of Pakistan.
   - Economic challenges of Pakistan.

Teaching Learning Strategies

1. **Interactive Lectures**
   Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
2. **Collaborative Learning**
   Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
3. **Case Studies**
   Use case studies to explore real-life examples of communication in business, academic, and casual settings.
4. **Role-Playing and Simulations**
   To practice persuasive speaking, public speaking, and informal conversations.
5. **Technology Integration**
   Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments: Types and Number with Calendar

1. Quiz-1
2. Quiz-II
3. Presentation
4. Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-201	Credit Hours	3(2+1)
Course Title	**Biomechanics And Ergonomics-I**				

Course Introduction

This course provides an in-depth understanding of how mechanical principles are applied to analyze the causes and mechanics of human movement. It explores the anatomical, structural, and functional properties of human connective tissues, muscles, nervous tissues, and skeletal systems. Emphasis is placed on the mechanical, neuroregulatory, and muscular factors that influence both normal and pathological motion. Additionally, the course introduces foundational concepts, principles, and techniques of ergonomics. Students will gain proficiency in using ergonomic assessment tools to evaluate physical workload, posture, occupational exposure, and stress.

Learning Outcomes

Students will be able to:

- Define key concepts and terminology related to biomechanics.
- Explain the principles of statics, kinematics, and kinetics in human movement.
- Analyze and describe body or system motion using both qualitative and quantitative approaches.
- Demonstrate understanding of how movement pattern modifications impact the load on musculoskeletal tissues during activity.
- Apply biomechanical principles and concepts to understand human movement in the upper and lower extremities.

	Course Content	Assignments/Readings
Week 1	**Introduction to Biomechanics** • Basic Terminology: Biomechanics, Mechanics, Dynamics, Statics • Kinematics, Kinetics, and Anthropometries • Scope of scientific inquiry addressed by biomechanics	Readings on basic terminology in biomechanics; Assignment on biomechanical concepts and scope of study
Week 2	**Introduction to Biomechanics** • Quantitative vs. Qualitative Approaches for Analyzing Human Movement	Readings on different approaches in biomechanics; Assignment on qualitative and quantitative analysis methods
Week 3	**Kinematic Concepts for Analyzing Human Motion** • Common Units of Measurement: Mass, Force, Weight, Pressure, Volume, Density, Specific Weight, Torque, Impulse	Readings on kinematic concepts and measurement units; Assignment on units of measurement biomechanics
Week 4	**Kinematic Concepts for Analyzing Human Motion** • Types of Mechanical Loads Acting on the Human Body • Uses of Instrumentation for Measuring Kinetic Quantities	Readings on mechanical loads and instrumentation; Assignment on types of loads and instrumentation use
Week 5	**Biomechanics of Tissues and Structures** • Biomechanics of Bone and Articular Cartilage	Readings on bone and cartilage biomechanics; Assignment on the properties of bones and cartilage
Week 6	**Biomechanics of Tissues and Structures** • Biomechanics of Tendons, Ligaments, Peripheral Nerves, and Spinal Nerve Roots	Readings on biomechanics of tendons, ligaments, and nerves; Assignment on the role of connective tissues in biomechanics
Week 7	**Biomechanics of Tissues and Structures** • Biomechanics of Skeletal Muscles	Readings on skeletal muscle biomechanics; Assignment on muscle properties and functions in biomechanics
Week 8	**Biomechanics of Tissues and Structures** • Comparative Analysis of Biomechanical Properties in the Musculoskeletal System	Readings on comparative biomechanics of musculoskeletal tissues; Assignment on comparison of musculoskeletal properties

Week 9	**Biomechanics of the Human Upper Extremity** • Biomechanics of the Shoulder and Elbow	Readings on biomechanics of the upper extremity joints; Assignment on shoulder and elbow joint mechanics
Week 10	**Biomechanics of the Human Upper Extremity** • Biomechanics of the Wrist and Hand • Factors Influencing Mobility and Stability of Upper Extremity Articulations	Readings on wrist, hand, and upper extremity mobility; Assignment on wrist and hand biomechanics
Week 11	**Biomechanics of the Human Upper Extremity** • Muscle Activity in Upper Extremity Movements • Biomechanical Contributions to Common Upper Extremity Injuries	Readings on muscle activity and upper extremity injuries; Assignment on biomechanical contributions to injuries
Week 12	**Biomechanics of the Human Lower Extremity** • Biomechanics of the Hip and Knee • Biomechanics of the Ankle and Foot	Readings on biomechanics of lower extremity joints; Assignment on hip, knee, ankle, and foot biomechanics
Week 13	**Biomechanics of the Human Lower Extremity** • Factors Influencing Mobility and Stability of Lower Extremity Articulations	Readings on factors influencing lower extremity mobility; Assignment on the mobility and stability of lower extremity joints
Week 14	**Biomechanics of the Human Lower Extremity** • Weight-Bearing Functions of the Lower Extremity • Muscle Activity in Lower Extremity Movements • Biomechanical Contributions to Common Lower Extremity Injuries	Readings on weight-bearing and muscle activity; Assignment on lower extremity injuries and weight-bearing functions
Week 15	**Ergonomics** • Overview and Conceptual Framework: Introduction to Ergonomics, Client-Centered Framework, Macroergonomics • Balance through kidney function	Readings on the introduction to ergonomics and client-centered framework; Assignment on macroergonomics and kidney function balance
Week 16	**Ergonomics** • Knowledge, Tools, and Techniques: o Ergonomic/Work Assessments and Anthropometry o Cognitive and Behavioral Occupational Demands o Psychosocial Factors in Work-Related Musculoskeletal Disorders o Human Factors in Medical Rehabilitation Equipment	Readings on ergonomic assessments, cognitive demands, and psychosocial factors; Assignment on ergonomics and human factors in medical equipment

Lab Work

- Evaluation of posture
- Practical demonstrations of muscles work and its ranges
- Practical demonstrations of various fundamental positions and posture analysis.
- **MANUAL MUSCLE TESTING**
- Fundamentals of muscle testing
- Methods of muscle recording
  - Upper Extremity
  - Lower Extremity
- Practical demonstrations of the techniques of passive movements
- Practical demonstrations of relaxation procedures
- Practical demonstrations of various derived positions
- Goniometry
- Introduction to Goniometry
- Basic concepts in Goniometry
- Joint motion
- Range of motion
- Factors affecting ROM
- End-feel
- Capsular and non-capsular pattern of ROM limitation

- Procedures, Positioning, Stabilization
- Measurements Instruments
- Alignment
- Recording
- Procedures
- Validity and Reliability
- Reliability Studies
- Mathematical methods of evaluation measurement reliability
- Exercise to evaluate reliability
- Measurement of upper extremity
- Measurement of lower extremity
- Measurement of tempomendibular joint
- Measurement of the cervical spine
- Measurement of the thoracic spine
- Measurement of the lumber joint
- Average range of motion
- Joint measurement by body position

Textbooks and Reading Material

Textbooks.

1. Introduction to Sports Biomechanics: Analysing Human Movement Patterns" by Roger Bartlett
2. "Kinesiology of the Musculoskeletal System: Foundations for Rehabilitation" by Donald A. Neumann
3. "Occupational Biomechanics" by Don B. Chaffin, Gunnar B.J. Andersson, and Bernard J. Martin
4. "Ergonomics: How to Design for Ease and Efficiency" by Karl Kroemer

Teaching Learning Strategies

- **Interactive Lectures**
  Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
- **Collaborative Learning**
  Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
- **Case Studies**
  Use case studies to explore real-life examples of communication in business, academic, and casual settings.
- **Role-Playing and Simulations**
  To practice persuasive speaking, public speaking, and informal conversations.
- **Technology Integration**
  Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

- Quiz-1
- Quiz-II
- Presentation
- Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-202	Credit Hours	2(2+0)
Course Title	**Biochemistry-I**				

Course Introduction

This course provides foundational knowledge and essential skills in organic chemistry and introductory biochemistry, forming a basis for advanced studies. It includes an introduction to key biomolecules such as amino acids, proteins, carbohydrates, lipids, enzymes, and nucleic acids. The course concludes with a focus on nutritional biochemistry.

Learning Outcomes

Students will be able to:

- Explain the chemistry of cells and body fluids in the context of human biochemistry.
- Describe the properties, classifications, and functions of biomolecules, with an emphasis on amino acids, peptides, proteins, enzymes, carbohydrates, lipids, and nucleic acids.
- Discuss the significance of nutritional biochemistry, highlighting minerals, trace elements, vitamins, and balanced diets.

	Course Content	Assignments/Readings
Week 1	**Cell Biochemistry** • Introduction to Biochemistry • Biochemical Aspects of the Cell	Reading: Introduction to Biochemistry; Assignment: Cell Biochemistry Quiz
Week 2	**Cell Biochemistry** • Cell Membrane Structure • Membrane Proteins • Receptors and Signal Molecules	Reading: Membrane Structure and Function; Assignment: Membrane Protein Functions
Week 3	**Body Fluids** • Structure and Properties of Water • Weak Acids and Bases	Reading: Water and Acid-Base Chemistry; Assignment: Water Properties Worksheet
Week 4	**Body Fluids** • Concept of pH and pK • Buffers, Mechanism of Action, and Body Buffers	Reading: pH and Buffer Systems; Assignment: pH and Buffer Calculations
Week 5	**Amino Acids, Peptides, and Proteins** • Amino Acids: Classification, Acid-Base Properties, Functions, and Significance • Protein Structure: Primary, Secondary, and Super secondary Structures, and Structural Motifs	Reading: Amino Acids and Protein Structure; Assignment: Amino Acid Identification
Week 6	**Amino Acids, Peptides, and Proteins** • Tertiary and Quaternary Structures of Proteins • Protein Domains and Classification • Fibrous Proteins (Collagens and Elastins) and Globular Proteins	Reading: Protein Structure and Function; Assignment: Protein Structure Diagram
Week 7	**Enzymes** • Introduction to Enzymes • Classification and Properties of Enzymes	Reading: Enzymes: Structure and Classification; Assignment: Enzyme Function and Classification Quiz
Week 8	**Enzymes** • Coenzymes, Isozymes, and Proenzymes • Regulation of Enzyme Activity • Enzyme Inhibitors and Clinical Diagnostic Enzymology	Reading: Enzyme Regulation and Inhibition; Assignment: Enzyme Inhibitors Case Study
Week 9	**Carbohydrates** • Definition, Classification, Biochemical Functions, and Significance of Carbohydrates • Structure and Properties of Monosaccharides and Oligosaccharides	Reading: Carbohydrates: Structure and Functions; Assignment: Carbohydrate Classification

Week 10	**Carbohydrates** • Structure and Properties of Polysaccharides • Bacterial Cell Wall, Heteropolysaccharides, and GAGs	Reading: Polysaccharides and GAGs; Assignment: Polysaccharide Structure Quiz
Week 11	**Lipids** • Classification of Lipids and Fatty Acids: Chemistry, Occurrence, and Functions • Structure and Properties of Triacylglycerols and Complex Lipids	Reading: Lipid Classification and Functions; Assignment: Lipid Classification Activity
Week 12	**Lipids** • Eicosanoids: Classification and Functions • Cholesterol: Chemistry, Functions, and Clinical Significance • Bile Acids/Salts	Reading: Lipid Signaling and Cholesterol; Assignment: Eicosanoids and Cholesterol Case Study
Week 13	**Nucleic Acids** • Nucleotides: Structure, Functions, and Biochemical Role and DNA: Structure and Functions and RNA: Structure and Functions	Reading: Nucleic Acids: DNA and RNA; Assignment: Nucleotide Structure Quiz
Week 14	**Nutritional Biochemistry – Minerals and Trace Element** • Sources, RDA, Functions, and Clinical Significance of Calcium, Phosphorus, Sodium, Potassium, and Chloride	Reading: Minerals and Trace Elements; Assignment: Mineral Function Worksheet
Week 15	**Nutritional Biochemistry – Minerals and Trace Element** • Metabolism of Iron, Copper, Zinc, Magnesium, Manganese, Selenium, Iodine, and Fluoride	Reading: Mineral Metabolism; Assignment: Trace Elements Case Study
Week 16	**Vitamins and Nutrition** • Vitamins: Sources, RDA, Functions, and Clinical Significance of Fat- and Water-Soluble Vitamins • Dietary Importance of Carbohydrates, Lipids, and Proteins and Balanced Diet	Reading: Vitamins and Balanced Diet; Assignment: Balanced Diet Analysis

Textbooks and Reading Material

Textbooks.

1. **"Lehninger Principles of Biochemistry"** by David L. Nelson and Michael M. Cox
2. **"Biochemistry"** by Jeremy M. Berg, John L. Tymoczko, and Gregory J. Gatto
3. **"Marks' Basic Medical Biochemistry: A Clinical Approach"** by Michael Lieberman and Alisa Peet
4. **"Clinical Biochemistry and Metabolic Medicine"** by Martin Crook
5. **"Essentials of Medical Biochemistry: With Clinical Cases"** by N. V. Bhagavan and Chung-Eun Ha

Teaching Learning Strategies

- **Interactive Lectures**
  Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
- **Collaborative Learning**
  Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
- **Case Studies**
  Use case studies to explore real-life examples of communication in business, academic, and casual settings.
- **Role-Playing and Simulations**
  To practice persuasive speaking, public speaking, and informal conversations.
- **Technology Integration**
  Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

- Quiz-1
- Quiz-II

- Presentation
- Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-203	Credit Hours	3(2+1)
Course Title	**Anatomy-III**				

Course Introduction

This course offers an in-depth and comprehensive exploration of human anatomy, with a primary focus on the head, neck, face, and skull, as well as the thoracic wall and thoracic cavity. Students will examine anatomical structures through a combination of dissection, manikins, smart board systems, and the use of charts, models, prosected specimens, and radiographic imaging. Emphasis will be placed on recognizing key anatomical landmarks, understanding spatial relationships, and identifying the functional configurations of these regions.

Learning Outcomes

Students will be able to :

- Identify anatomical structures of the head, neck, face, skull, and thorax.
- Recognize joints, muscles, nerves, veins, and arteries in the head and neck region.
- Describe the anatomical features of the thoracic wall and thoracic cavity.
- Locate and label anatomical landmarks using models, manikins, and radiographs.

Course Content		Assignments/Readings
Week 1	**The Head and Neck** **Muscles around the Neck:** Structure and function of the neck muscles. **Triangles of the Neck:** Identification and significance of anterior and posterior triangles. **Main Arteries of the Neck:** Overview of carotid and vertebral arteries.	Reading: Muscles of the neck and their functions. Assignment: Diagram labeling of neck triangles and arteries.
Week 2	**The Head and Neck** **Main Veins of the Neck:** Structure and drainage of jugular veins. **Cervical Part of the Sympathetic Trunk:** Anatomy and Function.	Reading: Veins of the neck and sympathetic trunk. Assignment: Write a report on the function of the cervical sympathetic trunk.
Week 3	**The Head and Neck** **Cervical Plexus:** Nerve distribution and clinical relevance. **Cervical Spine (Vertebrae):** Structure and function of cervical vertebrae. **Joints of the Neck:** Study of atlanto-occipital and atlanto-axial joints.	Reading: Cervical plexus and cervical spine anatomy. Assignment: Case study on cervical spine injuries.
Week 4	**The Face** **Sensory Nerves of the Face:** Distribution and function of trigeminal nerve branches. **Bones of the Face:** Structure and anatomy of facial bones. **Muscles of the Face:** Overview of facial expression muscles.	Reading: Anatomy of facial nerves and muscles. Assignment: Label the sensory nerves of the face.
Week 5	**The Face** **Facial Nerve:** Course, branches, and functions. **Muscles of Mastication:** Structure and function of chewing muscles. **Mandible:** Anatomy and clinical significance. **Hyoid Bone:** Location and function in the neck.	Reading: Study of facial nerve and muscles of mastication. Assignment: Diagram of facial nerve and its branches.
Week 6	**The Face** **Temporomandibular Joint:** Structure and movement of the jaw joint. **Brief Description of Oral and Nasal Cavities:** Key anatomical features. **Muscles of the Eye:** Function and control of eye movement.	Reading: Temporomandibular joint and muscles of the eye. Assignment: Essay on the anatomy of the TMJ.
Week 7	**The Skull** **Bones of the Skull:** Identification of cranial bones. **Anterior Cranial Fossa:** Structure and contents. **Middle Cranial Fossa:** Anatomy and key structures.	Reading: Cranial bones and fossae. Assignment: Label the bones of the skull and cranial fossae.

Week 8	**The Skull** **Posterior Cranial Fossa:** Overview of structures and significance. **Base of the Skull:** Study of internal and external structures. **Structures Passing through Foramina:** Nerves and vessels exiting the skull.	Reading: Posterior cranial fossa and foramina structures. Assignment: Identify and describe structures passing through foramina.
Week 9	**Thorax** **Structures of the Thoracic Wall** Structure and function of thoracic vertebrae. Anatomy and clinical importance. **Costal Cartilages and Ribs:** Structure and function.	Reading: Anatomy of the thoracic wall and costal cartilages. Assignment: Case study on rib fractures.
Week 10	**Thorax** **Intercostal Muscles:** Role in respiration. **Intercostal Nerves:** Innervation of thoracic wall.	Reading: Intercostal muscles and their role in respiration. Assignment: Identify and explain the function of intercostal nerves.
Week 11	**Thorax** **Diaphragm:** Anatomy and role in respiration. **Blood Supply of Thoracic Wall:** Arterial supply and venous drainage.	Reading: Anatomy of diaphragm and blood supply to thoracic wall. Assignment: Describe the diaphragm's role in breathing.
Week 12	**Thorax** **Lymphatic Drainage of Thoracic Wall:** Pathways and nodes. **Joints of Thorax:** Costovertebral and sternocostal joints.	Reading: Lymphatic drainage and thoracic joints. Assignment: Diagram of lymphatic drainage in the thoracic wall.
Week 13	**Structures of the Thoracic Cavity** **Mediastinum:** Division and contents. **Pleura:** Structure and function of parietal and visceral pleura.	Reading: Anatomy of the mediastinum and pleura. Assignment: Describe the divisions of the mediastinum.
Week 14	**Structures of the Thoracic Cavity** **Trachea:** Anatomy and relationship with surrounding structures. **Lungs:** Lobes, segments, and surface anatomy. **Bronchopulmonary Segments:** Functional units of the lungs.	Reading: Anatomy of the trachea, lungs, and bronchopulmonary segments. Assignment: Label the lung lobes and bronchopulmonary segments.
Week 15	**Structures of the Thoracic Cavity** **Pericardium:** Structure and layers. **Heart:** Blood supply, venous drainage, and nerve supply.	Reading: Study of the pericardium and heart anatomy. Assignment: Create a diagram of the heart's blood supply.
Week 16	**Structures of the Thoracic Cavity** **Large Veins of Thorax:** Superior and inferior vena cava, pulmonary veins, and brachiocephalic veins. **Large Arteries:** Structure and branches of the aorta.	Reading: Anatomy of the large veins and arteries of the thorax. Assignment: Write a report on the major veins and arteries of the thorax.

Lab Work

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

Textbooks and Reading Material

Textbooks.

1. **Netter's Atlas of Human Anatomy** by Frank H. Netter, MD
2. **Grant's Atlas of Anatomy** by Anne M.R. Agur & Arthur F. Dalley
3. **Essential Clinical Anatomy** by Keith L. Moore, Arthur F. Dalley, and Anne M.R. Agur
4. **Langman's Medical Embryology** by T.W. Sadler
5. **Atlas of Histology with Functional and Clinical Correlations** by Victor P. Eroschenko

Teaching Learning Strategies

- **Interactive Lectures**
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- **Collaborative Learning**
  Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
- **Case Studies**
  Use case studies to explore real-life examples of communication in business, academic, and casual settings.
- **Role-Playing and Simulations**
  To practice persuasive speaking, public speaking, and informal conversations.
- **Technology Integration**
  Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

- Quiz-1
- Quiz-II
- Presentation
- Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-204	Credit Hours	3(2+1)
Course Title	**Physiology-III**				

Course Introduction

This course aims to explore the physiological functions of the human body, focusing on the respiratory, nervous, and reproductive systems, as well as body fluids and the renal system. Clinical and applied physiology is integrated into the course, linking theoretical knowledge with clinical modules and real-world practice.

Learning Outcomes

Students will be able to :

- Outline the key functions of the respiratory system.
- Illustrate the primary functions of the central and peripheral nervous systems.
- Examine the main functions of the male and female reproductive systems.
- Discuss the roles of body fluids and the renal system, and apply this knowledge to clinical scenarios.

	Course Content	Assignments/Readings
Week 1	**Respiratory System** • Functions of the respiratory tract • Respiratory and non-respiratory roles of the lungs • Mechanics of the breathing process	Readings: Chapter on Respiratory System Mechanics. Assignment: Describe the mechanics of breathing and its role in lung function.
Week 2	**Respiratory System** • Surfactant production, function, and lung compliance • Protective reflexes in the respiratory system • Lung volumes, capacities, and dead space	Readings: Chapter on Surfactant and Lung Compliance. Assignment: Explain the protective reflexes in respiration.
Week 3	**Respiratory System** • Gas diffusion across the alveolar membrane • Relationship between ventilation and perfusion • Oxygen and carbon dioxide transport mechanisms in the blood	Readings: Chapter on Gas Diffusion and Transport Mechanisms. Assignment: Analyze the relationship between ventilation and perfusion.
Week 4	**Respiratory System** • Nervous and chemical regulation of respiration • Abnormal breathing patterns • Causes and effects of hypoxia • Causes and effects of cyanosis	Readings: Chapter on Regulation of Respiration and Abnormal Breathing. Assignment: Discuss the causes of hypoxia and cyanosis.
Week 5	**Nervous System** • Overview of the nervous system's organization • Classification and properties of nerve fibers • Synaptic transmission and its properties • Role of neurotransmitters and neuropeptides	Readings: Chapter on Nervous System Organization. Assignment: Describe the role of neurotransmitters in synaptic transmission.
Week 6	**Nervous System** • Types and functions of sensory receptors • Functions of the spinal cord and ascending tracts • Reflex actions and types of reflexes • Muscle spindle function and its impact on muscle tone	Readings: Chapter on Sensory Receptors and Reflexes. Assignment: Explain how muscle spindles affect muscle tone.
Week 7	**Nervous System** • Mechanisms of touch, temperature, and pain sensations • Functions of the cerebral cortex • Differences in sensory and motor cortex functions • Motor pathways: pyramidal vs. extrapyramidal systems • Basal ganglia functions • Posture and equilibrium control mechanisms	Readings: Chapter on Sensory and Motor Systems. Assignment: Discuss the differences between pyramidal and extrapyramidal motor pathways.

Week 8	**Nervous System** • Cerebellum function and its role in coordination • Physiology of sleep • Memory physiology • Mechanisms and regulation of speech	Readings: Chapter on Cerebellum and Coordination. Assignment: Explore the physiology of sleep and memory.
Week 9	**Nervous System** • Function of the thalamus • Role of the hypothalamus and limbic system • Cerebrospinal fluid (CSF) production • Temperature regulation mechanisms • Function of the autonomic nervous system and aging-related physiological changes	Readings: Chapter on Thalamus and Hypothalamus Functions. Assignment: Discuss the aging-related changes in the autonomic nervous system.
Week 10	**Reproductive System** • Function of the male reproductive system and spermatogenesis • Mechanism of erection and ejaculation • Testosterone production, function, and physiological changes during male puberty	Readings: Chapter on Male Reproductive System. Assignment: Describe the mechanism of erection and ejaculation.
Week 11	**Reproductive System** • Function of the female reproductive system • Estrogen and progesterone production and their functions • The menstrual cycle • Physiological changes during female puberty and menopause	Readings: Chapter on Female Reproductive System. Assignment: Explain the role of estrogen and progesterone in the menstrual cycle.
Week 12	**Reproductive System** • Pregnancy-related physiological changes in the mother • Function of the placenta • Parturition and lactation physiology • Neonatal physiology	Readings: Chapter on Pregnancy and Parturition. Assignment: Discuss physiological changes during pregnancy.
Week 13	**. Body Fluids and Kidney** • Components and measurement of body fluids • Fluid compartments: tissue fluid and lymph • Structure of the kidney and nephron	Readings: Chapter on Kidney Structure and Function. Assignment: Discuss the structure of the nephron and its role in fluid balance.
Week 14	**Body Fluids and Kidney** • General functions of the kidneys • Glomerular filtration rate (GFR) and its regulation • Urine formation: filtration, reabsorption, and secretion	Readings: Chapter on Kidney Functions and GFR. Assignment: Explain the process of urine formation.
Week 15	**Body Fluids and Kidney** • Plasma clearance mechanisms • Mechanisms of urine concentration and dilution • Water and electrolyte balance through kidney function	Readings: Chapter on Plasma Clearance and Kidney Function. Assignment: Discuss mechanisms of urine concentration.
Week 16	**Body Fluids and Kidney** • Role of kidneys in blood pressure regulation • Hormonal functions of the kidneys • Acidification of urine and its physiological importance • Acid-base balance and the kidneys' role • Micturition and its control mechanisms	Readings: Chapter on Kidney and Blood Pressure Regulation. Assignment: Explain the hormonal functions of the kidneys and their role in micturition.
Lab Work		
• Pregnancy tests		
Textbooks and Reading Material		

Textbooks.

1. Medical Physiology: Principles for Clinical Medicine by Rodney A. Rhoades and David R. Bell
2. Fundamentals of Medical Physiology by Joel Michael, Sabyasachi Sircar
3. Vander's Human Physiology: The Mechanisms of Body Function by Eric P. Widmaier, Hershel Raff, and Kevin T. Strang
4. Understanding Human Physiology: A Visual Approach by Bryan H. Derrickson
5. Boron &Boulpaep Medical Physiology by Walter F. Boron and Emile L. Boulpaep

Teaching Learning Strategies

- **Interactive Lectures**
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- **Collaborative Learning**
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- **Case Studies**
  Use case studies to explore real-life examples of communication in business, academic, and casual settings.
- **Role-Playing and Simulations**
  To practice persuasive speaking, public speaking, and informal conversations.
- **Technology Integration**
  Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

- Quiz-1
- Quiz-II
- Presentation
- Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-205	Credit Hours	3(2+1)
Course Title	**Biomechanics And Ergonomics-II**				

Course Introduction

This course is designed to cultivate an understanding of how mechanical principles can be utilized to analyze the underlying causes of human movement. It also provides foundational knowledge of theoretical concepts, principles, and techniques in ergonomics, along with an introduction to essential ergonomic measurement tools for assessing physical workload, posture, occupational exposure, and stress.

Learning Outcomes

- Describe the biomechanical structure and function of human connective, muscular, nervous, and skeletal tissues.
- Explain the mechanical, neural, and muscular events involved in normal and pathological motion.
- Demonstrate how mechanical and ergonomic principles are applied to understand human movement.
- Discuss the fundamental concepts, principles, and theories of ergonomics.

	Course Content	Assignments/Readings
Week 1	**Biomechanics of human spine** • Biomechanics of the Lumbar Spine • Biomechanics of the Cervical Spine • Factors influencing relative mobility and stability of different regions of Spine	Reading on lumbar and cervical spine biomechanics; Assignment on spine mobility and stability.
Week 2	**Biomechanics of human spine** • Biomechanical adaptations of spine during different functions Relationship between muscle location, nature and effectiveness of muscle action in the trunk • Biomechanical contribution to common injuries of the spine	Reading on spine adaptations and injuries; Assignment on muscle action and injury prevention.
Week 3	**Applied biomechanics** • Introduction to the Biomechanics of Fracture Fixation • Biomechanics of Arthroplasty • Engineering Approaches to Standing, Sitting, and Lying Biomechanics of Gait	Reading on fracture fixation and arthroplasty; Assignment on biomechanics of posture and gait.
Week 4	**Angular kinetics of human movement** • Angular analogues of mass, force, momentum and impulse • Angular analogues of newton's laws of motion • Centripetal and centrifugal forces • Angular acceleration	Reading on angular kinetics; Assignment on forces and angular acceleration in human movement.
Week 5	**Angular kinematics of human movement** • Measuring body angles • Angular kinematics relationships • Relationship between linear and angular motion	Reading on angular kinematics; Assignment on body angle measurements and relationships.
Week 6	**Human movement in fluid medium** • The nature of fluids • Buoyancy and floatation of human body	Reading on fluid mechanics; Assignment on buoyancy and human body floatation.
Week 7	**Human movement in fluid medium** • Drag and components of drag • Lift force • Propulsion in a fluid medium	Reading on drag, lift, and propulsion; Assignment on human movement in fluid environments.
Week 8	**Ergonomics II** Special considerations • Lifting analysis • Seating • Computers and assistive technology	Reading on ergonomic considerations; Assignment on lifting techniques and assistive technology use.

Week 9	**Application process** • Ergonomics of children and youth. • Ergonomics of aging	Reading on ergonomics for children, youth, and aging populations; Assignment on ergonomic considerations for different age groups.
Week 10	**Application process** • Ergonomics of play and leisure	Reading on ergonomics in play and leisure activities; Assignment on ergonomic principles in recreational settings.
Week 11	**Lab workgoniometry** • Introduction to goniometry • Basic concepts in goniometry • Joint motion • Range of motion • Factors affecting ROM	Reading on goniometry techniques; Assignment on joint motion and range of motion measurement.
Week 12	**Lab workgoniometry** • End-feel • Capsular and non-capsular pattern of ROM limitation • Procedures • Positioning • Stabilization • Measurements instruments	Reading on goniometry procedures; Assignment on end-feel and ROM limitation patterns.
Week 13	**Lab workgoniometry** • Alignment • Recording • Procedures • Measurement of upper extremity & lower extremity	Reading on alignment and recording procedures; Assignment on goniometry measurements for upper and lower extremities.
Week 14	**Lab work Goniometry** • Measurement of temporomandibular, cervical, thoracic & lumber • spine • Joint measurement by body position • Biomechanical assessment of Upper extremity	Reading on joint measurement techniques; Assignment on temporomandibular, cervical, and spinal goniometry.
Week 15	**Lab workgoniometry** • Biomechanical assessment of Lower Extremity • Biomechanical assessment of Gait • Reflective case assignment related to biomechanics of various	Reading on lower extremity biomechanics; Assignment on gait assessment and biomechanical case studies.
Week 16	**Lab workgoniometry** • Regions of the body • Measurement of angles of joints Biomechanical study of deformities	Reading on deformities and joint angle measurements; Assignment on biomechanical analysis of body regions.

Lab Work

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

Textbooks and Reading Material

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

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.

Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-206	Credit Hours	3(2+1)
Course Title	**Biochemistry-II**				

Course Introduction

This course is designed to equip students with foundational knowledge and skills in organic chemistry and introductory biochemistry, forming a basis for advanced studies. It explores fundamental biochemical, cellular, biological, and microbiological processes, including essential chemical reactions in prokaryotic and eukaryotic cells. The course examines the structure of biological molecules and introduces key nutrients such as carbohydrates, fats, enzymes, nucleic acids, and amino acids. Additionally, it includes a section focused on nutritional biochemistry.

Learning Outcomes

1. Provide a biochemical overview of various human tissues.
2. Describe the process of respiration at the cellular and molecular levels.
3. Explain the metabolism of carbohydrates, proteins, and lipids.

	Course Content	Assignments/Readings
Week 1	**Tissue biochemistry** • Extracellular matrix • Collagen	Reading on extracellular matrix; Assignment on collagen structure and function.
Week 2	**Tissue biochemistry** • Elastin and extracellular matrix components • Biochemistry of proteoglycans	Reading on elastin and proteoglycans; Assignment on extracellular matrix components.
Week 3	**Tissue biochemistry** • Bone & teeth • Muscle & cytoskeleton	Reading on bone and teeth biochemistry; Assignment on muscle and cytoskeleton structure.
Week 4	**Tissue biochemistry** • Muscle &cytoskeleton • Revision • Tests	Revision reading on muscle and cytoskeleton; Assignment on tissue biochemistry concepts.
Week 5	**Metabolism bioenergetics** • Introduction to bioenergetics • Biological oxidations	Reading on bioenergetics; Assignment on biological oxidation processes.
Week 6	**Metabolism bioenergetics** • Electron transport chain and oxidative phosphorylation	Reading on electron transport chain; Assignment on oxidative phosphorylation mechanisms.
Week 7	**Metabolism of carbohydrates** • Digestion & absorption of carbohydrates • Glycolysis & its regulation	Reading on carbohydrate metabolism; Assignment on glycolysis and its regulation.
Week 8	**Metabolism of carbohydrates** • Citric acid cycle • Metabolism of glycogen	Reading on citric acid cycle; Assignment on glycogen metabolism.
Week 9	**Metabolism of carbohydrates** • Gluconeogenesis and regulation of blood glucose	Reading on gluconeogenesis; Assignment on blood glucose regulation.
Week 10	**Metabolism of lipids** • Digestion & absorption of lipids • Revision	Reading on lipid digestion and absorption; Assignment on lipid metabolism.
Week 11	**Metabolism of lipids** • Metabolism & clinical significance of lipoproteins • Fatty acid oxidation biosynthesis and metabolism of triacylglycerols	Reading on lipoprotein metabolism; Assignment on fatty acid oxidation and triacylglycerol metabolism.

Week 12	**Metabolism of lipids** • Metabolism & clinical significance of cholesterol metabolism of eicosanoids	Reading on cholesterol metabolism; Assignment on eicosanoids and their clinical relevance.
Week 13	**Metabolism of proteins & amino acids** • Digestion of proteins & absorption of amino acids	Reading on protein digestion and amino acid absorption; Assignment on protein metabolism.
Week 14	**Metabolism of proteins & amino acids** • Transamination &deamination of amino acids and urea cycle • Specialized products formed from amino acids	Reading on amino acid metabolism; Assignment on transamination, deamination, and urea cycle.
Week 15	**Metabolism of vitamins and minerals** • Role of vitamins and minerals in metabolic pathways • Water-soluble vitamins and their role in coenzyme activity	Reading on vitamins and minerals in metabolism; Assignment on water-soluble vitamins.
Week 16	**Metabolism of vitamins and minerals** • Fat-soluble vitamins and their metabolic functions • Micronutrient deficiencies and their impact on health • Mineral metabolism and electrolyte balance	Reading on fat-soluble vitamins; Assignment on micronutrient deficiencies and mineral metabolism.

Lab Work

Section 1

- Techniques of Instruments in Clinical Biochemistry with examples.
- Visible Spectrophotometry
- Flame photometry
- UV & IR spectrophotometry
- Atomic Absorption spectrophotometry
- pH Metry
- Chromatography and determination of Amino Acids in Urine by paper chromatography

Section 2

- Clinical quantatives analysis in Biochemistry
- Sample Collection Blood, Faces and body fluids
- Serum Glucose Estimation
- Glucose tolerance Test (GTT)
- Serum Cholesterol estimation (Total, HDL and HDL cholesterol)
- Serum Bilirubin Estimation (Total, Direct and Indirect bilirubins)
- Serum Amylase Estimation
- Serum AST Estimation
- Serum ALT Estimation
- Serum ALP Estimation
- Serum Creatine Kinase (CK) Estimation
- Serum Ascorbic acid Estimation
- Serum LDH Estimation
- Serum Proteins Estimation (Total, Albumin & Globulin) Serum Total lipids Estimation
- Serum calcium Estimation (total, ionized & unionized)
- Serum Uric acid Estimation

Textbooks and Reading Material

1. Lippincott's Illustrated Review of Biochemistry by Pamela C. Champe and Richard A. Harvey, Latest Ed.
2. Practical Clinical Biochemistry by Variey.
3. Textbook of Biochemistry by Devlin, 5th Ed.
4. Textbook of Medical Biochemistry Vol-I and II by M. A. Hashmi. Biochemistry by Stryer, Lubert, Latest Ed

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.

Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-207	Credit Hours	3(2+1)
Course Title	**Anatomy-IV (Neuro Anatomy)**				

Course Introduction

This course offers an in-depth exploration of the regional and systemic organization of the human body, with a particular focus on the structure and function of human movement. Emphasis will be placed on the anatomy of the nervous, skeletal, muscular, and circulatory systems. The course provides a comprehensive foundation in General Anatomy and delves into Neuroanatomy (Regional Anatomy), enhanced by hands-on learning through dissection, and the identification of anatomical structures using manikins, smart boards, charts, models, prosected specimens, and radiographs.

Learning Outcomes

Students will be able to :

- Describe the regional organization of the human brain and neural pathways.
- Classify the components and divisions of the nervous system.
- Explain the structure and function of the spinal cord.

	Course Content	Assignments/Readings
Week 1	**Introduction to the Central Nervous System (CNS)** • Disposition, parts, and functions of the CNS • Overview of brain regions and their roles	Reading: Introduction to CNS, Review of Brain Regions; Assignment: List the functions of each brain region
Week 2	**Brain Stem** • Anatomy and functions of the brain stem o Pons o Medulla o Midbrain	Reading: Brain Stem Anatomy, Functions of Brain Stem; Assignment: Draw and label the brain stem structures
Week 3	**Cerebrum** • Structure and functions of the cerebrum • Functional lobes and cortical areas	Reading: Cerebrum Structure and Functions; Assignment: Describe the functional areas of the cerebrum
Week 4	**Cerebellum** • Anatomy and functions of the cerebellum • Role in coordination and balance	Reading: Cerebellum Anatomy, Functions in Coordination; Assignment: Explain the role of cerebellum in balance and coordination
Week 5	**Thalamus and Basal Ganglia** • Thalamus: Structure, functions, and relay of sensory information • Basal ganglia: Components and role in motor control	Reading: Thalamus and Basal Ganglia; Assignment: Explain the role of thalamus in sensory relay and motor control
Week 6	**Limbic System and Hypothalamus** • Anatomy and functions of the limbic system (emotion and memory) • Hypothalamus: Structure, functions, and role in homeostasis	Reading: Limbic System and Hypothalamus; Assignment: Discuss the connection between the limbic system and emotions
Week 7	**Internal Capsule and Blood Supply of the Brain** • Structure and function of the internal capsule • Blood supply of the brain: Arterial system (Circle of Willis) • Clinical correlations: Stroke and its types	Reading: Internal Capsule, Blood Supply; Assignment: Identify major arteries in the Circle of Willis
Week 8	**Ventricles of the Brain and CSF Circulation** • Anatomy and functions of brain ventricles • CSF circulation and its role • Hydrocephalus: Causes, types, and clinical significance	Reading: Ventricles and CSF Circulation; Assignment: Describe the process of CSF circulation

Week 9	**Meninges of the Brain** • Structure and functions of the meninges • Clinical relevance of meningitis and subdural/epidural hemorrhages	Reading: Meninges of the Brain; Assignment: Discuss the types and causes of meningitis
Week 10	**Neural Pathways and Tracts** • Ascending and descending tracts of the CNS • Pyramidal and extrapyramidal systems	Reading: Neural Pathways and Tracts; Assignment: Compare pyramidal and extrapyramidal tracts
Week 11	**Functional Significance of Spinal Cord Levels** • Overview of spinal cord levels and their functional significance • Dermatomes and myotomes	Reading: Spinal Cord Levels and Functions; Assignment: Map dermatomes and myotomes of the body
Week 12	**Cranial Nerves (I)** • Overview of cranial nerves • Detailed study of cranial nerves IV (Trochlear), V (Trigeminal), and VII (Facial):	Reading: Cranial Nerves I; Assignment: Detail the sensory and motor functions of cranial nerves IV, V, and VII
Week 13	**Cranial Nerves (II)** • Detailed study of cranial nerves XI (Accessory) and XII (Hypoglossal): ○ Course, distribution, and common palsies	Reading: Cranial Nerves II; Assignment: Explain the course and function of cranial nerves XI and XII
Week 14	**Autonomic Nervous System (I)** • Overview and components of the autonomic nervous system • Sympathetic and parasympathetic divisions	Reading: Autonomic Nervous System Overview; Assignment: Compare the sympathetic and parasympathetic divisions
Week 15	**Autonomic Nervous System (II) and Nerve Receptors** • Functions and regulation of the autonomic nervous system • Types and functions of nerve receptors	Reading: Functions of the Autonomic Nervous System; Assignment: Describe the role of nerve receptors in autonomic functions
Week 16	**Spinal Cord** • Gross appearance and external features of the spinal cord • Structure of grey and white matter • Meninges and blood supply of the spinal cord • Overview of autonomic nervous system connections to the spinal cord	Reading: Spinal Cord Structure and Functions; Assignment: Illustrate the cross-section of the spinal cord and label its parts

LAB WORK

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

Textbooks and Reading Material

Textbooks.

1. **Atlas of Human Anatomy** by Frank H. Netter (7th Edition, Elsevier)
2. **Neuroanatomy Through Clinical Cases** by Hal Blumenfeld (2nd Edition, Sinauer Associates)
3. **The Human Brain: An Introduction to Its Functional Anatomy** by John Nolte (7th Edition, Elsevier)
4. **Essential Clinical Anatomy** by Anne M.R. Agur and Arthur F. Dalley (6th Edition, Wolters Kluwer) *A concise textbook focusing on clinically relevant anatomy concepts.*
5. **Color Atlas of Anatomy: A Photographic Study of the Human Body** by Johannes W. Rohen, Chihiro Yokochi, and Elke Lütjen-Drecoll (8th Edition, Lippincott Williams & Wilkins)
6. **Fundamental Neuroscience** by Larry Squire, Darwin Berg, and Floyd E. Bloom (4th Edition, Academic Press) **Neuroscience: Exploring the Brain** by Mark F. Bear, Barry W. Connors, and Michael A. Paradiso (4th Edition, Wolters Kluwer)
7. **Grant's Dissector** by Alan J. Detton (17th Edition, Wolters Kluwer)

Teaching Learning Strategies

- **Interactive Lectures**
  Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
- **Collaborative Learning**
  Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
- **Case Studies**
  Use case studies to explore real-life examples of communication in business, academic, and casual settings.
- **Role-Playing and Simulations**
  To practice persuasive speaking, public speaking, and informal conversations.
- **Technology Integration**
  Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

- Quiz-1
- Quiz-II
- Presentation
- Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-208	Credit Hours	3(2+1)
Course Title	**Exercise Physiology**				

Course Introduction

This course is designed to provide a comprehensive understanding of exercise and applied physiology. It focuses on injury prevention, rehabilitation, and strategies for enhancing performance while fostering a critical appreciation of physiological responses to exercise.

Learning Outcomes

Students will be able to :

- Explain homeostasis and the systems involved in maintaining the human internal environment.
- Analyze the physiological responses to exercise, including hormonal, circulatory, respiratory, and thermal adaptations.
- Define the principles of cardiopulmonary training.
- Evaluate the impact of exercise on VO2 max and lactic acid levels.
- Discuss training considerations for female athletes, children, and older adults.

Course Content		Assignments/Readings
Week 1	**Control of the Internal Environment** • Concept and significance of homeostasis. • Overview of body control systems. • Mechanisms and examples of physiological control systems. • Exercise as a model for studying homeostatic regulation.	Reading on Homeostasis; Assignment on physiological control systems.
Week 2	**Hormonal Responses to Exercise** • Neuroendocrinology fundamentals. • Hormones: Mechanisms of regulation and action. • Hormonal control of energy substrate mobilization during exercise.	Reading on Hormonal Regulation; Assignment on exercise and hormone response.
Week 3	Measurement of Work, Power, and Energy Expenditure	Reading on work, power, and energy; Assignment on measurement techniques.
Week 4	Circulatory Responses to Exercise	Reading on circulatory system response to exercise; Assignment on circulatory adjustments.
Week 5	Respiration During Exercise	Reading on respiratory adaptations; Assignment on exercise and respiration.
Week 6	Temperature Regulation During Exercise	Reading on thermoregulation; Assignment on temperature control during exercise.
Week 7	The Physiology of Training	Reading on exercise training physiology; Assignment on training adaptations.
Week 8	Energy Expenditure and Exercise Efficiency	Reading on energy expenditure; Assignment on exercise efficiency.
Week 9	Hemodynamic Changes During Physical Activity	Reading on hemodynamic changes; Assignment on circulation during exercise.

Week 10	Hemodynamic Changes During Physical Activity	Reading on hemodynamics; Assignment on physical activity impact.
Week 11	Pulmonary Adaptations to Exercise	Reading on pulmonary adaptations; Assignment on respiratory changes during exercise.
Week 12	Thermoregulation in Different Environments	Reading on thermoregulation in various environments; Assignment on environmental stress and adaptation.

Week 13	• VO2 Max: Cardiac output and arteriovenous oxygen difference.
	• Detraining and VO2 Max.
	• Endurance Training: Effects on performance and homeostasis.
	• Endurance Training: Links between muscle and system physiology.
	• Physiological Effects of Strength Training.
	• Physiological Mechanisms Causing Increased Strength.
	  o Laboratory assessment of physical performance.
	  o Direct testing of maximal aerobic power.
	  o Laboratory tests to predict endurance performance.
	  o Determination of anaerobic power.
	  o Evaluation of muscular strength.
	Let me know if you need this structured differently!
		Reading on VO2 Max and endurance training; Assignment on strength training and performance evaluation.

Week 14	**Physiology of Health and Fitness**
	• **Work Tests to Evaluate Cardio Respiratory Fitness:**
	  o Cardio respiratory fitness.
	  o Testing procedures.
	  o Field tests for estimating CRF.
	  o Graded exercise tests: Measurements.
	  o VO2 max.
	  o Graded exercise tests: Protocols.
	• **Exercise Prescription for Health and Fitness:**
	  o Prescription of exercise.
	  o General guidelines for improving health.
	  o Exercise prescription for CRF.
	  o Sequence of physical activity.
	  o Strength and flexibility training.
	• **Exercise for Special Populations:**
	  o Diabetes.
	  o Asthma.
	  o Chronic obstructive pulmonary disease (COPD).
	  o Hypertension.
	  o Cardiac rehabilitation.
	  o Exercise for older adults.
	  o Exercise during pregnancy.
		Reading on cardio-respiratory fitness and exercise testing; Assignment on exercise prescription and special populations.

Week 15	• **Physiology of Performance: Factors affecting performance.**
	  o Sites of fatigue.
	  o Factors limiting all-out anaerobic performances.
	  o Factors limiting all-out aerobic performances.
		Reading on performance physiology; Assignment on fatigue and performance limiting factors.

	• **Laboratory Assessment of Human Performance:**	
Week 16	• Training of Performance • Training for the Female Athlete, Children, and Special Population	Reading on performance training; Assignment on specialized training for different populations.

Lab Work

- Predicting VO2 max using the Harvard step test
- Ratings of perceived exertion and intensity of exercise Time limit test
- Predicting VO2 max using Astrand Rhyming Momogram Determining maximal oxygen uptake using treadmill
- The effects of endurance and strength exercise on CV response Blood lactate sampling at rest and during exercise
- Determining onset of blood lactate accumulation and lactate threshold
- Assessing muscular efficiency
- The stretch reflex
- Stoop test

Textbooks and Reading Material

1. **""Physiology of Sport and Exercise" by W. Larry Kenney, Jack H. Wilmore, and David L. Costill**
2. **"Advanced Exercise Physiology" by Jonathan K. Ehrman, Dennis J. Kerrigan, and Steven J. Keteyian**

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-209	Credit Hours	2(2+0)
Course Title	**Molecular Biology and Genetics**				

Course Introduction

This course covers the brief overview of the cellular & molecular biology, membrane physiology, introduction to molecular medicine and gene therapy, molecular translocation, gene therapy for neurological disorders, gene therapy for musculoskeletal disorders and the concept of molecular medicine in metabolic/genetic disorders. It also provides in-depth study of oncogenes and biomarkers. This course has been designed to address more complex concepts of molecular medicine and individualized treatment. This course focuses on molecular mediation pathways. The course includes overview of human genome and mutation genetics.

Learning Outcomes

1. Provide a biochemical overview of various human tissues.
2. Describe the process of respiration at the cellular and molecular levels.
3. Explain the metabolism of carbohydrates, proteins, and lipids.

Course Content		Assignments/Readings
Week 1	**Review of cellular & molecular biology** Structure and Function of DNA Nucleic Acid, Chromosome & Molecular Pathways	Reading on DNA structure and function; Assignment on cellular and molecular biology fundamentals.
Week 2	**Introduction to molecular medicine and gene therapy** General Introduction to Molecular Medicine Gene Therapy Mechanism for Gene Suppression Gene Therapy Concept of Multiple Gene Expression	Reading on molecular medicine and gene therapy; Assignment on gene suppression mechanisms.
Week 3	Neuromuscular System Disorder Gene Therapy	Reading on neuromuscular system disorders; Assignment on gene therapy applications for neuromuscular diseases.
Week 4	Gene Therapy for Cardiovascular Disease Human Genome Therapy: Current Status and Initial Success	Reading on cardiovascular gene therapy; Assignment on human genome therapy and its progress.
Week 5	Gene Therapy for Muscular Disorders	Reading on gene therapy for muscular disorders; Assignment on therapeutic strategies for muscular diseases.
Week 6	The chemistry of DNA	Reading on DNA chemistry; Assignment on DNA structure and its chemical properties.
Week 7	DNA replication and recombination Transcription, translation, and protein synthesis	Reading on DNA replication and recombination; Assignment on the process of transcription, translation, and protein synthesis.
Week 8	Cell-based DNA cloning Acid hybridization assays	Reading on DNA cloning techniques; Assignment on hybridization assays.
Week 9	PCR, DNA sequencing, and in vitro mutagenesis	Reading on PCR and DNA sequencing techniques; Assignment on in vitro mutagenesis methods.
Week 10	Organization of the human genome	Reading on human genome organization; Assignment on genome structure and function.
Week 11	Human gene expression	Reading on human gene expression mechanisms; Assignment on gene regulation and expression.

Week 12	Instability of the human genome	Reading on genomic instability; Assignment on causes and consequences of genome instability.
Week 13	Mutation and DNA repair	Reading on mutation types and DNA repair mechanisms; Assignment on mutation and repair pathways.
Week 14	Physical and transcript mapping	Reading on physical and transcript mapping techniques; Assignment on mapping of genes and transcripts.
Week 15	Epigenetic Regulation of Gene Expression	Reading on epigenetic regulation; Assignment on epigenetic mechanisms in gene expression.
Week 16	Applications of CRISPR-Cas9 Technology	Reading on CRISPR-Cas9 technology; Assignment on CRISPR applications in genetics.

Textbooks and Reading Material

- **Essential Cell Biology**, 5th Edition by Alberts, Bray, and Hopkin
- **Gene Cloning and DNA Analysis: An Introduction**, 7th Edition by T. A. Brown
- **Lewin's Genes XII**, 12th Edition by Jocelyn E. Krebs, Elliott S. Goldstein, and Stephen T. Kilpatrick
- **Molecular and Cellular Therapeutics**, by David Whitehouse
- **Principles of Gene Manipulation and Genomics**, 8th Edition by Sandy B. Primrose and Richard M. Twyman
- **Biochemical Pathways: An Atlas of Biochemistry and Molecular Biology**, 2nd Edition by Gerhard Michal and Dietmar Schomburg

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1, Quiz-II, Presentation and Professional Writing Assignments

Assessment

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-301	Credit Hours	3(3+0)
Course Title	**Nutrition**				

Course Introduction

The Nutrition is an undergraduate subject aimed at training professionals to address Pakistan's nutritional issues. It combines theoretical and practical knowledge to equip students with current data on nutrition. Pakistan faces significant nutritional deficiencies, including malnutrition and micronutrient shortages, exacerbated by poverty, poor health, and lack of research. This leads to chronic diseases, economic losses, and reduced productivity.

Learning Outcomes

By the end of this course, students will be able to:

- Learn the types of nutrients (macronutrients: carbohydrates, proteins, fats, and micronutrients: vitamins, minerals, water) and their role in health.
- Understand how the body processes and utilizes nutrients.
- Learn about metabolism and energy balance.
- Learn how to assess the nutritional status of individuals, including through dietary surveys and analyzing food intake.

	Course Content	Assignments/Readings
Week 1	**Introduction to Nutrition Science** • Introduction to nutrition and its importance in health. • Brief overview of nutrients, classification of nutrients (macronutrients and micronutrients).	Write a short essay on the role of nutrition in public health.
Week 2	**Macronutrients: Carbohydrates, Proteins, and Fats** • Introduction to macronutrients, their classification, importance, and physiological functions. Carbohydrates, proteins, and fats.	Create a food diary for one day and categorize the macronutrients consumed.
Week 3	**Micronutrients: Minerals (Macro and Micro)** • Classification of minerals, physiological functions, and deficiency symptoms. • Importance of macro and micro minerals like calcium, iron, iodine, zinc.	Prepare a report on a specific mineral deficiency prevalent in Pakistan.
Week 4	**Micronutrients: Vitamins - Overview** • Introduction to vitamins and their history • The role of vitamins in health and disease prevention	Create a presentation on the historical discovery of vitamins.
Week 5	**Vitamins A, B-Complex, and C** • Occurrence, chemistry, physiological functions, deficiency symptoms, and requirements of vitamins A, B-complex, and C. • Functions of vitamins A, B-complex (B1, B2, B12, etc.), and Vitamin C.	Compare food sources rich in each of these vitamins and their deficiencies
Week 6	**Vitamins D, E, and K** • Occurrence, chemistry, physiological functions, deficiency symptoms, and requirements of vitamins D, E, and K. • Functions of vitamins D, E, and K.	Write a paper on the role of Vitamin D in bone health.
Week 7	**Week 7: Energy Value of Food** • Energy content of food, and how energy is utilized under different living and physiological conditions. Energy value of macronutrients.	Calculate the total energy content of a meal you consume.
Week 8	**Week 8: Basal Metabolic Rate (BMR)** • Definition and factors influencing Basal Metabolic Rate (BMR).	Track your BMR using an online calculator and discuss how activity level affects BMR.

	How BMR is measured and its significance in daily energy requirements.	
Week 9	**Respiratory Quotient (RQ)** • Understanding respiratory quotient, how it's measured, and its implications for energy metabolism. Definition and application of respiratory quotient.	Write a report on how RQ is used to assess metabolism.
Week 10	**Energy Expenditure** • Factors affecting energy expenditure, including physical activity and thermogenesis. • Thermogenic effect of food.	Calculate your total daily energy expenditure (TDEE) based on activity level.
Week 11	**Measurement of Energy Expenditure** • Direct and indirect calorimetry methods for determining energy expenditure. • Techniques used in measuring energy expenditure, including calorimetry.	Research and summarize the differences between direct and indirect calorimetry.
Week 12	**Nutrition Status in Pakistan** • Current nutritional issues in Pakistan, including malnutrition and micronutrient deficiencies. • Status of food and nutrition in Pakistan, major nutrition-related problems.	Write a report on the current state of food security and nutrition in Pakistan.
Week 13	**Nutritional Deficiencies in Pakistan** • Specific nutritional deficiencies and their impact on public health in Pakistan. • Iron deficiency, Vitamin D deficiency, iodine deficiency, etc.	Research a major nutritional deficiency in Pakistan and its social impact.
Week 14	**Energy Requirements under Different Conditions** • Nutritional needs during different physiological states (pregnancy, illness, stress, etc.). • Energy requirements during growth, pregnancy, illness, and recovery.	Case study analysis of energy requirements for a pregnant woman vs. an athlete.
Week 15	**Food and Nutrition Security** • Importance of food security and strategies to ensure proper nutrition for vulnerable populations. • Addressing malnutrition in developing countries.	Debate on the role of government and NGOs in addressing food insecurity in Pakistan.
Week 16	**Course Review and Final Exam Preparation** • Review key concepts from the entire course.	Prepare for the final exam by revising all topics and completing the revision worksheet.

Textbooks and Reading Material

Textbooks.

- *Nutrition: Science and Applications* by Lori A. Smolin
- *Introduction to Human Nutrition* by R.S. Gupta
- *Human Nutrition: Science for Healthy Living* by Wendy J. H. Heisler
- *Modern Nutrition in Health and Disease* by A. S. Shils

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning

Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.

Case Studies

Use case studies to explore real-life examples of communication in business, academic, and casual settings.

Role-Playing and Simulations

To practice persuasive speaking, public speaking, and informal conversations.

Technology Integration

Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-302	Credit Hours	3(3+0)
Course Title	**Biostatistics - I**				

Course Introduction

The course focuses on selecting appropriate statistical methods to address medically relevant questions, applying these techniques to manage common types of medical data, and using various software tools for statistical analysis and data management. It also emphasizes interpreting statistical results, critically assessing the use of statistics in medical literature, and communicating findings effectively with statisticians and the broader medical community, both in writing and through oral presentations. Additionally, students will explore current and emerging trends in medical statistics.

Learning Outcomes

- Understand key statistical concepts necessary for conducting research in the field of physiotherapy.
- Learn the fundamentals of reading, interpreting, and understanding research methods, design, and statistics.

	Course Content	Assignments/Readings
Week 1	**Statistics** Define • Statistics, • Population, • Sample descriptive and inferential statistics • Observations, • Data, • Exercises.	Reading: Define statistics, population, sample, descriptive and inferential statistics, observations, data. Assignment: Complete exercises on statistics concepts.
Week 2	**Statistics** • Discrete and continuous variables, • Errors of measurement, • Significant digits • Exercises	Reading: Study discrete and continuous variables, errors of measurement, and significant digits. Assignment: Complete exercises on variables and errors of measurement.
Week 3	**Statistics** • Rounding of a number, • Collection of primary and secondary data, sources, • Editing of data. • Exercises.	Reading: Understand rounding, data collection (primary/secondary), and editing of data. Assignment: Complete exercises on rounding and data editing.
Week 4	**Presentation of data** • Introduction, basic principles of classification and tabulation, constructing of a frequency distribution, relative and cumulative frequency distribution, • Exercises	Reading: Study the principles of classification, tabulation, and frequency distribution. Assignment: Construct frequency distributions and cumulative frequencies.
Week 5	**Presentation of data** • Diagrams, graphs and their construction • Bar charts, • Pie chart, • Histogram • Exercises	Reading: Learn about various diagrams and graphs such as bar charts, pie charts, and histograms. Assignment: Create different types of graphs and diagrams.
Week 6	**Presentation of data** • Frequency polygon and frequency curve, cumulative frequency polygon or ogive, histogram. • Exercises	Reading: Study frequency polygons, frequency curves, and ogives. Assignment: Draw frequency polygons, cumulative frequency polygons, and histograms.

Week 7	**Presentation of data** • Ogive for discrete variable. • Types of frequency curves. • Exercises	Reading: Understand the construction of ogives for discrete variables and types of frequency curves. Assignment: Construct ogives and analyze frequency curves.
Week 8	**Measures of central tendency** • Explain different types of averages, quantiles, the mode, • Empirical relation between mean, median and mode • Exercises	Reading: Study the different types of averages and the empirical relation between mean, median, and mode. Assignment: Complete exercises on measures of central tendency.
Week 9	**Measures of central tendency** • Box and whisker plot, stem and leaf display, definition of outliers and their detection. • exercises.	Reading: Understand box and whisker plots, stem-and-leaf displays, and outliers detection. Assignment: Construct box plots and detect outliers in data.
Week 10	**Measures of Dispersion** • Describe absolute and relative measures, including range, semi-interquartile range, mean deviation, variance, and standard deviation. • Exercises	Reading: Learn about measures of dispersion, including range, semi-interquartile range, variance, and standard deviation. Assignment: Complete exercises on dispersion measures.
Week 11	**Measures of Dispersion** • Explain how to interpret the standard deviation, coefficient of variation, properties of variance, and standard deviation. • Exercises	Reading: Study interpretation of standard deviation, coefficient of variation, and properties of variance. Assignment: Complete exercises on standard deviation and variance.
Week 12	**Measures of Dispersion** • Discuss standardized variables, moments, and exercises on these topics.	Reading: Understand standardized variables and moments in statistics. Assignment: Complete exercises on standardized variables and moments.
Week 13	**Probability and Probability Distributions** • Define discrete and continuous distributions such as binomial, Poisson, and normal distributions. • Exercises on these distributions.	Reading: Study probability distributions such as binomial, Poisson, and normal distributions. Assignment: Solve exercises on probability distributions.
Week 14	**Sampling and Sampling Distributions** • Explain sample design, • sampling frames, bias, and errors in sampling • exercises	Reading: Understand sample design, sampling frames, bias, and sampling errors. Assignment: Complete exercises on sampling design and errors.
Week 15	**Sampling and Sampling Distributions** • Explain sample design, sampling frames, bias, and errors in sampling • Exercises	Reading: Review sample design, sampling frames, bias, and errors in sampling. Assignment: Complete exercises on sampling frames and bias.
Week 16	**Sampling and Sampling Distributions** • sampling distributions for single means and proportions. • Exercises on calculating means and proportions.	Reading: Learn about sampling distributions for means and proportions. Assignment: Solve exercises on means and proportions.
Textbooks and Reading Material		
1. Muhammad F. *Statistical Methods and Data Analysis*. Faisalabad: KitabMarkaz, 2000.		

2. R.L. Ott, Michael T. Longnecker. *An Introduction to Statistical Methods and Data Analysis*. 7th ed. Brooks/Cole, Cengage Learning, 2015.

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
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Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-303	Credit Hours	3(0+3)
Course Title	**Supervised Clinical Practice-I (HISTORY TAKING)**				

Course Introduction

In this supervised clinical practice, students learn and refine the skill of history taking and patient interaction. Guided by experienced physical therapists, they practice in both inpatient and outpatient settings, working with a variety of patients, including surgical, non-surgical, pediatric, and geriatric cases. The training emphasizes general history-taking techniques and their application to different systems such as musculoskeletal, integumentary, cardiovascular, pulmonary, and neurological. Students are required to document their competencies and demonstrate their skills on real patients during the final evaluation of the course.

Learning Outcomes

1. Mastering patient history-taking, gaining practical experience across clinical settings and diverse populations,
2. Applying system-specific techniques, maintaining accurate competency records,
3. Demonstrating skills on real patients during evaluations, all under professional supervision.

	Course Content	Assignments/Readings
Week 1	**Clinical competencies** Review pertinent medical records and conduct an interview which collects the following data: Past and current patient/client history	Reading: Review the process of collecting patient/client history. Assignment: Practice history-taking and review a case study.
Week 2	**Clinical competencies** Review pertinent medical records and conduct an interview which collects the following data • Demographics • General health status	Reading: Study how to gather demographics and assess general health status. Assignment: Complete a mock interview focusing on demographics and health status.
Week 3	**Clinical competencies** Review pertinent medical records and conduct an interview which collects the following data • Chief complaint	Reading: Learn about the importance of identifying the chief complaint in patient interviews. Assignment: Conduct a simulated interview and identify the chief complaint.
Week 4	**Clinical competencies** Review pertinent medical records and conduct an interview which collects the following data • Medications	Reading: Study common medications and their impact on patient care. Assignment: Document a patient's medication history and assess its relevance.
Week 5	**Clinical competencies** Review pertinent medical records and conduct an interview which collects the following data • Medical and surgical history	Reading: Understand how to obtain detailed medical and surgical history from patients. Assignment: Create a mock history form for medical and surgical data.
Week 6	**Clinical competencies** Review pertinent medical records and conduct an interview which collects the following data • Social history	Reading: Study how to gather social history and its relevance to patient care. Assignment: Conduct an interview and document the social history.
Week 7	**Clinical competencies** Review pertinent medical records and conduct an interview which collects the following data • Present and pre-morbid functional status/activity	Reading: Learn how to assess a patient's functional status before and after illness or injury. Assignment: Practice assessing and documenting functional status in a simulated setting.

Week 8	**Clinical competencies** Review pertinent medical records and conduct an interview which collects the following data • Living environment	Reading: Study the importance of understanding a patient's living environment in healthcare. Assignment: Analyze how a patient's living environment affects their health and functionality.
Week 9	**Clinical competencies** Review pertinent medical records and conduct an interview which collects the following data • Employment	Reading: Study how a patient's employment history can influence health outcomes. Assignment: Conduct an interview to assess a patient's employment status and its impact.
Week 10	**Clinical competencies** Review pertinent medical records and conduct an interview which collects the following data • Growth and development	Reading: Understand the stages of growth and development and how to assess them. Assignment: Complete a developmental history form for a pediatric or geriatric patient.
Week 11	**Clinical competencies** Review pertinent medical records and conduct an interview which collects the following data Lab values	Reading: Learn about common lab values and their implications for health assessments. Assignment: Analyze a set of lab results and document findings.
Week 12	**Clinical competencies** Review pertinent medical records and conduct an interview which collects the following data • Imaging	Reading: Study how imaging reports are used in clinical practice. Assignment: Interpret an imaging report and incorporate it into patient history.
Week 13	**Clinical competencies** Review pertinent medical records and conduct an interview which collects the following data • Consultations	Reading: Study the process of consultations and how they influence patient care. Assignment: Document and summarize a consultation report for a case study.
Week 14	**Clinical competencies** Review pertinent medical records and conduct an interview which collects the following data • Documentation of the history	Reading: Learn the best practices for documenting patient histories. Assignment: Practice documenting a patient history in a detailed and accurate format.
Week 15	**Clinical competencies** Review pertinent medical records and conduct an interview which collects the following data Documentation of the history	Reading: Review clinical documentation standards and procedures. Assignment: Complete a mock documentation of patient history for a clinical scenario.
Week 16	**Clinical competencies** Review pertinent medical records and conduct an interview which collects the following data Documentation of the history	Reading: Study the role of accurate documentation in clinical practice. Assignment: Finalize and submit a comprehensive patient history documentation.
Textbooks and Reading Material		
Textbook of Medical History Taking, *Author: S. S. R. Anantharaman*, Description: This book covers the importance of medical history, the techniques of history taking, and provides examples and case studies. It is ideal for understanding the detailed process of taking patient histories in various clinical settings. **Bates' Guide to Physical Examination and History Taking**, *Author: Lynn Bickley*, Description: A comprehensive textbook widely used by medical professionals. It provides in-depth knowledge on the steps of history-taking,		

examination, and documentation. It offers valuable guidelines for clinicians to gather essential information from patients effectively.

Clinical History Taking: A Practical Guide, *Author: V. K. Jain*, Description: This book provides practical insights into clinical history taking. It discusses various components of the patient history and offers tips for effective communication with patients to collect relevant medical data.

Medical Interviewing and Counselling, *Author: John L. M. Ziegler, Jeffrey A. Williams*, Description: A textbook focusing on the communication aspect of clinical practice, emphasizing interviewing techniques, patient rapport building, and ethical considerations in history taking.

Teaching Learning Strategies

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Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.

Collaborative Learning
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Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.

Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.

Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-304	Credit Hours	3(2+1)
Course Title	**Physical Agents & Electrotherapy-I**				

Course Introduction

This course covers the physical principles of electrotherapy and the techniques utilized in the practice of physical therapy.

Learning Outcomes

1. Provide a detailed discussion on the physiological and therapeutic applications, potential risks, preventive measures, and understanding of indications.
2. Discuss the indications and contraindications for different types of electric currents used in various disorders.
3. Develop and demonstrate essential skills required for applying electrotherapy modalities tailored to the patient's needs.

	Course Content	Assignments/Readings
Week 1	**Introduction & general considerations of electrotherapy** • Electrotherapy. • Types of currents and its parameters. • Identification of the safety rules for using electrical currents. • Background with respect to RMP, nerve impulse, electrical charges of nerve and tissues. • Healing process. • Application of the energy to the body for therapy. • List of the risks, preventions and knowledge of indications and contraindications.	Readings: Electrotherapy overview, types of currents, and safety rules; Assignments: Discuss the healing process and applications of electrotherapy
Week 2	**Types of current used** • Low frequency current • Medium frequency current	Readings: Low and medium frequency currents; Assignments: Compare and contrast low and medium frequency currents
Week 3	**Low frequency current** • Faradic current • Sinusoidal current • Galvanic current (constant galvanic current and modified galvanic current) • Superimposed currents • Transcutaneous Electrical Nerve Stimulation (TENS) • Dia-Dynamic currents	Readings: Types of low-frequency currents; Assignments: Discuss the therapeutic effects and clinical uses of each current type
Week 4	**Transcutaneous Electrical Nerve Stimulator (TENS)** • TENS • Characteristics of TENS • Modes, pain theories, pain modulation and technique of application of TENS • Therapeutic uses, contraindications and dangers of TENS • Clinical method of application and dosage	Readings: TENS characteristics and modes; Assignments: Review TENS therapeutic uses and contraindications
Week 5	**Faradic and faradic type current** • Faradic and faradic type current. • Explain true faradic current • Therapeutic effects, mode of applications, contraindications and dangers of faradic current • Clinical method of application and dosages of faradic current	Readings: Faradic current and its applications; Assignments: Discuss contraindications and clinical methods for using faradic current
Week 6	**Sinusoidal current** • Detailed description of sinusoidal current • Treatment • Methods of application	Readings: Sinusoidal current and its therapeutic uses; Assignments: Describe the clinical methods and applications of sinusoidal current

Week 7	**Galvanic Direct Current And Interrupted Direct Current (DC &IDC)** • Galvanic Current & IDC. • Production and transmission of galvanic & IDC. • Effects, uses, contraindications and dangers of DC & IDC. • Dosages and clinical methods of application of DC & IDC	Readings: Galvanic and IDC currents; Assignments: Examine the uses and dangers of DC & IDC in electrotherapy
Week 8	**Modified galvanic current** • Modified galvanic currents • Physical and therapeutic effects • Uses • Treatment techniques & methods of application • Electrical stimulation of nerve & muscle • Nerve impulse • Property of accommodation • Electrical reactions • Normal & abnormal reactions of nerve & muscle to faradism & interrupted direct current • Changes in electrical reaction in upper motor and lower motor neurons and muscular disease	Readings: Modified galvanic current and its effects; Assignments: Analyze the effects of modified galvanic current on nerve and muscle
Week 9	**Didynamic current** • Didynamic current • Explain characteristics, derivatives and effects of didynamic current • Explain the technique of application, therapeutic uses, contraindications and dangers example: sprain ankle, sciatica. Facial neuralgia. Trigeminal neuralgia & otitis media • Clinical method of application and dosage	Readings: Didynamic current characteristics; Assignments: Discuss the therapeutic uses and application techniques of didynamic current
Week 10	**Medical ionization** • Describe theory& proof of ionization • Discuss effects of various ions; iodine, salycylate, albucid, copper, zinc histamine, carbacol, renotinenovocaine, lithium • Describe techniques of medical ionization with vasodilator drugs discuss techniques for special areas.	Readings: Theory and proof of ionization; Assignments: Review the use of medical ionization and its effects on various ions
Week 11	**Electro-diagnostics** • What are the use of electrical changes in evaluation and diagnosis? • What are Faradic & I. D. C test • What is Accomodity test • Explain the physiological changes in Peripheral nerve. Give an assessment of nerve and muscle potential. • What do you about Electromyography? Explain briefly. • Give an assessment by observing the results of stimulating nerve and muscle. • Explain muscle contraction. • Give SDCT (Strength Duration Curve Test). • Explain Evoked potentials.	Readings: Electro-diagnostic tests and muscle contractions; Assignments: Discuss the use of electromyography and SDCT in diagnostics
Week 12	**Medium frequency current** • Define Russian current, • Explain the technique of application, contraindications and dangers of Russian current.	Readings: Russian and IFC currents; Assignments: Compare the applications and dangers of Russian current and IFC

	• Explain clinical method of application and dosage • Define IFC, • What are the characteristics, effects, technique of application and therapeutic uses? • Explain the contraindications, dangers and clinical method of application of IFC.	
Week 13	**Super imposed current** • Give Introduction • Definition • Describe Effects & uses, Technique, Methods, Dangers and Precautions	Readings: Superimposed current; Assignments: Describe the techniques and precautions associated with superimposed current
Week 14	**High Voltage Current (HVC)** • Define HVC, Explain the characteristics, effects and uses of HVC. Explain the technique of application of HVC. • What are the contraindications and dangers of HVC? • What is the clinical method of application and dosage of HVC	Readings: High Voltage Current (HVC); Assignments: Review the clinical uses and contraindications of HVC
Week 15	**High frequency currents** • Introductions of high frequency currents • Describe Productions of high frequency currents • Describe Uses, indication, contraindications & methods of applications of high frequency currents	Readings: High frequency currents; Assignments: Discuss the therapeutic uses and contraindications of high frequency currents
Week 16	**Lab work** • Location of motor points • Faradic & I.D.C test • Strength duration curve, determination of Rheobase and Chronaxie • Accommodity test • Electromyography • Definition, method, value, uses of E.M.G, Electromyography & temperature, feedback techniques • Practical application of TENS in physical therapy treatment • Reflective clinical case studies • Iontophoresis • Demonstration of techniques during practical classes, later on techniques practiced by students on patients attending the department under supervision of trained physiotherapists.	Readings: Lab techniques and case studies; Assignments: Perform and document lab work on Faradic & IDC tests, Electromyography, and TENS application

Lab Work

The practical training will be practiced in physiotherapy treatment ward under the supervision of qualified physiotherapists

- Location of motor points
- Faradic & I.D.C test
- Strength duration curve, determination of Rheobase and Chronaxie
- Accomodity test
- Electromyography
- Definition, method, value, uses of E.M.G, Electromyography & temperature, feed back technique
- Practical application of TENS in physical therapy treatment ward
- Reflective clinical case studies

Textbooks and Reading Material

1. Savage B. Practical electrotherapy for physiotherapists. UK: Faber; 1960.
2. Scott PM. Clayton's electrotherapy and actinotherapy. 7th ed. USA: Williams & Wilkins: 1980.
3. Watson T. Electrotherapy: evidence-based practice. 12th ed. Edinburgh: Churchill Livingstone; 2008

4. Cameron MH. Physical agents in rehabilitation: from research to practice. 4th ed. St. Louis: Elsevier; 2013.
5. Singh J. Textbook of electrotherapy. 2nd ed. India: Jaypee; 2012

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Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

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3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-305	Credit Hours	2(2+0)
Course Title	**Pharmacology & Therapeutics – I**				

Course Introduction

This course focuses on pharmacodynamics, pharmacokinetics, the clinical and therapeutic applications of drugs, and their toxicological effects. Emphasis is placed on understanding how drugs function to ensure proper administration. Key topics include drug administration, calculating accurate medication dosages based on specific settings, evaluating drug effects, implementing strategies to improve drug tolerance, and educating patients about medications and their prescribed regimens.

Learning Outcomes

Examine the use of prescription and over-the-counter medications in managing various patient conditions commonly encountered during physical therapy treatment.

	Course Content	Assignments/Readings
Week 1	**General principles of pharmacology** • Various principal of pharmacology • Introduction to pharmacokinetics • Various drug dosage forms and pharmacological doses	Readings: Pharmacology basics, Dosage forms and pharmacokinetics; Assignments: Discuss the importance of pharmacokinetics
Week 2	**General principles of pharmacology** • Various routes of drug administration and their advantages/ disadvantages • Factors modifying drug absorption and distribution •	Readings: Routes of drug administration; Assignments: Analyze the impact of different routes of drug absorption
Week 3	**General principles of pharmacology** • Major mechanisms responsible for drug metabolism • Factors modifying drug metabolism	Readings: Drug metabolism mechanisms; Assignments: Discuss factors affecting drug metabolism
Week 4	**General principles of pharmacology** • Basic principles of drug excretion • Factors modifying drug excretion	Readings: Drug excretion processes; Assignments: Describe how factors modify drug excretion
Week 5	**General principles of pharmacology** • Factors modifying drug metabolism • Basic principles of drug excretion	Readings: Interactions between drug metabolism and excretion; Assignments: Examine how metabolism affects excretion
Week 6	**General principles of pharmacology** • Various mechanisms by which drugs exert their effects • Various types of pharmacological graphs • Identification of the therapeutic index and therapeutic window on a given dose response curve	Readings: Mechanisms of drug action, Pharmacological graphs; Assignments: Identify therapeutic index on a dose-response curve
Week 7	**Drug used to treat pain and inflammation** • Therapeutic uses of opioid analgesics. • Classification of non-steroidal anti-inflammatory drugs on the basis of mechanism of action. • Pharmacological management of rheumatoid and osteoarthritis.	Readings: Opioids and NSAIDs; Assignments: Classify NSAIDs based on mechanisms of action
Week 8	**Drug used to treat pain and inflammation** • Pharmacological management of rheumatoid and osteoarthritis. • Patient control analgesia	Readings: Management of rheumatoid arthritis; Assignments: Describe the role of patient-controlled analgesia
Week 9	**Pharmacology of central nervous system** • Classification of the drugs, which modulate the central nervous system according to their general principles, selectivity, specificity and mode of action.	Readings: CNS drugs and their classification; Assignments: Analyze CNS drug mechanisms and effects

Week 10	**Pharmacology of central nervous system** • Pharmacokinetics, clinical uses, contraindications, adverse effects and toxicity of drugs acting on above receptor system • Sedative, hypertonic and anxiety agents	Readings: CNS drug pharmacokinetics and toxicity; Assignments: Discuss sedative and anxiolytic drug actions
Week 11	**Pharmacology of central nervous system** • Drugs used to treat effective disorders depression and manic depression • Antipsychotic and antiepileptic drugs	Readings: Treatment of depression and mania; Assignments: Review antipsychotic drug classes and their uses
Week 12	**Pharmacology of central nervous system** • Pharmacologic management of parkinson disease • General and local anesthetic	Readings: Parkinson's disease and anesthesia; Assignments: Investigate treatment approaches for Parkinson's disease
Week 13	**Drugs affecting skeletal muscle** Skeletal muscle relaxants	Readings: Muscle relaxants; Assignments: Discuss types and uses of skeletal muscle relaxants
Week 14	**Autonomic and cardiovascular pharmacology** • Introduction to autonomic pharmacology • Cholinergic, adrenergic and antihypertensive drugs	Readings: Autonomic pharmacology basics; Assignments: Classify cholinergic and adrenergic drugs
Week 15	**Autonomic and cardiovascular pharmacology** • Treatment of angina pectoris • Treatment of cardiac arrhythmias	Readings: Cardiovascular drugs for angina and arrhythmias; Assignments: Explain pharmacological treatment of angina
Week 16	**Autonomic and cardiovascular pharmacology** • Treatment of congestive heart failure • Treatment of coagulation disorders and hyperlipidemia	Readings: Cardiovascular drugs for heart failure and coagulation; Assignments: Review treatments for heart failure and hyperlipidemia

Textbooks and Reading Material

1. Ciccone CD. Pharmacology in rehabilitation. 5th ed. United states: Cardiopulmonary Perspectives in Rehabilitation; 2015.
2. Whalen K, Finkel R &Panavelli TA, editors. Lippincott illustrated reviews: pharmacology. 6th ed. Philadelphia: Wolters Kluwer; 2015
3. Cheema M. multi author textbook of pharmacology and therapeutics. Lahore: National Medical Publication; 2015: 1.
4. Cheema M. multi author textbook of pharmacology and therapeutics. Lahore: National Medical Publication; 2015: 2

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Assignments
Quiz-1 Quiz-II Presentation Professional Writing Assignments

Assessment

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3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-306	Credit Hours	2(2+0)
Course Title	**Pathology and Microbiology-I**				

Course Introduction

This course aims to help students gain a thorough understanding of the pathology underlying various clinical diseases and their effects on major organ systems. Key epidemiological aspects will be explored and discussed. Students will develop problem-solving abilities and utilize knowledge of pathology and microbiology to determine when it is appropriate to refer a case to another healthcare professional or consider alternative treatments.

Learning Outcomes

1. Explain the fundamental concepts of general pathology.
2. Identify and interpret signs and symptoms that indicate serious health conditions.
3. Share relevant findings and information effectively, and determine the appropriate actions to take during physical therapy management.

	Course Content	Assignments/Readings
Week 1	**Cell injury and death** • Causes of cell injury • Pathogenesis of necrosis and apoptosis • Sub cellular responses	Reading on cell injury mechanisms; Assignment on necrosis and apoptosis pathways.
Week 2	**Cell adaptations** Relevant examples: hyperplasia, hypertrophy, atrophy, metaplasia and intracellular accumulation	Reading on cell adaptations; Assignment on examples of cell adaptations and their physiological significance.
Week 3	**Inflammation** • Acute inflammation • Vascular events and cellular events • Chemical mediators	Reading on acute inflammation mechanisms; Assignment on vascular and cellular events in inflammation.
Week 4	**Chronic inflammation** • General and granulomatous inflammation • Morphologic patterns of acute and chronic inflammation	Reading on chronic inflammation and granulomatous inflammation; Assignment on morphological patterns.
Week 5	**Healing & repair** • Normal controls of healing and repair. • Repair by connective tissue • Wound healing	Reading on wound healing processes; Assignment on mechanisms of healing and repair.
Week 6	**Hemodynamic disorders** • Edema and its types • Hyperemia /congestion, hemorrhage, thrombosis, embolism, infarction, shock.	Reading on hemodynamic disorders; Assignment on different types of edema and shock mechanisms.
Week 7	**Diseases of immunity** • General features of immunity • Hypersensitivity reactions • Immune deficiencies.	Reading on immunity and hypersensitivity; Assignment on types of immune deficiencies.
Week 8	**Diseases of immunity** • Autoimmunity • amyloidosis	Reading on autoimmunity and amyloidosis; Assignment on pathogenesis of autoimmune diseases.
Week 9	**Neoplasia** • Nomenclature of neoplasia • Molecular basis of neoplasia	Reading on neoplasia nomenclature; Assignment on molecular mechanisms of neoplastic transformation.
Week 10	**Neoplasia** • Carcinogenic agents of neoplasia • Clinical aspects of neoplasia	Reading on carcinogenic agents; Assignment on clinical manifestations of neoplasia.

Week 11	**The bacteria** • Bacterial cell structure • Forms and function • Identification and • Classification of bacteria • Gram staining	Reading on bacterial cell structure; Assignment on bacterial classification and Gram staining technique.
Week 12	**Methods of studying micro-organism** • Culturing • Inoculation and • Identification	Reading on microbiological culturing techniques; Assignment on bacterial inoculation and identification methods.
Week 13	**Methods of studying micro-organism** • Types of medicine • Physical states of media	Reading on different types of culture media; Assignment on the role of physical states in microbial growth.
Week 14	**Microbial growth** • Stages in the normal growth curve • Microbial genetics • Prokaryotic transcriptions and translations.	Reading on microbial growth stages; Assignment on prokaryotic genetics and transcription/translation processes.
Week 15	**Microbial growth** • Conjugations • Mutation and its causes. • Mechanism of drug resistances and its pathogenesis. • Gateway to infection.	Reading on microbial genetics and drug resistance; Assignment on the mechanism of bacterial conjugation and mutation.
Week 16	**Microbial growth** • Resident flora and its mechanism of invasions • Classic stages of clinical infection • Sterilization and disinfection.	Reading on resident flora and infection stages; Assignment on sterilization and disinfection methods.

Textbooks and Reading Material

1. Kumar V, Abbas AK, &Aster JC. Robbins basic pathology. 9th ed. Elsevier: Philadelphia; 2013.
2. Levinson W. review of medical microbiology & immunology. 14th ed. McGraw-Hill: Canada; 2016
3. Thomson AD & Cotton RE. Lecture notes on pathology. 3rd ed. FA Davis; 1983
4. Goodman CC & Fuller KS. Pathology: implication for the Physical Therapist. 4th ed. Elsevier: USA;2015
5. Robbins and Cotran Pathologic Basis of Disease (10th ed.) by Kumar V, Abbas AK, Aster JC
6. Muir's Textbook of Pathology (15th ed.) by Reid R, Carroll N, & James A
7. Medical Microbiology (9th ed.) by Murray PR, Rosenthal KS, & Pfaller MA

Teaching Learning Strategies

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Assignments

Quiz-1, Quiz-II, Presentation and Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details

1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-307	Credit Hours	3(2+1)
Course Title	**Therapeutic Exercises & Techniques**				

Course Introduction

This course explores anatomical and physiological principles to help students design comprehensive therapeutic exercise interventions. It emphasizes understanding physiological responses to different types of training and developing skills in prescribing, implementing, and modeling exercise programs. Key components such as strength, aerobic/anaerobic conditioning, flexibility, balance, and stages of healing or rehabilitation are thoroughly analyzed. The course also focuses on creating safe, effective, evidence-based exercise designs while emphasizing proper biomechanics and prescription parameters. Special considerations for diverse populations and various stages of rehabilitation are also addressed. Exercise considerations for special populations and individuals across different age groups are addressed. These concepts are introduced in lectures and applied through hands-on practice in the laboratory.

Learning Outcomes

1. Define and explain various types of physical therapy techniques and exercises.
2. Demonstrate best practices in rehabilitation for injury recovery.
3. Discuss strategies to enhance movement and function, alleviate pain, and maximize mobility potential.

	Course Content	Assignments/Readings
Week 1	**Therapeutic exercise: foundational concepts** • Define therapeutic exercise: impact on physical function • Discuss process and models of disablement • Discuss patient management and clinical decision making: an interactive relationship • Discuss strategies for effective exercise and task-specific instruction.	Readings: Foundational concepts in therapeutic exercise; Assignments: Discuss the impact of therapeutic exercise on physical function and patient management
Week 2	**Therapeutic exercise: foundational concepts** • Discuss patient management and clinical decision making: an interactive relationship • Discuss strategies for effective exercise and task-specific instruction.	Readings: Clinical decision making in therapeutic exercise; Assignments: Explore strategies for task-specific instruction in exercise
Week 3	**Applied science of exercise and techniques** • Define Range of motion, Types of ROM exercises, its Indications and goals. • Discuss Limitations of ROM exercises with Precautions and contraindications. • Describe Principles and procedures for applying ROM Techniques: Self-assisted ROM, continuous passive motion and ROM through functional patterns	Readings: Range of motion exercises and techniques; Assignments: Discuss the principles and procedures for applying ROM techniques
Week 4	**Stretching for impaired mobility** • Define terms related to mobility and stretching • Discuss properties of soft tissue-response to immobilization and stretch	Readings: Stretching techniques for impaired mobility; Assignments: Discuss properties of soft tissue and stretching effects
Week 5	**Stretching for impaired mobility** • Discuss determinants, types, and effects of stretching interventions • Describe procedural guidelines for application of stretching interventions	Readings: Types of stretching and intervention techniques; Assignments: Explain procedural guidelines for stretching interventions
Week 6	**Stretching for impaired mobility** • Explain precautions during stretching • Discuss adjuncts to stretching interventions • Explain manual stretching techniques in anatomical planes of motion.	Readings: Manual stretching techniques; Assignments: Describe the precautions and adjuncts in stretching interventions

Week 7	**Peripheral joint mobilization** • Define terms: mobilization/manipulation, self-mobilization (auto- mobilization), mobilization with movement, physiological movements, accessory movements, thrust, manipulation under anesthesia, muscle energy • Discuss basic concepts of joint motion: arthro kinematics	Readings: Joint mobilization and manipulation techniques; Assignments: Define and discuss basic concepts of joint motion and mobilization
Week 8	**Peripheral joint mobilization** • Discuss indications and limitations of joint mobilization techniques with its contraindications and precautions • Discuss procedures for applying passive joint mobilization techniques	Readings: Indications and limitations of joint mobilization; Assignments: Discuss the procedures for applying passive joint mobilization techniques
Week 9	**Peripheral joint mobilization** • Discuss mobilization with movement: principles of application • Discuss peripheral joint mobilization techniques including shoulder girdle complex, elbow and forearm complex, wrist complex, hand and finger joints, hip joint, knee and leg, ankle and foot joints.	Readings: Mobilization techniques for different joints; Assignments: Explore the principles of mobilization with movement for various joints
Week 10	**Resistance exercise for impaired muscle performance** • Define muscle performance • Discuss types of resistance exercise with its guiding principles • What are determinants of a resistance exercise program • Discuss general principles of resistance training with precautions for and contraindications to resistance exercise • Define manual resistance exercise with its guidelines	Readings: Types and principles of resistance exercise; Assignments: Define muscle performance and discuss the general principles of resistance training
Week 11	**Resistance exercise for impaired muscle performance** • What are Physiological changes that occur with training • Discuss Skeletal muscle function and its adaptation to resistance exercise • Discuss special considerations, techniques with general background for upper extremity and lower extremity • Describe Proprioceptive neuromuscular facilitation, its principles, procedures and basic and specific Techniques • Discuss Diagonal patterns of PNF with reference to upper and lower extremity.	Readings: Physiological changes with resistance training; Assignments: Discuss PNF principles and techniques for both upper and lower extremities
Week 12	**Resistance exercise for impaired muscle performance** • Discuss Mechanical resistance exercise and its use in rehabilitation, conditioning programs with special considerations for children and older adults • Discuss Selected resistance training regimens • Discuss Equipment for resistance training	Readings: Mechanical resistance exercise for different age groups; Assignments: Describe selected resistance training regimens and equipment
Week 13	**Principles of aerobic exercise** • Discuss Application of principles of an aerobic conditioning program for the patient with coronary disease for both inpatients and multiple phases of outpatient • Discuss special considerations and adaptive changes	Readings: Aerobic conditioning for different patient groups; Assignments: Discuss aerobic training principles for patients with coronary disease and chronic illness

	• Discuss Applications of aerobic training for the de-conditioned individual and the patient with chronic illness in different Age group.	
Week 14	**Aquatic exercise** • Define aquatic exercises with its Background and principles, identify Goals, indications, Precautions and contraindications to aquatic exercise • Discuss Properties of water, Aquatic temperature and therapeutic exercise • What are the Special equipment for aquatic exercise? • Discuss Exercise interventions using an aquatic environment such as stretching exercises, Strengthening Exercises and Aerobic Conditioning.	Readings: Aquatic exercise principles and techniques; Assignments: Discuss the properties of water and their therapeutic effects in aquatic exercise
Week 15	**Lab work** Hands on skills of the following techniques: • Range of Motion, • Stretching • Resisted exercise • Peripheral joint mobilization.	Readings: Techniques for therapeutic exercises; Assignments: Practice hands-on skills in range of motion, stretching, and joint mobilization
Week 16	**Lab work** • Aerobic exercises • Balance training • Hydrotherapy • Reflective clinical case studies • Supervised and independent applications of therapeutic techniques on patients in outdoor and indoor physiotherapy treatment settings.	Readings: Therapeutic exercise techniques; Assignments: Reflect on case studies and apply therapeutic techniques under supervision

Lab Work

- Practical demonstration of ROM techniques
- Practical demonstration of stretching techniques
- Practical demonstration of resisted exercise techniques
- Practical demonstration of peripheral joint mobilization techniques
- Aerobic exercises
- Balance training
- Hydrotherapy
- Reflective clinical case studies
- Supervised and independent Practical application of therapeutic techniques on patients in outdoor and indoor physiotherapy treatment settings

Textbooks and Reading Material

1. Kisner C & Colby LA. Therapeutic exercise: foundations & techniques. 6th ed. Philadelphia: FA Davis; 2012.
2. Bandy WD & Sanders B. Therapeutic Exercise for physical therapist assistants: techniques for intervention. 3rd ed. Wolters Kluwer; 2012.
3. Sullivan PE and Markos PD. Clinical decision making in therapeutic exercise. Appleton & Lange; 1994.
4. Connolly BH & Montgomery P. Therapeutic exercise in developmental disabilities. 3rd ed. Slack; 2004.

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.

Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Semester-VI

Programme	DPT	Course Code	DPT-308	Credit Hours	3(0+3)
Course Title	**Supervised Clinical Practice-II (Systems Review)**				

Course Introduction

This supervised clinical practice is designed to help students develop the necessary skills for conducting system reviews and determining the need for physical therapy services. Under the guidance of trained physical therapists, students learn to assess each system objectively. They gain practical experience in a variety of settings, including inpatient and outpatient environments, and work with diverse patient populations, such as surgical, non-surgical, pediatric, and geriatric patients. Students are required to maintain a performance record of all competencies and demonstrate their ability to apply these skills to real patients during the final evaluation of the course.

Learning Outcomes

1. Conduct a review of systems to determine whether a referral or physical therapy services are required.
2. Perform system review screenings, which include the following:

	Course Content	Assignments/Readings
Week 1	**General Health Condition (GHC)** • Fatigue • Malaise • Fever/chills/sweats • Nausea/vomiting • Dizziness/lightheadedness	Reading: Review common signs and symptoms associated with general health conditions. Assignment: Prepare a case study on managing fatigue and malaise in patients.
Week 2	**General Health Condition (GHC)** • Unexplained weight change • Numbness/Paresthesia • Weakness • Mentation/cognition.	Reading: Study the potential causes of unexplained weight change and neurological symptoms. Assignment: Write about the clinical significance of cognitive dysfunction in general health conditions.
Week 3	**Cardiovascular System (CVS)** • Dyspnea • Orthopnea • Palpitations • Pain/sweats • Syncope • Peripheral edema • Cough.	Reading: Understand the pathophysiology of cardiovascular symptoms. Assignment: Assess the impact of dyspnea and orthopnea on physical therapy treatment.
Week 4	**Cardiovascular System (CVS)** • Syncope • Peripheral edema • Cough.	Reading: Learn the causes and treatment approaches for syncope and peripheral edema. Assignment: Research the diagnostic approach for syncope in cardiovascular disorders.
Week 5	**Pulmonary System (PS)** • Dyspnea • Onset of cough • Change in cough • Sputum	Reading: Study the pulmonary symptoms and their relevance in physical therapy. Assignment: Investigate the role of sputum analysis in diagnosing pulmonary conditions.
Week 6	**Pulmonary System (PS)** • Hemoptysis • Clubbing of nails • Stridor • Wheezing	Reading: Review symptoms associated with serious pulmonary conditions like hemoptysis and wheezing. Assignment: Write about how

		wheezing and stridor impact respiratory function.
Week 7	**Gastrointestinal System (GIS)** • Difficulty with swallowing • Heartburn, indigestion • Change in appetite • Change in bowel function	Reading: Study the signs of gastrointestinal disorders. Assignment: Discuss the therapeutic approach to addressing swallowing difficulties in rehabilitation.
Week 8	**Genital Reproductive System (Grs) Male** • Describe any sexual dysfunction, difficulties, or concerns.	Reading: Learn about sexual dysfunction in males and its impact on rehabilitation. Assignment: Research the rehabilitation strategies for male sexual dysfunction.
Week 9	**Genital Reproductive System (GRS)Female** Describe any sexual or menstrual dysfunction, difficulties, or problems.	Reading: Understand the sexual and menstrual dysfunctions in females. Assignment: Analyze the relationship between menstrual health and physical rehabilitation.
Week 10	**Urinary System (US)** • Frequency • Urgency • Incontinence.	Reading: Study common urinary system dysfunctions like frequency and urgency. Assignment: Discuss the role of physical therapy in managing incontinence.
Week 11	**Recognition of red and yellow flags** • Initiate referral when positive signs and symptoms identified in the review of systems are beyond the specific skills or expertise of the physical therapist or beyond the scope of physical therapist practice	Reading: Review the red and yellow flags in clinical practice. Assignment: Write a case study on recognizing and acting on red and yellow flags.
Week 12	**Recognition of red and yellow flags** • Consult additional resources, as needed, including other physical • Therapists, evidence-based literature, other health care professionals, and community resources • Screen for physical, sexual, and psychological abuse.	Reading: Learn about collaboration and referral processes in clinical settings. Assignment: Discuss how to handle referrals in cases involving abuse or complex conditions.
Week 13	**Cardiovascular and pulmonary systems** • Conduct a systems review for screening of the cardiovascular and pulmonary system (heart rate and rhythm, respiratory rate, blood pressure, edema) • Read a single lead EKG	Reading: Study cardiovascular and pulmonary system review techniques. Assignment: Interpret a single-lead EKG for identifying abnormalities.
Week 14	**Integumentary system** • Conduct A Systems Review For Screening Of The Integumentary System, The Assessment Of Pliability (Texture), Presence Of Scar Formation, Skin Color, And Skin Integrity.	Reading: Learn about integumentary system assessment and its importance in physical therapy. Assignment: Research the assessment of skin integrity in different patient populations.
Week 15	**Musculoskeletal system** • Conduct A Systems Review For Screening Of Musculoskeletal System, The Assessment Of Gross Symmetry, Gross Range Of Motion, Gross Strength, Height And Weight.	Reading: Study musculoskeletal system screening techniques. Assignment: Practice assessing gross range of motion and strength in clinical settings.
Week 16	**Neurological system**	Reading: Study the techniques for neuromuscular system screening

	• Conduct a systems review for screening of the neuromuscular system, a general assessment of gross coordinated movement (balance, gait, locomotion, transfers, and transitions) and motor function (motor control and motor learning). • Documentation of all listed competencies in SOAP notes format	and SOAP note documentation. Assignment: Write SOAP notes for a case that involves neuromuscular dysfunction.

Textbooks and Reading Material

- **"Orthotic Intervention for the Hand and Upper Extremity: Splinting Principles and Process"** by MaryLynn A. A. Ibbotson, This textbook provides a deep dive into clinical applications for physical therapists when assessing and treating musculoskeletal and neuromuscular systems.
- **"Physical Rehabilitation"** by Susan B. O'Sullivan and Thomas J. Schmitz, This text covers a wide array of rehabilitation topics, including neurological, musculoskeletal, and cardiovascular systems, and is excellent for understanding comprehensive treatment approaches.
- **"Physical Therapy Examination and Evaluation"** by J. E. Norkin and J. P. White, A great resource for conducting systems reviews and understanding clinical evaluation, including techniques for musculoskeletal and neurological assessments.
- **"Musculoskeletal Examination and Joint Mobilization"** by H. J. K. Harkey, Provides in-depth coverage of musculoskeletal evaluations, joint mobilization techniques, and physical examination procedures.

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-309	Credit Hours	3(2+1)
Course Title	**Physical Agents & Electrotherapy – II**				

Course Introduction

This course focuses on the fundamental principles of electrotherapy modalities used in physical therapy, including thermal, mechanical, physical agents, and electromagnetic tools. It also provides an understanding of their indications, contraindications, and application methods in physical therapy.

Learning Outcomes

1. Explain the physiological mechanisms underlying various therapeutic modalities.
2. Discuss the criteria for selecting appropriate modalities for different conditions.
3. Demonstrate the use of thermal, mechanical, and electromagnetic tools in managing various conditions.

	Course Content	Assignments/Readings
Week 1	**Medium frequency current** • Interferential Current • Introduction, physical principles, electro-physiological effects • Clinical applications, methods of application • Treatment consideration & contraindications.	Assignment: Prepare a report on the clinical applications and contraindications of interferential current.
Week 2	**Physics of heat and radiation** • Definition of heat and temperature • Physical effects • Transmission of heat • Radiant energy electromagnetic spectrum its production & properties • Laws governing radiation.	Reading: Understand the physical principles of heat and radiation. Assignment: Write an analysis of the effects of heat and radiation in electrotherapy.
Week 3	**Infra-red rays** • Definition • Production, luminous & non-luminous generators • Physiological effects • Therapeutic effects • Uses • Techniques of application • Dangers and contraindications.	Reading: Study the physiological and therapeutic effects of infrared rays. Assignment: Discuss the indications and contraindications for infrared therapy.
Week 4	**Ultra violet rays** • Production, U.V. rays • Mercury Vapour Lamp: Air cooled mercury vapour lamp and Kromayer lamp • Fluorescent Tubes • Penetration of rays into the skin • Physiological effects (local & general) • Therapeutic effects • Sensitizers • Assessment of doses and Test dose • Techniques of local and general radiation with special techniques of treatment of wounds • Techniques with compression • Dangers & precautions • Contraindications.	Reading: Review the therapeutic uses of ultraviolet rays. Assignment: Prepare a report on the application techniques of UV therapy and its precautions.
Week 5	**Heliotherapy** • Introduction • Effects • Uses and Dangers and contraindications.	Reading: Study the therapeutic effects of heliotherapy. Assignment: Prepare a case study on the uses and dangers of heliotherapy.

Week 6	**Hemodynamic disorders** • Edema and its types • Hyperemia /congestion, hemorrhage, thrombosis, embolism, infarction, shock.	Reading: Review the causes and treatment of hemodynamic disorders. Assignment: Write an analysis of the therapeutic interventions for hemodynamic disorders.
Week 7	**Ultrasonic therapy** • Introduction • Production • Physiological & therapeutic effects • Uses, dangers, precautions & contraindications • Techniques and application of treatment	Reading: Study the principles and applications of ultrasonic therapy. Assignment: Discuss the safety considerations and contraindications for ultrasound therapy.
Week 8	**Cryotherapy** • Definition • Methods • Physiological & therapeutic effects • Dangers, indications and precautions. **Magnetic therapy** • Indications • Contra-indications • Method of application	Reading: Study the benefits and risks of cryotherapy and magnetic therapy. Assignment: Compare cryotherapy with magnetic therapy in terms of therapeutic applications.
Week 9	**Hydrotherapy** • Physiological principles of hydrotherapy • Application of heat & cold • Outline of methods of applying moist heat • Medium used, contrast bath, paraffin baths, whirlpool baths, techniques, effects, uses, dangers, contraindications of each • The use of water as medium of each, the use of water as a Medium of movement pool therapy • Immersion baths, full, plain and medicated, partial baths, packs, general local methods of application • Hot air, vapors, the care of patients in hydrological department • Detailed description of indication of hydrotherapy.	Reading: Study the various methods and effects of hydrotherapy. Assignment: Write a report on the techniques, uses, and precautions for hydrotherapy.
Week 10	**Traction** • Effects of spinal traction • Clinical indications for the use of spinal traction • Contraindications and precautions for spinal traction • Adverse effects of spinal traction • Application technique	Reading: Understand the physiological effects and contraindications of spinal traction. Assignment: Prepare a clinical case study for the application of spinal traction therapy.
Week 11	**Compression** • Effects of External Compressions • Clinical indications for the Use of External Compression • Contraindications and Precautions of External Compression • Contraindications for the Use of Intermittent or Sequential Compression Pumps • Precautions for the Use of Intermittent or Sequential and Compression Pumps • Adverse Effects of External Compression • Application Techniques.	Reading: Study the physiological and clinical effects of compression therapy. Assignment: Research the use of compression therapy in treating edema and circulatory problems.

Week 12	**Laser therapy** • Definition • Properties of laser • Production of Lasers • Types of Lasers • Techniques of application • Dosage parameters • Interaction of laser with body tissues • Physiological and therapeutic effects of lasers • Dangers and contraindications • Methods of Treatment.	Reading: Study the properties and therapeutic applications of laser therapy. Assignment: Write a report on the different types of lasers and their clinical uses.
Week 13	**Bio feedback** • Introduction • Indications • Contra-Indications • Types of Biofeedback • Advantages • Disadvantages	Reading: Study the different types of biofeedback techniques. Assignment: Discuss the advantages and disadvantages of biofeedback therapy in rehabilitation.
Week 14	**Shockwave therapy** • Physiology • Indications • Method of application • Contra-indications.	Reading: Review the mechanisms and clinical uses of shockwave therapy. Assignment: Analyze the effectiveness of shockwave therapy for musculoskeletal disorders.
Week 15	**Wax therapy** • Characteristics of paraffin wax • Care of apparatus • Physiological effects • Indications • Contra-indications • Advantages • Disadvantages • Method of application	Reading: Study the therapeutic effects of paraffin wax therapy. Assignment: Discuss the indications and contraindications for using wax therapy in physical rehabilitation.
Week 16	• **Lab work** • The practical training will be practiced in physiotherapy treatment ward under the supervision of qualified physiotherapists. • Practical application of Interferential therapy • Practical application of Infra-red rays • Practical application of ultrasound including Phonophoresis • Supervised application of Ultraviolet rays including determination • of test dosage • Practical application of Cold packs • Supervised application of Wax therapy • Practical application of Infra-red Rays • Practical application of Mechanical traction • Supervised application of Hot packs, Electric Heating pads • Paraffin Wax bath application • Practical application of SWD • Practical application of LASER • Supervised application of Shock wave therapy • Practical application of Magnetic therapy	Reading: Review the lab protocols for physical agents and electrotherapy. Assignment: Prepare a log of the practical techniques learned and performed during the lab work.

	• Demonstration of techniques during practical classes, later on techniques practiced by students on patients attending the department under supervision of trained physiotherapists.	

Lab Work

The practical training will be practiced in physiotherapy treatment ward under the supervision of qualified physiotherapists

- Location of motor points
- Faradic & I.D.C test
- Strength duration curve, determination of Rheobase and Chronaxie
- Accomodity test
- Electromyography, Definition, method, value, uses of E.M.G, Electromyography & temperature, feedback technique, Practical application of TENS in physical therapy treatment ward
- Reflective clinical case studies, Iontophoresis
- Practical application of Infra red rays, Practical application of ultrasound including Phonophoresis
- Supervised application of Ultraviolet rays including determination of test dosage
- Practical application of cold packs
- Practical application of traction
- Paraffin Wax bath application
- Demonstration of techniques during practical classes, later on techniques practiced by students on patients attending the department under supervision of trained physiotherapists.

Textbooks and Reading Material

- 1x Clayton's Electrotherapy and Actinotherapy, 10' edition by PM Scott.
- Electrotherapy: Evidence based Practice, 11' edition by Shelia Kitchen.
- Michelle H Cameron's Physical Agent in Rehabilitation: From research to Practice.
- Electrotherapy and Electrodiagnosis by S. Lient.
- Applications of Shortwave Diathermy by P. M. Scott.
- Textbook of Electrotherapy & Practical application by Jagmohen

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1, Quiz-II, Presentation and Professional Writing Assignments

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-310	Credit Hours	3(2+1)
Course Title	**Manual Therapy-1**				

Course Introduction

This course offers a comprehensive review of various manual therapy techniques, including spinal and peripheral joint mobilizations, temporomandibular joint treatments, advanced myofascial trigger point therapy, proprioceptive training, muscle energy techniques, strain-counterstrain methods, neuromobilization, and a combination of mobilization and manipulation techniques.

Learning Outcomes

- Examine the different concepts of manual therapy techniques.
- Explore the principles of manual therapy.
- Demonstrate proficiency in applying manual therapy techniques.

	Course Content	Assignments/Readings
Week 1	**Foundation concepts of manual therapy** • OMT Kaltenborn-Evjenth Concept o History o Special features o Overview	Readings: Introduction to Manual Therapy, Kaltenborn-Evjenth Concept. Assignments: Case Study on OMT Concepts, Historical Overview of OMT.
Week 2	**Principles** • Spinal Movement o The mobile segment o Spinal range of movement o Joint positioning for evaluation and treatment o Three-dimensional joint positioning o Resting positions and non-resting positions o Joint locking and movements (bone and joint)	Readings: Spinal Movement Principles. Assignments: Joint Positioning Practice, Evaluation of Spinal Movement.
Week 3	**Translatoricjoint play** • The Kaltenborn Treatment Plane • Translatoric Joint Play Movements • Kaltenborn Convex-Concave Rule • Grades of Translatoric Movement	Readings: Kaltenborn Treatment Plane, Convex-Concave Rule. Assignments: Translatoric Movement Practice, Application of Kaltenborn Rules.
Week 4	**Tests of function** • Principles of function testing • Assessing quantity and quality of movement • Active and passive rotatoric movements • Localization and differentiation tests	Readings: Function Testing Principles, Movement Quality Assessment. Assignments: Function Testing Exercises, Localization Tests.
Week 5	**OMT evaluation** • Goals and elements of OMT evaluation • Screening and detailed examination techniques • Indications and contraindications	Readings: OMT Evaluation Techniques. Assignments: OMT Evaluation Case Studies, Indications and Contraindications.
Week 6	**Spinal joint mobilization** • Goals and techniques for pain relief, relaxation, and stretching • Mobilization strategies to avoid risks	Readings: Spinal Joint Mobilization Techniques. Assignments: Pain Relief Mobilization, Risk-Free Mobilization Practices.
Week 7	**OMT treatment** • Elements of OMT: Symptom relief, mobility enhancement, and limiting movements • Neural tissue mobilization	Readings: OMT Treatment Principles. Assignments: Symptom Relief Mobilization Practice, Neural Tissue Mobilization Exercises.

Week 8	**Spinal syndromes** • Cervical, thoracic, and lumbar syndromes • Neurologic evaluation of nerve root syndromes	Readings: Spinal Syndromes Overview, Neurologic Evaluation Techniques. Assignments: Spinal Syndrome Case Study, Neurological Testing Practice.
Week 9	**Manual therapy assessment** • Maitland's and Mulligan Concepts • Examination of temporomandibular joint and spine regions	Readings: Maitland's and Mulligan Concepts. Assignments: Assessment of TMJ and Spine, Application of Maitland's and Mulligan's Techniques.
Week 10	**Subjective examination step-by-step** • Body chart and behavior of symptoms • HPC and counterfeit clinical presentations	Readings: Subjective Examination Techniques, Body Chart Analysis. Assignments: Body Chart Practice, HPC Case Study Analysis.
Week 11	**Physical examination step-by-step** • Joint, muscle, neurological, and special tests • Functional assessment	Readings: Physical Examination Techniques. Assignments: Functional Assessment Practice, Joint and Muscle Testing.
Week 12	**Techniques** • Principles of manual techniques application • Therapist's and patient's positioning	Readings: Manual Techniques Application Principles. Assignments: Therapist and Patient Positioning Exercises.
Week 13	**Pelvis** • Functional anatomy, evaluation, and mobilization techniques	Readings: Pelvic Anatomy and Mobilization Techniques. Assignments: Pelvic Mobilization Practice, Functional Anatomy of Pelvis.
Week 14	**Lumbar spine, thoracic spine, and cervical spine** • Functional anatomy, evaluation, and mobilizations for each section	Readings: Lumbar, Thoracic, and Cervical Spine Mobilizations. Assignments: Spine Mobilization Practice, Anatomical Evaluation Exercises.
Week 15	**Upper cervical spine and jaw** • Specific mobilization techniques and syndromes (e.g., headaches and vertigo)	Readings: Upper Cervical Spine Mobilization, Jaw Syndromes. Assignments: Mobilization Techniques for Cervical Spine, Headache and Vertigo Case Studies.
Week 16	**Integrative manual therapy** • Advanced approaches like strain-counterstrain, myofascial release, and tension treatments	Readings: Advanced Manual Therapy Techniques. Assignments: Case Study on Strain-Counterstrain, Myofascial Release Techniques.

Lab Work

In the laboratory sessions, Supervised evaluation and manual therapy treatment techniques will be demonstrated and practiced, including joint and soft-tissue mobilization, manipulations, and posture and movement retraining in the physiotherapy clinic/Ward and Orthopaedic clinic/Ward, Indoor as well as outdoor. Various reflective case studies related to manual therapy of the spine and TM joint will be assigned to the students.

Note:

The students are expected to make a record of his/her achievements in the log book. The log book is a collection of evidence that learning has taken place. It is a reflective record of achievements. The log book shall also contain a record of the procedures which student would have performed/observed

Textbooks and Reading Material

1. Manual Mobilization of the Joints: The Kaltenborn Method of Joint Examination and Treatment Volume I, The Extremities

By Freddy M. Kaltenborn in collaboration with Olaf Evjenth, Traudi Baldauf, Dennis Morgan, and Eileen Vollowitz, OPTP Minneapolis, Minnesota, USA.

2. Manual Therapy
   By Ola Grimsby, The Ola Grimsby Institute, San Diego.
3. Integrative Manual Therapy for the Upper and Lower Extremities
   By Sharon Weiselfish, North Atlantic Books, Berkeley, California.
4. Orthopedic Manual Therapy: An Evidence-Based Approach
   By Chad Cook.
5. Orthopaedic Manual Therapy: Diagnosis of the Spine and Temporomandibular Joints
   By Aad van der.
6. Translatoric Spinal Manipulation
   By John R. Krauss, Olaf Evjenth, and Doug Creighton, Lakeview Media LLC Publication.
7. Neuromusculoskeletal Examination and Assessment: A Handbook for Therapists
   By Nicola J. Petty, Ann P. Moore, & G. D. Maitland, Second Edition, Churchill Livingstone.
8. Myofascial Manipulation: Theory and Clinical Application, Second Edition
   By Robert I. Cantu, Alan J. Grodin, Aspen Publishers, Inc., Gaithersburg, Maryland, 2001.
9. Maitland's Vertebral Manipulation, Seventh Edition
   By Geoffrey D. Maitland.
10. Musculoskeletal Manual Medicine: Diagnosis and Treatment
    By Jiri Dovark, Vaclav Dovark, Werner Schneider, et al.

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-311	Credit Hours	2(2+0)
Course Title	**Pharmacology & Therapeutics - II**				

Course Introduction

This course aims to familiarize students with the properties, effects, and therapeutic applications of key agents within major drug categories. Topics include the pharmacology of the respiratory and gastrointestinal systems, treatments for infectious diseases, and medications used in iontophoresis and phonophoresis.

Learning Outcomes

1. Explain the theoretical foundations of pharmacological treatments in physical therapy.
2. Describe the pharmacological basis for clinical treatments provided to patients referred for physical therapy.
3. Outline the fundamental principles and key drugs used for the respiratory system, gastrointestinal system, and endocrine disorders.
4. Discuss the essential principles and applications of antimicrobial, antiviral, immunosuppressive drugs, as well as those utilized in iontophoresis and phonophoresis.

Course Content		Assignments/Readings
Week 1	**Respiratory and gastrointestinal pharmacology** • Respiratory drugs • Gastrointestinal drugs.	Reading: Study the different types of respiratory and gastrointestinal drugs. Assignment: Compare the mechanism of action of respiratory vs gastrointestinal drugs.
Week 2	**Endocrine pharmacology** • Introduction to endocrine pharmacology	Reading: Understand the role of the endocrine system in drug therapy. Assignment: Summarize the effects of endocrine dysfunction on pharmacology.
Week 3	**Endocrine pharmacology** • Adrenocorticosteroids	Reading: Review the classification and therapeutic uses of adrenocorticosteroids. Assignment: Write a case study involving adrenocorticosteroid therapy.
Week 4	**Endocrine pharmacology** • Male and female hormones	Reading: Study the pharmacology of male and female hormones. Assignment: Compare the pharmacological uses of male and female hormones in clinical practice.
Week 5	**Endocrine pharmacology** • Thyroid and parathyroid drugs; agents affecting bone mineralization	Reading: Review the pharmacology of thyroid and parathyroid drugs. Assignment: Prepare a report on the role of these drugs in bone health.
Week 6	**Endocrine pharmacology** • General and granulomatous inflammation	Reading: Study the mechanisms and treatment of general and granulomatous inflammation. Assignment: Discuss the role of drugs in controlling inflammation.
Week 7	**Endocrine pharmacology** • Morphologic patterns of acute and chronic inflammation	Reading: Understand the differences in acute vs chronic inflammation. Assignment: Analyze the drug therapies used

		to treat both types of inflammation.
Week 8	**Endocrine pharmacology** • Pancreatic hormones	Reading: Study the pharmacological actions of pancreatic hormones. Assignment: Write a report on insulin and glucagon's role in maintaining blood glucose levels.
Week 9	**Endocrine pharmacology** • Treatment of diabetes mellitus.	Reading: Review the pharmacological treatments for managing diabetes mellitus. Assignment: Compare different classes of drugs used in diabetes management.
Week 10	**Endocrine pharmacology (Continue)** • Treatment of diabetes mellitus.	Reading: Study insulin therapy and other newer treatments for diabetes. Assignment: Analyze case studies of diabetes treatment regimens.
Week 11	**Hemotherapy of infectious and neoplastic disease** • Treatment of infections; antiviral drugs	Reading: Review antiviral drugs used in treating infections. Assignment: Study the pharmacokinetics of common antiviral drugs.
Week 12	**Hemotherapy of infectious and neoplastic diseases** • Treatment of infections; antifungal and anti parasitic drugs	Reading: Study the different classes of antifungal and anti-parasitic drugs. Assignment: Research the effectiveness of antifungal and anti-parasitic therapies.
Week 13	**Hemotherapy of infectious and neoplastic diseases** • Cancer chemotherapy • Immunomodulating agents	Reading: Study the drugs used in cancer chemotherapy and immunomodulating agents. Assignment: Prepare a report on the latest advances in cancer drug therapies.
Week 14	**Hemotherapy of infectious and neoplastic diseases** • Immunomodulating agents	Reading: Understand the use of immunomodulating agents in cancer therapy. Assignment: Discuss the mechanism of action of key immunomodulators.
Week 15	**Drugs used in current physical therapy practice** • Drugs administered by iontophoresis and phonophoresis	Reading: Study the pharmacology of drugs used in iontophoresis and phonophoresis. Assignment: Analyze the clinical applications of these drugs in physical therapy.
Week 16	**Drugs used in current physical therapy practice** • Potential interactions between physical agents and therapeutic drugs.	Reading: Study the potential interactions between physical agents and therapeutic drugs. Assignment: Prepare a case study of drug interactions in physical therapy practice.
Textbooks and Reading Material		
• Pharmacology in Rehabilitation (5'¢ Edition-2015) By Charles D. Ciccone. • Pharmacology, Richard A, Harvey, 3rd Edition, Lippincott's. • A Textbook of Clinical Pharmacology and Therapeutics, 5'" Edition by James Ritter 2012		

Teaching Learning Strategies
Interactive Lectures Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors. **Collaborative Learning** Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations. **Case Studies** Use case studies to explore real-life examples of communication in business, academic, and casual settings. **Role-Playing and Simulations** To practice persuasive speaking, public speaking, and informal conversations. **Technology Integration** Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.
Assignments
Quiz-1 Quiz-II Presentation Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-312	Credit Hours	3(2+1)
Course Title	**Pathology and Microbiology-I**				

Course Introduction

This course aims to help students gain a thorough understanding of the pathology underlying various clinical diseases and their effects on major organ systems. Key epidemiological aspects will be explored and discussed. Students will develop problem-solving abilities and utilize knowledge of pathology and microbiology to determine when it is appropriate to refer a case to another healthcare professional or consider alternative treatments.

Learning Outcomes

1. Explain the fundamental concepts of general pathology.
2. Identify and interpret signs and symptoms that indicate serious health conditions.
3. Share relevant findings and information effectively, and determine the appropriate actions to take during physical therapy management.

	Course Content	Assignments/Readings
Week 1	**Cell injury and death** • Causes of cell injury • Pathogenesis of necrosis and apoptosis • Sub cellular responses	Causes of cell injury, Pathogenesis of necrosis and apoptosis, Sub cellular responses
Week 2	**Cell adaptations** Relevant examples: hyperplasia, hypertrophy, atrophy, metaplasia and intracellular accumulation	Relevant examples: hyperplasia, hypertrophy, atrophy, metaplasia and intracellular accumulation
Week 3	**Inflammation** • Acute inflammation • Vascular events and cellular events • Chemical mediators	Acute inflammation, Vascular events and cellular events, Chemical mediators
Week 4	**Chronic inflammation** • General and granulomatous inflammation • Morphologic patterns of acute and chronic inflammation	General and granulomatous inflammation, Morphologic patterns of acute and chronic inflammation
Week 5	**Healing & repair** • Normal controls of healing and repair. • Repair by connective tissue • Wound healing	Normal controls of healing and repair, Repair by connective tissue, Wound healing
Week 6	**Haemodynamic disorders** • Edema and its types • Hyperemia /congestion, hemorrhage, thrombosis, embolism, infarction, shock.	Edema and its types, Hyperemia/congestion, hemorrhage, thrombosis, embolism, infarction, shock
Week 7	**Diseases of immunity** • General features of immunity • Hypersensitivity reactions • Immune deficiencies.	General features of immunity, Hypersensitivity reactions, Immune deficiencies
Week 8	**Diseases of immunity** • Autoimmunity • amyloidosis	Autoimmunity, Amyloidosis
Week 9	**Neoplasia** • Nomenclature of neoplasia • Molecular basis of neoplasia	Nomenclature of neoplasia, Molecular basis of neoplasia
Week 10	**Neoplasia** • Carcinogenic agents of neoplasia • Clinical aspects of neoplasia	Carcinogenic agents of neoplasia, Clinical aspects of neoplasia

Week 11	**The bacteria** • Bacterial cell structure • Forms and function • Identification and • Classification of bacteria • Gram staining	Bacterial cell structure, Forms and function, Identification and Classification of bacteria, Gram staining
Week 12	**Methods of studying micro-organism** • Culturing • Inoculation and • Identification	Culturing, Inoculation and Identification
Week 13	**Methods of studying micro-organism** • Types of medicine • Physical states of media	Types of media, Physical states of media
Week 14	**Microbial growth** • Stages in the normal growth curve • Microbial genetics • Prokaryotic transcriptions and translations.	Stages in the normal growth curve, Microbial genetics, Prokaryotic transcription and translation
Week 15	**Microbial growth** • Conjugations • Mutation and its causes. • Mechanism of drug resistances and its pathogenesis. • Gateway to infection.	Conjugation, Mutation and its causes, Mechanism of drug resistance and its pathogenesis, Gateway to infection
Week 16	**Microbial growth** • Resident flora and its mechanism of invasions • Classic stages of clinical infection • Sterilization and disinfection.	Resident flora and its mechanism of invasions, Classic stages of clinical infection, Sterilization and disinfection

Lab Work

To study the microscope
- To study the calcification
- To study the osteogenic sarcoma
- To study the granulation tissue
- To study the chronic inflammation (cholecystitis)
- To study the acute inflammation (appendicitis)
- To Fibroedenoma
- To study the carcinoma of breast
- To study the actinomycosis
- To study the culture media
- To study the gram staining
- To study the Z-N staining
- To study the giant cell tumor
- Examination of urine

Textbooks and Reading Material

1. Kumar V, Abbas AK, &Aster JC. Robbins basic pathology. 9th ed. Elsevier: Philadelphia; 2013.
2. Levinson W. review of medical microbiology & immunology. 14th ed. McGraw-Hill: Canada; 2016
3. Thomson AD & Cotton RE. Lecture notes on pathology. 3rd ed. FA Davis; 1983
4. Goodman CC & Fuller KS. Pathology: implication for the Physical Therapist. 4th ed. Elsevier: USA;2015
5. Robbins and Cotran Pathologic Basis of Disease (10th ed.) by Kumar V, Abbas AK, Aster JC
6. Muir's Textbook of Pathology (15th ed.) by Reid R, Carroll N, & James A
7. Medical Microbiology (9th ed.) by Murray PR, Rosenthal KS, & Pfaller MA

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.

Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.

Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
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Programme	DPT	Course Code	DPT-313	Credit Hours	3(3+0)
Course Title	**Community Based Medicine & Rehabilitation**				

Course Introduction

This course is designed for physical therapy students to build a strong foundation in community health, wellbeing, and community-based rehabilitation. It provides knowledge on community health issues, policies, and procedures for effective rehabilitation management. The course also raises awareness about the challenges faced by individuals at all levels within the community and presents strategies for addressing these issues.

Learning Outcomes

1. Describe impact of environmental, biological, social and behavioral risk factors on health and disease through the epidemiologic methods.
2. Discuss agent, host and environmental factors determining health and disease.
3. Describe complete nutritional assessment of individual using clinical, Anthropometric and diet survey tools
4. Discuss the community health, diagnosis and to take remedial measure for improving community health
5. Discuss various types of disabilities existing in special child

	Course Content	Assignments/Readings
Week 1	**Community based medicine** • Introduction • History of community medicine & rehabilitation • Definition, concept of health & illness of diseases • Natural history of diseases, levels & prevention.	Reading: Study the concepts of community medicine and the history of rehabilitation. Assignment: Discuss the natural history of diseases and levels of prevention.
Week 2	**Environmental sanitation & medical entomology** • Water • Waste disposal • Environmental problems & pollution.	Reading: Learn about environmental sanitation and its impact on health. Assignment: Research and write about current environmental problems and pollution in your locality.
Week 3	**Genetics** • Prevention of genetic diseases • Genetic counseling.	Reading: Understand the basics of genetics and the role of genetic counseling in disease prevention. Assignment: Solve exercises on genetic diseases and counseling techniques.
Week 4	**General epidemiology** **Descriptive epidemiology** • Time • Place • Person.	Reading: Study the principles of descriptive epidemiology. Assignment: Analyze an epidemiological case study based on time, place, and person.
Week 5	**Analytical epidemiology** • Case control • Cohort studies**.**	Reading: Learn about analytical epidemiology methods like case-control and cohort studies. Assignment: Solve exercises on case-control and cohort studies.
Week 6	**Experimental epidemiology randomized control trial systemic epidemiology** • Vector borne diseases • Water borne diseases • Air borne diseases	Reading: Study experimental epidemiology and types of diseases. Assignment: Discuss case studies on vector-borne and water-borne diseases.
Week 7	**Experimental epidemiology randomized control trial systemic epidemiology** • Contact diseases • Diseases of major public health and its importance along with national health programs wherever applicable	Reading: Review experimental epidemiology and its role in addressing contact diseases. Assignment: Write about the importance of national health programs.

Week 8	**Non-communicable diseases** • Diabetes • Hypertension • Heart diseases • Blindness • Accidents • **Geriatric problem**	Reading: Understand the impact of non-communicable diseases. Assignment: Research the prevention and management of one of the non-communicable diseases.
Week 9	**Occupational health problems** • M.C.H. and family welfare Programmes • Health care delivery in the community • National Health Policy • National Health programmes including Rehabilitation, Evaluation of Health Programmes, Health Planning Organization.	Reading: Study the structure and functioning of National Health Programs. Assignment: Discuss the role of family welfare programs in community health.
Week 10	**Structure of health care system in the country** • P. H. C. district level • State level and central level. • P. H. C. Organization and Function • Role of Non-Governmental Organization.	Reading: Study the organization of the healthcare system in the country. Assignment: Research and write about the role of NGOs in community healthcare.
Week 11	**Health Education** • Principles of Health Promotion • Methods, approaches and media for I. E. C (Information, Education & Communication) • Medical and Health/Information system • Mental Health • Nutrition.	Reading: Study the principles and methods of health education. Assignment: Develop a health promotion plan using I.E.C. techniques.
Week 12	**Community based rehabilitation health in the community** • Handicap and the community • Nutrition and mal nutrition • Breast feeding • Immunization • Oral rehydration.	Reading: Understand community-based rehabilitation practices. Assignment: Research the importance of immunization and oral rehydration in community health.
Week 13	**Normal body function** • Normal development • Growth and weight of children.	Reading: Learn about normal childhood development. Assignment: Analyze growth charts and the importance of monitoring children's growth.
Week 14	**Conditions and treatments** • Cerebral palsy in children • Down syndrome • Mental handicap • Hydrocephalus • Spin bifida	Reading: Study common childhood conditions and their treatments. Assignment: Research treatment options for cerebral palsy and Down syndrome.
Week 15	**Conditions and treatments** • Poliomyelitis • Blindness • Deafness • Strokes • Spinal cord injuries • Amputation.	Reading: Study the medical management of disabilities and diseases. Assignment: Discuss the rehabilitation strategies for spinal cord injuries and blindness.
Week 16	**Management of patients** • Assessment and recoding • Fits • Contractures • Pressure sores • Urine and bowel management	Reading: Learn about patient management and rehabilitation techniques. Assignment: Write a case study on the management of contractures and pressure sores.

	• Chest infection • Feeding children with cerebral palsy • Toy making workshop • Welfare assistance.	

Textbooks and Reading Material

1. Textbooks of Community Medicine, by Prof. H. A. Siddique (2°Edition).
2. Parks text book of preventive & social medicine —K Park.
3. Community based rehabilitation worker manual, marion loveday, global health publication
4. Introduction to Special Education By: Allen and Beacon,(1992), A Simon &SuperterComp.Needham Heights
5. Exceptional Children and Adults, Patton, J.R. (1991); Boston Scott Foresmen and Co.
6. Exceptional Children in Focus by: Patton J.R. (1991); New York, Macmillan pub. Co

Teaching Learning Strategies

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To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
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Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
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3.	Final Assessment	40%	Written Examination at the end of the semester.

Semester-VII

Programme	DPT	Course Code	DPT-401	Credit Hours	3(0+3)
Course Title	**Supervised Clinical Practice- III (Musculoskeletal)**				
Semester	**Supervised ---** **Focused ---** **Wards ---** **Competencies**				
7th	**Supervised by trained PT---** **Musculoskeletal---** **All wards---** **All listed below**				

Course Introduction

During this supervised clinical practice, students are responsible for successful execution of examination, evaluation, and interventions relating to musculoskeletal disorders. Students become familiar with performance of these skills in all settings (inpatient and outpatient) as well as on all types of conditions (surgical, non-surgical, pediatric and geriatric). Students learn to objectively perform these skills under the supervision of trained physical therapists. Student is required to keep a performance record of all listed competencies and successfully perform on real patients during the final evaluation of the course.

Course Content		Assignments/Readings
Week 1	**Clinical competencies examination** • Based on best available evidence select examination tests and measures that are appropriate for the patient/client. • Perform posture tests and measures of postural alignment and positioning." • Perform gait, locomotion and balance tests including quantitative and qualitative measures such as: • Balance during functional activities with or without the use of assistive, adaptive, orthotic, protective, supportive, or prosthetic devices or equipment • Balance (dynamic and static) with or without the use of assistive, adaptive, orthotic, protective, supportive, or prosthetic devices or equipment • Gait and locomotion during functional activities with or without the use of assistive, adaptive, orthotic, protective, supportive, or prosthetic devices or equipment • Bed mobility • Transfers (level surfaces and floor) • Wheelchair management • Uneven surfaces • Safety during gait, locomotion, and balance	Assignments: Read chapter on postural alignment and positioning. Perform gait analysis with and without devices. Submit reflection on safety during functional activities. Readings: Evidence-based gait assessment and balance techniques.
Week 2	**Clinical Competencies Examination** • Perform gait assessment including step length, speed, characteristics of gait, and abnormal gait patterns. • Characterize or quantify body mechanics during self-care, home management, work, community, tasks, or leisure activities. • Characterize or quantify ergonomic performance during work (job/school/play) • Dexterity and coordination during work • Safety in work environment • Specific work conditions or activities • Tools, devices, equipment, and workstations related to work actions, tasks, or activities • Characterize or quantify environmental home and_ work (job/school/play) barriers:	Assignments: Gait assessment report submission. Analyze and submit observations on work-related body mechanics. Identify environmental barriers in self-care and home management. Readings: Ergonomic guidelines for home and workplace activities. Pain assessment and management strategies.

	• Current and potential barriers • Physical space and environment • Community access • Observe self-care and home management (including ADL and IADL) • Measure and characterize pain* to include: • Pain, soreness, and nocioception • Specific body parts • Recognize and characterize signs and symptoms of inflammation	
Week 3	**Perform musculoskeletal system tests and measures including:** • Accessory movement tests • Anthropometrics • Limb length • Limb girth • Body composition • Functional strength testing • Joint integrity • Joint mobility • Ligament laxity tests • Muscle length • Muscle strength including manual muscle testing, dynamometry, • one repetition max • Palpation • Range of motion including goniometric measurements	Assignments: Perform and submit musculoskeletal assessment on a patient. Document findings on limb length, girth, and joint mobility. Readings: Techniques for musculoskeletal system tests. Review of joint integrity and mobility testing.
Week 4	**Perform orthotic tests and measures including:** • Components, alignment, fit, and ability to care for orthotic, protective, and supportive devices and equipment. • Evaluate the need for orthotic, protective, and supportive devices used during functional activities. • Remediation of impairments in body function and structure, activity limitations, and participation restrictions with use of orthotic, protective, and supportive device. • Residual limb or adjacent segment, including edema, range of motion, skin integrity and strength. • Safety during use of orthotic, protective, and supportive device. • Perform prosthetic tests and measures including": • Alignment, fit, and ability to care for prosthetic device. • Prosthetic device use during functional activities. • Remediation of impairments in body function and structure, • activity limitations, and participation restrictions, with use of prosthetic device. • Evaluation of residual limb or adjacent segment, including edema, range of motion, skin integrity, and strength. • Safety during use of the prosthetic device. • Perform tests and measures for assistive and adaptive devices including*:	Assignments: Complete report on orthotic and prosthetic device tests. Submit evaluation on fit and care for assistive devices. Readings: Clinical guidelines for orthotic and prosthetic use. Review of assistive devices for functional activities.

	• Assistive or adaptive devices and equipment use during functional activities. • Components, alignment, fit, and ability to care for the assistive or adaptive devices and equipment. • Remediation of impairments in body function and structure, activity limitations, and participation restrictions with use of assistive or adaptive devices and equipment. • Safety during use of assistive or adaptive equipment.	
Week 5	**Evaluation** • Clinical reasoning • Clinical decision making • Synthesize available data on a patient/client expressed in terms of the International Classification of Function, Disability and Health • (ICF) model to include body functions and structures, activities, and participation. • Use available evidence in interpreting the examination findings. • Verbalize possible alternatives when interpreting the examination findings. • Cite the evidence (patient/client history, lab diagnostics, tests and measures and scientific literature) to support a clinical decision	Assignments: Synthesize patient data and write clinical reasoning report. Use ICF model to interpret patient findings. Readings: Clinical decision-making frameworks. Review of evidence-based clinical reasoning techniques.
Week 6	**Diagnosis** • Integrate the examination findings to classify the patient/client problem in terms of body functions and structures, and activities and participation (practice patterns in the Guide) • Identify and prioritize impairments in body functions and structures, and activity limitations and participation restrictions to determine specific body function and structure, and activities and participation towards which the intervention will be directed	Assignments: Diagnostic assessment of patient/client condition. Prioritize impairments and activity limitations. Readings: Classification of musculoskeletal conditions. Study of practice patterns in physical therapy.
Week 7	**Prognosis** • Determine the predicted level of optimal functioning and the amount of time required to achieve that level. • Recognize barriers that may impact the achievement of optimal functioning within a predicted time frame including: • Age • Medication(s) • Socioeconomic status • Co-morbidities • Cognitive status • Nutrition • Social Support • Environment	Assignments: Prognosis assignment based on patient/client data. Identify barriers to optimal function. Readings: Prognostic assessment in musculoskeletal rehabilitation. Barriers to functional recovery.
Week 8	**Plan of Care** • Goal setting • Coordination of Care • Progression of care • Discharge • Design a Plan of Care	Assignments: Write a detailed plan of care for a patient. Include measurable functional goals and expected outcomes. Readings: Patient-centered care and goal-setting strategies. Evidence for planning effective interventions.

	• Write measurable functional goals (short-term and long-term) that are time referenced with expected outcomes. • Consult patient/client and/or caregivers to develop a mutually agreed to plan of care. • Identify patient/client goals and expectations. • Identify indications for consultation with other professionals. • Make referral to resources needed by the patient/client (assumes knowledge of referral sources). • Select and prioritize the essential interventions that are safe andmeet the specified functional goals and outcomes in the plan of care • Identify precautions and contraindications • provide evidence for patient-centered interventions that are identified and selected define the specificity of the intervention (time, intensity, duration, and frequency) • Set realistic priorities that consider relative time duration in conjunction with family, caregivers, and other health care professionals	
Week 9	**Plan of Care** • Establish criteria for discharge based on patient goals and current functioning and disability. • Coordination of Care • Identify who needs to collaborate in the plan of care. • Identify additional patient/client needs that are beyond the scope of physical therapist practice, level of experience and expertise, and warrant referral. • Refer and discuss coordination of care with other health care professionals. • Articulate a specific rational for a referral. • Advocate for patient/client access to services. • Progression of Care • Identity outcome measures of progress relative to when to progress the patient further. • Measure patient/client response to intervention. • Monitor patient/client response to intervention. • Modify elements of the plan of care and goals in response to changing patient/client status, as needed. • Make on-going adjustments to interventions according to outcomes including environmental factors and personal factors and, medical therapeutic interventions. • Make accurate decisions regarding intensity and frequency when adjusting interventions in the plan of care. • Discharge Plan • Re-examine patient/client if not meeting established criteria for discharge based on the plan of care. • Differentiate between discharge of the _ patient/client, discontinuation of service, and transfer of care with reevaluation. • Prepare needed resources for patient/client to ensure timely discharge, including follow-up care.	Assignments: Develop criteria for discharge planning. Collaborate with a multidisciplinary team to design a discharge strategy. Readings: Coordination of care and discharge planning. Outcomes monitoring and progression in rehabilitation.

	• Include patient/client and family/caregiver as a partner in discharge. • Discontinue care when services are no longer indicated. • When services are still needed, seek resources and/or consult with others to identify alternative resources that may be available. • Determine the need for equipment and initiate requests to obtain.	
Week 10	**Interventions** • Safety, Emergency Care, CPR and First Aid • Standard Precautions • Body Mechanics and • Positioning • Categories of Interventions • Safety, Cardiopulmonary Resuscitation Emergency Care, First • Aid • Ensure patient safety and safe application of patient/client care. • Perform first aid. • Perform emergency procedures. • Perform Cardiopulmonary Resuscitation (CPR). • Precautions • Demonstrate appropriate sequencing of events related to universal precautions. • Use Universal Precautions. • Determine equipment to be used and assemble all sterile and non-sterile materials. • Use transmission-based precautions. • Demonstrate aseptic techniques. • Apply sterile procedures. • Properly discard soiled items	Assignments: Complete CPR and first aid certification. Demonstrate proper body mechanics techniques. Readings: First aid and emergency care protocols. Universal precautions and aseptic techniques.
Week 11	**Body mechanics and positioning** • Apply proper body mechanics (utilize, teach, reinforce, and observe). • Properly position, drape, and stabilize a patient/client when providing physical therapy	Assignments: Body mechanics practical session. Submit patient positioning case study. Readings: Body mechanics guidelines. Techniques for proper positioning and draping.
Week 12	**Interventions** • Coordination, communication, and documentation may include: • Addressing required functions: • Establish and maintain an ongoing collaborative process of decision-making with patients/clients, families, or caregivers prior to initiating care and throughout the provision of services. • Discern the need to perform mandatory communication and reporting (eg, incident reports, patient advocacy and abuse reporting). • Follow advance directives. • Admission and discharge planning. • Case management. • Collaboration and coordination with agencies, including: • Home care agencies	Assignments: Participate in a case conference and submit summary. Submit patient coordination documentation. Readings: Documentation practices for physical therapy. Communication strategies in patient care coordination.

	• Equipment suppliers • Schools • Transportation agencies • Payer groups • Communication across settings, including: • Case conferences • Documentation	
Week 13	**Interventions** • Education plans • Cost-effective resource utilization. • Data collection, analysis, and reporting of: • Outcome data • Peer review findings • Record reviews • Documentation across settings, following APTA's Guidelines for • Physical Therapy Documentation, including: • Elements of examination, evaluation, diagnosis, prognosis, and Intervention • Changes in body structure and function, activities and participation. • Changes in interventions • Outcomes of intervention • Interdisciplinary teamwork: • Patient/client family meetings • Patient care rounds • Case conferences • Referrals to other professionals or resources. • Patient/client-related instruction may include: • Instruction, education, and training of patients/clients and • Caregivers regarding: • Current condition, health condition, impairments in body structure and function, and activity limitations, and participation restrictions) • Enhancement of performance • Plan of care: • Risk factors for health condition, impairments in body structure and function, and activity limitations, and participation restrictions. • Preferred interventions, alternative interventions, and alternative modes of delivery • Expected outcomes • Health, wellness, and fitness programs (management of risk factors) • Transitions across settings	Assignments: Develop a therapeutic exercise program for a patient. Submit progress on strength and endurance training. Readings: Evidence on therapeutic exercise techniques. Review of manual therapy interventions.
Week 14	**Therapeutic exercise may include** • Body mechanics and postural stabilization: • Body mechanics training • Postural control training • Postural stabilization activities • Posture awareness training • Flexibility exercises: • Muscle lengthening • Range of motion	Assignments: Final therapeutic exercise plan and implementation. Submit progress with manual therapy interventions. Readings: Progression strategies for exercise rehabilitation. Joint and soft tissue manipulation techniques.

	• Stretching • Gait and locomotion training: • Developmental activities training • Gait training • Device training • Perceptual training • Basic wheelchair training • Strength, power, and endurance training for head, neck, limb, and trunk • Active assistive, active, and resistive exercises (including concentric, dynamic/isotonic, eccentric, isokinetic, isometric, and plyometric exercises) • Aquatic programs • Task-specific performance training • Strength, power, and endurance training for pelvic floor: • Active (Kegel) • Strength, power, and endurance training for ventilatory muscles • Active and resistive • Manual therapy techniques may include: • Passive range of motion • Massage: • Connective tissue massage • Therapeutic massage • Manual traction • Mobilization/manipulation: • Soft tissue (thrust and non-thrust) • Spinal and peripheral joints (thrust and non-thrust) • Functional training in self-care and home management may include: • Functional training in work (job/school/play), community, and leisure integration or reintegration may include: • Activities of daily living (ADL) training	
Week 15	**Therapeutic exercise may include** • Bed mobility and transfer training • Age appropriate functional skills • Barrier accommodations or modifications • Device and equipment use and training: • Assistive and adaptive device or equipment training during ADL (specifically for bed mobility and transfer training, gait and locomotion, and dressing) • Orthotic, protective, or supportive device or equipment training during self-care and home management • Prosthetic device or equipment training during ADL (specifically for bed mobility and transfer training, gait and locomotion, and dressing) • Functional training programs • Simulated environments and tasks • Task adaptation • Injury prevention or reduction: • Safety awareness training during self-care and home management" • Injury prevention education during self-care and home management	Assignments: Final therapeutic exercise program implementation. Submit progress with manual therapy interventions. Readings: Manual therapy techniques and progression.

	• Injury prevention or reduction with use of devices and equipment • Prescription, application, and, as appropriate, fabrication of devices and equipment may include: • Adaptive devices • Hospital beds • Raised toilet seats • Seating systems — prefabricated • Assistive devices • Canes • Crutches • Long-handled reachers • Static and dynamic splints — prefabricated • Walkers • Wheelchairs • Orthotic devices: • Prefabricated braces • Prefabricated shoe inserts • Prefabricated splints • Prosthetic devices (lower-extremity) • Protective devices: • Braces • Cushions • Helmets • Protective taping • Supportive devices: • Prefabricated compression garments • Corsets • Elastic wraps • Neck collars • Slings • Supplemental oxygen - apply and adjust • Supportive taping • Electrotherapeutic modalities may include: • Biofeedback • Electrotherapeutic delivery of medications (e.g, iontophoresis) • Electrical stimulation	
Week 16	**Therapeutic exercise may include** • Electrical muscle stimulation (EMS) • Functional electrical stimulation (FES) • High voltage pulsed current (HVPC) • Neuromuscular electrical stimulation (NMES) • Transcutaneous electrical nerve stimulation (TENS) • Physical agents and mechanical modalities may include: Physical agents: • Cryotherapy: • Cold packs • Ice massage • Vapocoolant spray • Hydrotherapy: • Contrast bath • Pools • Sound agents: • Phonophoresis • Ultrasound • Thermotherapy • Dry heat	Assignments: Complete final exam. Submit case study report. Readings: Review of all course materials. Final clinical competencies review.

	• Hot packs • Paraffin baths • Mechanical modalities: Compression therapies (prefabricated) • Compression garments: Skill Category Description of Minimum • Skills • Vasopneumatic compression devices • Taping • Compression bandaging (excluding lymphedema) • Gravity-assisted compression devices: • Standing frame • Tilt table • Mechanical motion devices: • Continuous passive motion (CPM) • Traction devices • Intermittent • Positional • Sustained • Documentation of all listed competencies in SOAP notes format **NOTE** • It is mandatory for each student to document minimum 16 cases per semester (1 cases per week) in clinical log book duly checked and signed by clinical supervisor on weekly basis and head of institute at completion	

Teaching Learning Strategies

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Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
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Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1, Quiz-II, Presentation, Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-402	Credit Hours	(3+0)
Course Title	**Surgery-I**				

Course Introduction

This course is designed to provide students with a comprehensive understanding of the principles and practices of orthopedic surgery. It introduces foundational knowledge about surgical terminologies and abbreviations, which are essential for efficient and accurate chart reviewing, medical documentation, and communication within clinical settings. The course delves into a detailed exploration of various orthopedic conditions that require surgical intervention. This includes an in-depth focus on the epidemiology, pathology, and clinical presentation of these conditions. Students will learn to identify primary and secondary clinical characteristics, gaining insights into how these features inform diagnostic and management decisions. Additionally, the course emphasizes the surgical approaches used in managing orthopedic disorders. It covers preoperative assessment, selection of surgical techniques, postoperative care, and rehabilitation strategies.

Learning Outcomes

- Differentiate between primary and secondary clinical features of orthopedic conditions, enabling accurate diagnosis and assessment of disease progression.
- Gain proficiency in using standard classification systems (e.g., fracture types, arthritis staging, scoliosis measurement) to guide diagnosis and treatment planning.
- Recognize when surgical management is warranted for orthopedic conditions based on clinical presentation, imaging findings, and patient needs.
- Understand the use of modern surgical tools and techniques, such as arthroscopy, robotic-assisted surgery, and minimally invasive approaches, and their impact on patient recovery.
- Develop a clear understanding of the causes and underlying mechanisms of various orthopedic conditions, including trauma, degenerative diseases, infections, congenital deformities, and neoplasms.

	Course Content	Assignments/Readings
Week 1	**Orthopedic surgery fractures** • Comprehensive Definition of Fractures: Types, Characteristics, and Clinical Importance • Systematic Classification of Fractures Based on Location, Mechanism, and Severity • Detailed Overview of Causes and Risk Factors Leading to Fractures • Thorough Examination of Clinical Features Associated with Various Types of Fractures • Stages and Biological Processes Involved in the Healing of Fractures	Comprehensive Definition of Fractures: Types, Characteristics, and Clinical Importance, Systematic Classification of Fractures Based on Location, Mechanism, and Severity, Detailed Overview of Causes and Risk Factors Leading to Fractures, Thorough Examination of Clinical Features Associated with Various Types of Fractures, Stages and Biological Processes Involved in the Healing of Fractures
Week 2	**Orthopedic surgery fractures** • Common and Rare Complications Associated with Fracture Healing and Management • Key Principles and Guidelines for the General Management of Fractures in Orthopedic Practice • Specific Management Principles for Fractures of the Upper Extremity: Diagnosis to Recovery • Tailored Approaches to the Management of Fractures of the Lower Extremity: Challenges and Outcomes • Fracture of the vertebral column, thorax and pelvis • Basic and advanced trauma life support.	Common and Rare Complications Associated with Fracture Healing and Management, Key Principles and Guidelines for the General Management of Fractures in Orthopedic Practice, Specific Management Principles for Fractures of the Upper Extremity: Diagnosis to Recovery, Tailored Approaches to the Management of Fractures of the Lower Extremity: Challenges and Outcomes, Fracture of the vertebral column, thorax and pelvis, Basic and advanced trauma life support

Week 3	**Dislocations & subluxation** • Comprehensive Definition and Key Features of Traumatic Dislocation • General Overview of Traumatic Dislocations and Subluxations: Causes, Diagnosis, and Principles of Treatment • Principles of General Management for Traumatic Dislocation and Subluxation of Specific Joints: o Shoulder Joint o Acromioclavicular Joint o Elbow Joint o Hip Joint o Knee Joint	Comprehensive Definition and Key Features of Traumatic Dislocation, General Overview of Traumatic Dislocations and Subluxations: Causes, Diagnosis, and Principles of Treatment, Principles of General Management for Traumatic Dislocation and Subluxation of Specific Joints: Shoulder Joint, Acromioclavicular Joint, Elbow Joint, Hip Joint, Knee Joint
Week 4	**Soft tissues injury** • Anatomy and Physiology Overview with General Management of Ligament Injuries • Tendon Injuries: Anatomical Considerations and Clinical Management • Comprehensive Approach to Muscle Injuries: Anatomy, Physiology, and Treatment • Management of Injuries to Fascia: Structure, Function, and Healing • Bursae Injuries: Causes, Symptoms, and Therapeutic Interventions	Anatomy and Physiology Overview with General Management of Ligament Injuries, Tendon Injuries: Anatomical Considerations and Clinical Management, Comprehensive Approach to Muscle Injuries: Anatomy, Physiology, and Treatment, Management of Injuries to Fascia: Structure, Function, and Healing, Bursae Injuries: Causes, Symptoms, and Therapeutic Interventions
Week 5	**Soft tissues injury** • Detailed Physiotherapy Management of Injuries in the Shoulder Region • Physiotherapy Strategies for Elbow Region Injuries: Muscles, Ligaments, and Tendons • Comprehensive Physiotherapy for Wrist and Hand Region Tissue Injuries • Knee Region Rehabilitation: Physiotherapy for Ligaments, Muscles, and Tendons • Ankle Region Physiotherapy: Detailed Rehabilitation Techniques for Tissue Injuries • Muscle and Tendon Injuries of Upper and Lower Limb: Rehabilitation and Recovery	Detailed Physiotherapy Management of Injuries in the Shoulder Region, Physiotherapy Strategies for Elbow Region Injuries: Muscles, Ligaments, and Tendons, Comprehensive Physiotherapy for Wrist and Hand Region Tissue Injuries, Knee Region Rehabilitation: Physiotherapy for Ligaments, Muscles, and Tendons, Ankle Region Physiotherapy: Detailed Rehabilitation Techniques for Tissue Injuries, Muscle and Tendon Injuries of Upper and Lower Limb: Rehabilitation and Recovery
Week 6	**Soft tissue injury** • Cervico-Lumbar Injuries: Physiological Basis and Detailed Physiotherapy Management • Whiplash Injuries of the Cervical Spine: Mechanisms, Symptoms, and Rehabilitation • Crush Injuries: Physiotherapy Role in Recovery and Functional Restoration • Spinal Pain: Evaluation and Physiotherapy Techniques for Pain Relief	Cervico-Lumbar Injuries: Physiological Basis and Detailed Physiotherapy Management, Whiplash Injuries of the Cervical Spine: Mechanisms, Symptoms, and Rehabilitation, Crush Injuries: Physiotherapy Role in Recovery and Functional Restoration, Spinal Pain: Evaluation and Physiotherapy Techniques for Pain Relief
Week 7	**Soft tissue injury** • Osteo-Orthosis and Arthritis: Pathophysiology and Principles of Management	Osteo-Orthosis and Arthritis: Pathophysiology and Principles of Management, Spondylosis and Spondylolysis: Degenerative

	• Spondylosis and Spondylolysis: Degenerative Conditions of the Spine • Pyogenic Arthritis: Infectious Processes and Treatment Strategies • Rheumatoid Arthritis: Chronic Inflammation and Therapeutic Approaches • Juvenile Arthritis: Special Considerations for Diagnosis and Management • Tuberculosis Arthritis: Pathology, Diagnosis, and Clinical Treatment	Conditions of the Spine, Pyogenic Arthritis: Infectious Processes and Treatment Strategies, Rheumatoid Arthritis: Chronic Inflammation and Therapeutic Approaches, Juvenile Arthritis: Special Considerations for Diagnosis and Management, Tuberculosis Arthritis: Pathology, Diagnosis, and Clinical Treatment
Week 8	**Soft tissue injury** • Gouty Arthritis: Mechanisms of Uric Acid Deposition and Joint Damage • Haemophilic Arthritis: Challenges in Bleeding Disorders and Joint Health • Neuropathic Arthritis: Etiology, Clinical Features, and Care Strategies • Ankylosing Spondylitis: Autoimmune Pathogenesis and Management • Psoriatic Arthritis: Integration of Dermatological and Rheumatological Care	Gouty Arthritis: Mechanisms of Uric Acid Deposition and Joint Damage, Haemophilic Arthritis: Challenges in Bleeding Disorders and Joint Health, Neuropathic Arthritis: Etiology, Clinical Features, and Care Strategies, Ankylosing Spondylitis: Autoimmune Pathogenesis and Management, Psoriatic Arthritis: Integration of Dermatological and Rheumatological Care
Week 9	**General orthopedic disorders** • Carpal Tunnel Syndrome: Compression Neuropathy and Management • Compartment Syndromes: Pathophysiology and Surgical Intervention • Muscular Dystrophies: Genetic Basis and Multidisciplinary Management • Neuropathies in Orthopedics: Diagnostic and Rehabilitation Approaches • Avascular Necrosis of Bone in Adults and Children: Pathogenesis and Care	Carpal Tunnel Syndrome: Compression Neuropathy and Management, Compartment Syndromes: Pathophysiology and Surgical Intervention, Muscular Dystrophies: Genetic Basis and Multidisciplinary Management, Neuropathies in Orthopedics: Diagnostic and Rehabilitation Approaches, Avascular Necrosis of Bone in Adults and Children: Pathogenesis and Care
Week 10	**General orthopedic disorders** • Ischemic Contractures: Etiology, Prevention, and Corrective Treatments • Gangrene: Types, Causes, and Principles of Surgical Management • Rickets: Nutritional Deficiencies and Skeletal Deformities • Osteoporosis and Osteomalacia: Diagnosis, Prevention, and Treatment • Shoulder Pain: Common Causes and Orthopedic Treatment Approaches • Neck pain, Knee pain and Backache • Painful Condition around elbow • Detail description of Orthotics, Prosthetics, Splintage, Traction, POP	Ischemic Contractures: Etiology, Prevention, and Corrective Treatments, Gangrene: Types, Causes, and Principles of Surgical Management, Rickets: Nutritional Deficiencies and Skeletal Deformities, Osteoporosis and Osteomalacia: Diagnosis, Prevention, and Treatment, Shoulder Pain: Common Causes and Orthopedic Treatment Approaches, Neck pain, Knee pain and Backache, Painful Condition around elbow, Detail description of Orthotics, Prosthetics, Splintage, Traction, POP
Week 11	**Tumours** • Classification • Principles of general management • General description of benign and malignant tumors of musculoskeletal system	Classification, Principles of general management, General description of benign and malignant tumors of musculoskeletal system

Week 12	**Deformities & anomalies** • Definition, causes and classification of deformities • Acquired and congenital deformities • Complications due to deformities and anomalies • Physical and clinical radiological features • Medical and surgical management principles	Definition, causes and classification of deformities, Acquired and congenital deformities, Complications due to deformities and anomalies, Physical and clinical radiological features, Medical and surgical management principles
Week 13	**Spine deformities** • Torticolis • Scoliosis • Kyphosis • Lordosis • Flat back.	Torticolis, Scoliosis, Kyphosis, Lordosis, Flat back
Week 14	**Deformities of the lower limb** • Talipescalcaneous equines, varus& valgus • Talipescalcaneovarus • Talipescalcaneovalgus and Talipesequinovarus • Genu valgum, Genu varum and Genu recurvatum • CDK	Talipescalcaneous equines, varus& valgus, Talipescalcaneovarus, Talipescalcaneovalgus and Talipesequinovarus, Genu valgum, Genu varum and Genu recurvatum, CDK
Week 15	**Deformities of the lower limb** • CDH • Coxavera • Coxavaiga • Anteversion • Ret Pescavus • Pesplanus • Hallux valgus &varum, • Hallux rigidus and hammer toe roversion	CDH, Coxavera, Coxavaiga, Anteversion, Ret Pescavus, Pesplanus, Hallux valgus &varum, Hallux rigidus and hammer toe roversion
Week 16	**Deformities of the shoulder and upper limb** • Sprengels shoulder • Cubitusvarum • Cubitusvalgum • Deputryn's contracture	Sprengels shoulder, Cubitusvarum, Cubitusvalgum, Deputryn's contracture

Textbooks and Reading Material

1. Textbooks.

1.1. Short practice of surgery by Baily and Love's.

1.2. Text Book of Surgery by ljaz Ahsan.

1.3. Outline of Fractures.

Teaching Learning Strategies

Interactive Lectures

Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.

Collaborative Learning

Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.

Case Studies

Use case studies to explore real-life examples of communication in business, academic, and casual settings.

Role-Playing and Simulations

To practice persuasive speaking, public speaking, and informal conversations.

Technology Integration

Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1, Quiz-II, Presentation and Professional Writing Assignments

Assessment			
Sr. No.	**Elements**	**Weightage**	**Details**
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-403	Credit Hours	3(3+0)
Course Title	**Medicine-I**				

Course Introduction

This course aims to provide students with a thorough understanding of medical terminology and abbreviations, allowing for more efficient chart study, accurate interpretation, and effective recordkeeping. It offers a thorough investigation of systemic disorders, covering their etiology, pathophysiology, epidemiology, and histology. The training also covers primary and secondary clinical feature identification, diagnostic criteria comprehension, and therapeutic and preventive management techniques. This fundamental information improves participants' communication and documentation skills and equips them to participate with confidence in multidisciplinary healthcare teams.

Learning Outcomes

- Understand medical vocabulary and abbreviations, as well as the epidemiology, etiology, and clinical features (primary and secondary) of cardiovascular, rheumatologic, musculoskeletal, and respiratory disorders.
- Provide a quick overview of the medical management techniques for the diseases and disorders described below.
- Differentiate between common and uncommon presentations of diseases within these systems.
- Evaluate the impact of systemic diseases on overall patient health and quality of life.
- Apply knowledge of disease mechanisms to suggest appropriate diagnostic and treatment pathways.
- Discuss preventive strategies and lifestyle modifications for managing chronic diseases in these categories.
- Integrate medical terminology and abbreviations into accurate charting and documentation of clinical findings.
- Recognize the interrelationship between these systemic diseases and their potential complications across different body systems.

	Course Content	Assignments/Readings
Week 1	Cardiovascular diseases CARDIAC DISEASES • Chest Pain Associated with Cardiovascular or Other Causes • Dyspnoea or Shortness of Breath Related to Cardiac Conditions • Palpitation and Awareness of Irregular Heartbeats • Peripheral Edema Due to Cardiac or Systemic Causes • Syncope or Temporary Loss of Consciousness Linked to Cardiac Issues	Chest Pain Associated with Cardiovascular or Other Causes, Dyspnoea or Shortness of Breath Related to Cardiac Conditions, Palpitation and Awareness of Irregular Heartbeats, Peripheral Edema Due to Cardiac or Systemic Causes, Syncope or Temporary Loss of Consciousness Linked to Cardiac Issues
Week 2	Cardiovascular diseases CARDIAC DISEASES • Cardiac Failure and Impairment of Heart Function • Acute Pulmonary Edema Due to Left Ventricular Dysfunction • Cardiogenic Shock Resulting from Severe Heart Failure • Systemic Hypertension and its Impact on Cardiovascular Health • Ischemic Heart Disease Caused by Reduced Blood Flow to the Heart	Cardiac Failure and Impairment of Heart Function, Acute Pulmonary Edema Due to Left Ventricular Dysfunction, Cardiogenic Shock Resulting from Severe Heart Failure, Systemic Hypertension and its Impact on Cardiovascular Health, Ischemic Heart Disease Caused by Reduced Blood Flow to the Heart
Week 3	Cardiovascular diseases CARDIAC DISEASES • Angina Pectoris as a Symptom of Myocardial Ischemia • Unstable Angina as a Medical Emergency of the Heart • Myocardial Infarction or Acute Heart Attack • Rheumatic Fever and its Cardiac Complications • Valvular Heart Diseases Involving Dysfunctional Heart Valves	Angina Pectoris as a Symptom of Myocardial Ischemia, Unstable Angina as a Medical Emergency of the Heart, Myocardial Infarction or Acute Heart Attack, Rheumatic Fever and its Cardiac Complications, Valvular Heart Diseases Involving Dysfunctional Heart Valves

Week 4	Cardiovascular diseases CARDIAC DISEASES • Congenital Heart Diseases Present from Birth • Ventricular Septal Defect and its Effects on Heart Function • Atrial Septal Defect and Abnormal Blood Flow Between Atria • Pulmonary Heart Disease Affecting the Right Side of the Heart • Pericardial Diseases Involving the Heart's Protective Sac	Congenital Heart Diseases Present from Birth, Ventricular Septal Defect and its Effects on Heart Function, Atrial Septal Defect and Abnormal Blood Flow Between Atria, Pulmonary Heart Disease Affecting the Right Side of the Heart, Pericardial Diseases Involving the Heart's Protective Sac
Week 5	Cardiovascular diseases CARDIAC DISEASES • Pulmonary Hypertension Leading to Increased Lung Artery Pressure • Cardiac Arrhythmias and Heart Conditions During Pregnancy VASCULAR DISEASES • Arteriosclerosis and Hardening of the Arteries • Acute and Chronic Ischemia of the Lower Extremities	Pulmonary Hypertension Leading to Increased Lung Artery Pressure, Cardiac Arrhythmias and Heart Conditions During Pregnancy, Arteriosclerosis and Hardening of the Arteries, Acute and Chronic Ischemia of the Lower Extremities
Week 6	Cardiovascular diseases VASCULAR DISEASES • Aortic Aneurysm and Dilatation of the Aorta • Buerger's Disease or Thromboangiitis Obliterans • Raynaud's Disease and Vasospastic Conditions • Varicose Veins and Abnormal Vein Enlargement • Venous Thrombosis and Blood Clot Formation in Veins	Aortic Aneurysm and Dilatation of the Aorta, Buerger's Disease or Thromboangiitis Obliterans, Raynaud's Disease and Vasospastic Conditions, Varicose Veins and Abnormal Vein Enlargement, Venous Thrombosis and Blood Clot Formation in Veins
Week 7	Cardiovascular diseases RHEUMATOLOGY AND BONE DISEASES: ARTHRITIS • Osteoarthritis and Degenerative Joint Disease • Rheumatoid Arthritis and Chronic Inflammatory Joint Disorder • Connective Tissue Diseases Affecting Joints and Organs • Arthritis in Elderly Individuals and Age-Related Joint Disorders	Osteoarthritis and Degenerative Joint Disease, Rheumatoid Arthritis and Chronic Inflammatory Joint Disorder, Connective Tissue Diseases Affecting Joints and Organs, Arthritis in Elderly Individuals and Age-Related Joint Disorders
Week 8	Cardiovascular diseases RHEUMATOLOGY AND BONE DISEASES: ARTHRITIS • Arthritis in Children and Juvenile Idiopathic Arthritis • Seronegative Spondyloarthropathies and Related Joint Disorders • Crystal Deposition Diseases Affecting Joints and Soft Tissues • Arthritis Associated with Other Systemic or Localized Diseases	Arthritis in Children and Juvenile Idiopathic Arthritis, Seronegative Spondyloarthropathies and Related Joint Disorders, Crystal Deposition Diseases Affecting Joints and Soft Tissues, Arthritis Associated with Other Systemic or Localized Diseases
Week 9	Cardiovascular diseases BACK PAIN • Back Pain Resulting from Serious Underlying Medical Conditions • Chronic Inflammatory Back Pain Associated with Autoimmune Disorders • Intervertebral Disc Degeneration or Disease • Mechanical Spinal and Postural Structural Problems	Back Pain Resulting from Serious Underlying Medical Conditions, Chronic Inflammatory Back Pain Associated with Autoimmune Disorders, Intervertebral Disc Degeneration or Disease, Mechanical Spinal and Postural Structural Problems

Week 10	Cardiovascular diseases BACK PAIN • Soft Tissue Injuries and Muscular Strains in the Back • Psychogenic Back Pain Related to Psychological Factors • Nonspecific Back Pain Without a Clear Identifiable Cause • Chronic or Acute Pain in the Neck and Cervical Spine Region	Soft Tissue Injuries and Muscular Strains in the Back, Psychogenic Back Pain Related to Psychological Factors, Nonspecific Back Pain Without a Clear Identifiable Cause, Chronic or Acute Pain in the Neck and Cervical Spine Region
Week 11	Cardiovascular diseases SOFT TISSUE RHEUMATISM: BONE DISEASES • Paget's Disease of Bone Affecting Bone Remodeling and Strength • Infections of Bones and Bone Tissue, Including Osteomyelitis • Neoplastic Diseases Involving Benign and Malignant Bone Tumors • Skeletal Dysplasia and Disorders of Bone Development • Other Hereditary Diseases Affecting the Skeletal System	Paget's Disease of Bone Affecting Bone Remodeling and Strength, Infections of Bones and Bone Tissue, Including Osteomyelitis, Neoplastic Diseases Involving Benign and Malignant Bone Tumors, Skeletal Dysplasia and Disorders of Bone Development, Other Hereditary Diseases Affecting the Skeletal System
Week 12	Respiratory diseases Diseases of upper respiratory tract • Common cold and viral upper respiratory infections • Sinusitis and inflammation of the paranasal sinuses • Rhinitis and nasal inflammation or irritation • Pharyngitis and sore throat due to infection • Acute laryngo-tracheobronchitis and inflammation of upper airways • Influenza and seasonal viral respiratory illness • Inhalation of foreign bodies and airway obstruction	Diseases of upper respiratory tract: Common cold and viral upper respiratory infections, Sinusitis and inflammation of the paranasal sinuses, Rhinitis and nasal inflammation or irritation, Pharyngitis and sore throat due to infection, Acute laryngo-tracheobronchitis and inflammation of upper airways, Influenza and seasonal viral respiratory illness, Inhalation of foreign bodies and airway obstruction
Week 13	Respiratory diseases Diseases of lower respiratory tract • Acute and chronic bronchitis and airway inflammation • Bronchiectasis and permanent dilation of the bronchi • Cystic fibrosis and genetic respiratory disorders • Asthma and chronic inflammatory airway disease • Emphysema and destruction of alveolar walls	Diseases of lower respiratory tract: Acute and chronic bronchitis and airway inflammation, Bronchiectasis and permanent dilation of the bronchi, Cystic fibrosis and genetic respiratory disorders, Asthma and chronic inflammatory airway disease, Emphysema and destruction of alveolar walls
Week 14	Respiratory diseases Diseases of lower respiratory tract • Pneumonias and infections of the lung tissue • Tuberculosis and mycobacterial lung disease • Pulmonary fibrosis and progressive lung scarring • Radiation damage to lung tissue and respiratory function • Common tumors of the lungs including benign and malignant types	Diseases of lower respiratory tract: Pneumonias and infections of the lung tissue, Tuberculosis and mycobacterial lung disease, Pulmonary fibrosis and progressive lung scarring, Radiation damage to lung tissue and respiratory function, Common tumors of the lungs including benign and malignant types

Week 15	Respiratory diseases Diseases of lower respiratory tract • Respiratory failure and impairment of gas exchange • Adult respiratory distress syndrome and severe lung injury • Disorders of the chest wall and pleural membranes • Chest trauma and injuries to the thoracic region • Deformities of the rib cage and thoracic abnormalities	Diseases of lower respiratory tract: Respiratory failure and impairment of gas exchange, Adult respiratory distress syndrome and severe lung injury, Disorders of the chest wall and pleural membranes, Chest trauma and injuries to the thoracic region, Deformities of the rib cage and thoracic abnormalities
Week 16	Respiratory diseases Diseases of lower respiratory tract • Dry pleurisy and inflammation of the pleural membranes • Pleural effusion and accumulation of fluid in the pleural space • Empyema and pus collection in the pleural cavity • Pneumothorax and collapse of the lung due to air in the pleural space	Diseases of lower respiratory tract: Dry pleurisy and inflammation of the pleural membranes, Pleural effusion and accumulation of fluid in the pleural space, Empyema and pus collection in the pleural cavity, Pneumothorax and collapse of the lung due to air in the pleural space

Textbooks and Reading Material

2. Textbooks.

2.1. Practice of Medicine by: Davidson
2.2. Clinical Medicine by: Parveen J. Kumar & Michael Clark
2.3. Short Textbook of Medicine by: M. Inam Danish
2.4. Hutchison's Clinical Methods by: Michael Swash (21st Edition)
2.5. Clinical Examination by: MacLeod
2.6. Clinical Examination: A Systematic Guide to Physical Diagnosis by: Talleyand O'Connor
2.7. Oxford Handbook of Clinical Medicine by: Ian B. Wilkinson, Tim Raine, et al.
2.8. Principles of Internal Medicine by: Harrison

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1, Quiz-II, Presentation and Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-404	Credit Hours	3(2+1)
Course Title	**Musculoskeletal Physical Therapy-I**				

Course Introduction

This course provides a comprehensive study of the applied anatomy and physiology of the musculoskeletal system, focusing on both normal and pathological changes that affect function. It emphasizes diagnostic tools, clinical assessments, and evidence-based physical therapy interventions for managing musculoskeletal conditions. Students will compare contemporary and traditional treatment approaches, explore emerging technologies in the field, and develop proficiency in medical terminology. By integrating clinical examination, evaluation strategies, and research, the course prepares students to deliver effective, patient-centered care in musculoskeletal physical therapy.

Learning Outcomes

- Describe the musculoskeletal system's applicable anatomy and physiology in detail.
- Describe physiotherapy terms related to the musculoskeletal system.
- Give a thorough explanation of the concepts and principles of musculoskeletal physical therapy examination, assessment, evaluation, documentation, and management.

	Course Content	Assignments/Readings
Week 1	**Medical terminology regarding musculoskeletal system principles and concepts of musculoskeletal evaluation & assessment** • A Patient history • Observation • Examination • Principles, vital signs, examination of specific joints, functional assessment, specific diagnostic test, reflexes and cutaneous distribution, joint play movements, palpation • Evaluation /Assessment of spine and peripheral joints • Causes • Effects of range limitation on functional activities • Principles of assessment and outcome measures • Documentation in SOAP notes format • Evidence based musculoskeletal Physical Therapy Treatment protocols	A Patient history, Observation, Examination, Principles, vital signs, examination of specific joints, functional assessment, specific diagnostic test, reflexes and cutaneous distribution, joint play movements, palpation, Evaluation /Assessment of spine and peripheral joints, Causes, Effects of range limitation on functional activities, Principles of assessment and outcome measures, Documentation in SOAP notes format, Evidence based musculoskeletal Physical Therapy Treatment protocols
Week 2	**Principles of intervention** **Soft tissue injury, repair, and management** • Soft tissue lesions • Management during the acute stage • Management during the sub-acute • Management during the chronic stage • Cumulative trauma—chronic recurring pain **Joint, connective tissue, and bone disorders and management** • Arthritis—arthrosis • Fibromyalgia and myofascial pain syndrome • Osteoporosis • Fractures=post-traumatic immobilization	Soft tissue injury, repair, and management: Soft tissue lesions, Management during the acute stage, Management during the sub-acute, Management during the chronic stage, Cumulative trauma—chronic recurring pain. Joint, connective tissue, and bone disorders and management: Arthritis—arthrosis, Fibromyalgia and myofascial pain syndrome, Osteoporosis, Fractures=post-traumatic immobilization
Week 3	**Surgical interventions and postoperative management** • Indications for surgical intervention • Guidelines for preoperative and postoperative management: considerations for preoperative management, considerations for postoperative management, potential postoperative complications	Indications for surgical intervention, Guidelines for preoperative and postoperative management: considerations for preoperative management, considerations for postoperative management, potential postoperative complications,

	• Overview of common orthopedic surgeries and postoperative management; surgical approaches—open, arthroscopic, and arthroscopically assisted procedures, use of tissue graits, repair, reattachment, reconstruction, stabilization, or transfer of soft tissues, release, lengthening, or decompression of soft tissues	Overview of common orthopedic surgeries and postoperative management; surgical approaches—open, arthroscopic, and arthroscopically assisted procedures, use of tissue grafts, repair, reattachment, reconstruction, stabilization, or transfer of soft tissues, release, lengthening, or decompression of soft tissues
Week 4	**Exercise interventions by body region** **The spine and posture: structure, function, postural impairments & management guidelinesposture and biomechanical influences** • Alignment • Stability. **Impaired posture** • Etiology of pain • Common faulty postures: characteristics and impairments. **Management of impaired posture** • General management guidelines • Tension headache/cervical headache	The spine and posture: structure, function, postural impairments & management guidelines: posture and biomechanical influences, Alignment, Stability, Impaired posture, Etiology of pain, Common faulty postures: characteristics and impairments. Management of impaired posture, General management guidelines, Tension headache/cervical headache
Week 5	**The spine: impairments, diagnoses, & management** • Guidelines • Review of the structure and function of the spine. **Spinal pathologies and impaired spinal function** • Pathology of the intervertebral disk • Pathomechanical relationships of the intervertebral disk and facet joints • Pathology of the zygapophyseal (facet) • Pathology of muscle and soft tissue injuries: strains, tears, and contusions • Pathomechanics of spinal instability.	Guidelines, Review of the structure and function of the spine. Spinal pathologies and impaired spinal function: Pathology of the intervertebral disk, Pathomechanical relationships of the intervertebral disk and facet joints, Pathology of the zygapophyseal (facet), Pathology of muscle and soft tissue injuries: strains, tears, and contusions, Pathomechanics of spinal instability.
Week 6	**Management guidelines based on impairments** • Principles of management for the spine • Management guidelines—non-weight-bearing bias • Management guidelines—extension bias • Management guidelines—flexion bias • Management guidelines=stabilization • Management guidelines—mobilization • Management guidelines—soft tissue injuries • Management guidelines—temporomandibular joint dysfunction	Principles of management for the spine, Management guidelines—non-weight-bearing bias, Management guidelines—extension bias, Management guidelines—flexion bias, Management guidelines=stabilization, Management guidelines—mobilization, Management guidelines—soft tissue injuries, Management guidelines—temporomandibular joint dysfunction
Week 7	**The spine: exercise interventions** • Basic concepts of spinal management with exercise • Fundamental interventions • Patient education • General exercise guidelines • Kinesthetic awareness	Basic concepts of spinal management with exercise, Fundamental interventions, Patient education, General exercise guidelines, Kinesthetic awareness, Elements of kinesthetic training—fundamental

	• Elements of kinesthetic training—fundamental techniques • Progression to active and habitual contro! Of posture • Mobility/flexibility • Cervical and upper thoracic • Region=stretching techniques • Mid and lower thoracic and lumbar • Regions=stretching techniques	techniques, Progression to active and habitual control of posture, Mobility/flexibility, Cervical and upper thoracic Region=stretching techniques, Mid and lower thoracic and lumbar Regions=stretching techniques
Week 8	**The spine: exercise interventions** • Muscle performance: stabilization, muscle endurance, and strength training • Stabilization training—fundamental techniques and progressions • Isometric and dynamic exercises • Cardiopulmonary endurance • Common aerobic exercises and effects on the spine • Functional activities • Early functional training—fundamental techniques • Preparation for functional activities—basic exercise techniques • Body mechanics and environmental adaptations • Intermediate to advanced exercise techniques for functional training • Education for prevention.	Muscle performance: stabilization, muscle endurance, and strength training, Stabilization training—fundamental techniques and progressions, Isometric and dynamic exercises, Cardiopulmonary endurance, Common aerobic exercises and effects on the spine, Functional activities, Early functional training—fundamental techniques, Preparation for functional activities—basic exercise techniques, Body mechanics and environmental adaptations, Intermediate to advanced exercise techniques for functional training, Education for prevention
Week 9	**The shoulder and shoulder girdle** • Examination, evaluation and assessment of shoulder joint • Referred pain and nerve injury • Management of shoulder disorders and surgeries • Joint hypomobility: non-operative management • Glenohumeral joint surgery and postoperative management • Painful shoulder syndromes (rotator cuff disease, impingement syndromes, shoulder instabilities): • Non-operative management	Examination, evaluation, and assessment of shoulder joint, Referred pain and nerve injury, Management of shoulder disorders and surgeries, Joint hypomobility: non-operative management, Glenohumeral joint surgery and postoperative management, Painful shoulder syndromes (rotator cuff disease, impingement syndromes, shoulder instabilities): Non-operative management
Week 10	**The shoulder and shoulder girdle** • Painful shoulder syndromes: surgery and _ postoperative management • Shoulder dislocations: non-operative management • Shoulder instabilities: surgery and post-operative management • Exercise interventions for the shoulder • Girdle exercise techniques during acute and early subacute stages of tissue healing • Exercise techniques to increase flexibility and range of motion • Exercises to develop and improve muscle performance and functional control	Painful shoulder syndromes: surgery and postoperative management, Shoulder dislocations: non-operative management, Shoulder instabilities: surgery and post-operative management, Exercise interventions for the shoulder, Girdle exercise techniques during acute and early subacute stages of tissue healing, Exercise techniques to increase flexibility and range of motion, Exercises to develop and improve muscle performance and functional control
Week 11	**The elbow & forearm complex** • Examination, evaluation and assessment of elbow and forearm complex • Referred pain and nerve injury in the elbow region	Examination, evaluation, and assessment of elbow and forearm complex, Referred pain and nerve injury in the elbow region,

	• Management of elbow and forearm disorders and surgeries • Joint hypomobility: nonoperative management • Joint surgery and postoperative management • Myositis ossificans • Overuse syndromes: repetitive trauma syndromes • Exercise interventions for the elbow and forearm • Exercise techniques to increase flexibility and range of motion • Exercises to develop and improve muscle performance and functional	Management of elbow and forearm disorders and surgeries, Joint hypomobility: nonoperative management, Joint surgery and postoperative management, Myositis ossificans, Overuse syndromes: repetitive trauma syndromes, Exercise interventions for the elbow and forearm, Exercise techniques to increase flexibility and range of motion, Exercises to develop and improve muscle performance and functional control
Week 12	**The wrist & hand** • Examination, evaluation and assessment of wrist and hand • Major nerves subject to pressure and trauma at the wrist and hand • Management of wrist and hand disorders and surgeries • Joint hypomobility: non-operative management • Joint surgery and postoperative management • Repetitive trauma syndromes/overuse • Traumatic lesions in the wrist and hand • Exercise interventions for the wrist and hand • Techniques for musculotendinous mobility • Exercise techniques to increase flexibility and range of motion • Exercises to develop and improve muscle performance, neuromuscular control, and coordination	Examination, evaluation, and assessment of wrist and hand, Major nerves subject to pressure and trauma at the wrist and hand, Management of wrist and hand disorders and surgeries, Joint hypomobility: non-operative management, Joint surgery and postoperative management, Repetitive trauma syndromes/overuse, Traumatic lesions in the wrist and hand, Exercise interventions for the wrist and hand, Techniques for musculotendinous mobility, Exercise techniques to increase flexibility and range of motion, Exercises to develop and improve muscle performance, neuromuscular control, and coordination
Week 13	**The hip** • Examination, evaluation and assessment of hip joint • The hip and gait • Referred pain and nerve injury • Management of hip disorders and surgeries • Joint hypomobility: non-operative management • Joint surgery and post-operative management • Fractures of the hip-surgical and postoperative management • Painful hipsyndromes/overuse syndromes:non-operative management • Exercise interventions for the hip region • Exercise techniques to increase flexibility and range of motion • Exercises to develop and improve muscle performance and functional control	Examination, evaluation, and assessment of hip joint, The hip and gait, Referred pain and nerve injury, Management of hip disorders and surgeries, Joint hypomobility: non-operative management, Joint surgery and post-operative management, Fractures of the hip-surgical and postoperative management, Painful hip syndromes/overuse syndromes: non-operative management, Exercise interventions for the hip region, Exercise techniques to increase flexibility and range of motion, Exercises to develop and improve muscle performance and functional control
Week 14	**The knee** • Examination, evaluation and assessment of knee joint • Referred pain and nerve injuries • Management of knee disorders and surgeries • Joint hypomobility: non-operative management	Examination, evaluation, and assessment of knee joint, Referred pain and nerve injuries, Management of knee disorders and surgeries, Joint hypomobility: non-operative management, Joint

	• Joint surgery and post-operative management • Patellofemoral dysfunction: non-operative management • Patellofemoral and extensor mechanism dysfunction: surgical and postoperative management	surgery and post-operative management, Patellofemoral dysfunction: non-operative management, Patellofemoral and extensor mechanism dysfunction: surgical and postoperative management
Week 15	**The knee** • Ligament injuries: non-operative management • Ligament injuries: surgical and postoperative management • Meniscal tears: non-operative management • Meniscal tears: surgical and postoperative management • Exercise interventions for the knee • Exercise techniques to increase flexibility and range of motion • Exercises to develop and improve muscle performance and functional control	Ligament injuries: non-operative management, Ligament injuries: surgical and postoperative management, Meniscal tears: non-operative management, Meniscal tears: surgical and postoperative management, Exercise interventions for the knee, Exercise techniques to increase flexibility and range of motion, Exercises to develop and improve muscle performance and functional control
Week 16	**The ankle & foot** • Examination, evaluation and assessment of ankle and foot joint • Referred pain and nerve injury • Management of foot and ankle disorders and surgeries • Joint hypomobility: non-operative management • Joint surgery and post-operative management • Overuse (repetitive trauma) syndromes: non-operative management • Ligamentous injuries: non-operative management • Traumatic soft tissue injuries: surgical and postoperative management	Examination, evaluation, and assessment of ankle and foot joint, Referred pain and nerve injury, Management of foot and ankle disorders and surgeries, Joint hypomobility: non-operative management, Joint surgery and post-operative management, Overuse (repetitive trauma) syndromes: non-operative management, Ligamentous injuries: non-operative management, Traumatic soft tissue injuries: surgical and postoperative management
	Lab work • The practical training will be sought in physiotherapy treatment-based settings. Keeping in view therapeutic principles, management of various pre- and post-operative conditions will be practiced under supervision and later independently by the students, the practical work might include therapeutic management of conditions of spine, and extremities. • Reflective clinical case studies • Supervised and independent practical application of therapeutic techniques on patients in outdoor and indoor physiotherapy treatment settings. • Note: the students are expected to make a record of his/her achievements in the log book. The log book is a collection of evidence that learning has taken place. It is a reflective record of achievements. The log book shall also contain a record of the procedures which student would have performed/observed	Therapeutic principles, management of various pre- and post-operative conditions, practical work, therapeutic management of spine and extremities, Reflective clinical case studies, Supervised and independent practical application of therapeutic techniques, Log book collection of evidence and procedures performed/observed
Lab Work		
The practical training will be sought in physiotherapy treatment based settings. Keeping in view therapeutic principles, management of various pre and post-operative conditions will be practiced under supervision and later independently by the students, the practical work might include: • Therapeutic Management of conditions of spine • Therapeutic Management of conditions of extremities		

- Therapeutic Management of vascular disorders
- Therapeutic Management of pulmonary conditions
- Therapeutic Management of gynecological conditions
- Reflective clinical case studies
- Supervised and independent Practical application of therapeutic techniques on patients in outdoor and indoor physiotherapy treatment settings

Textbooks and Reading Material

1. Therapeutics Exercises and Technique, By: Carolyn Kisner& Lynn Allen Colby ath 5th edition.
2. Therapeutics Exercises: Techniques for Intervention By: Willim D.Banddy.
3. Clinical decision making in therapeutic exercise By: Patricia e. Sullivan & prudence d. Markos, Appleton & Lange Norwalk, Connecticut.
4. Hertling, D, and Kessler RM. Management of Common Musculoskeletal Disorders: Physical Therapy Principles and Methods. 3" ed. Philadelphia, PA: WB Saunders 1995.
5. Orthopaedic Physical Therapy By: Donatelli& Michael J. Wooden 4th Edition.
6. Physiotherapy in Orthopaedics, A problem-solving approach By:Atkinson, Coutts &Hassenkamp 2nd Edition.
7. Clinical orthopaedic rehabilitation By S. Brent. Brotzman& Kevin. E. Wilk, 2"° edition, Mosby publishers.
8. Management of Common Musculoskeletal Disorder by: Hertling, D, and Kessler RM Physical Therapy Principles and Methods. 3rd ed. Philadelphia.PA: WB Sunders.
9. Orthopedic Physical Assessment. Magee, D.4' ed. Philadelphia PA: WB Sunders 1995.
10. Physical Rehablitations Assessments and Treatment". By Susan B,O'Sullivan&Thomas J. Schmitz , 4'" edition
11. Tidy's Physiotherapy by Thomas A Skinner & Piercy

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-405	Credit Hours	3(2+1)
Course Title	**Evidence-Based Practice**				

Course Introduction

This course introduces the concept of evidence-based practice in physical therapy including the formulation of answerable clinical questions, methods of obtaining peer-reviewed evidence to those clinical questions, and how to critically appraise evidence once located. Current journal articles, texts, and online resources will be used in the course to develop critical reading and writing skills.

Learning Outcomes

- Discuss in detail the concept of evidence-based practice in physical therapy.
- Demonstrate the latest skills needed for obtaining, evaluating, critiquing, and applying the scientific literature pertaining to physical therapy practice.

Course Contents		Assignments/Readings
Week 1	**Evidence-based physiotherapy** • An introduction about evidence-based physiotherapy: • High quality clinical research • Patient preferences • Practice knowledge • Additional factors	Assignments: Read the article on the fundamentals of evidence-based practice. Write a summary of how patient preferences impact physiotherapy. Readings: Evidence-based practice in physiotherapy.
Week 2	**Evidence-based physiotherapy** • Introduction to clinical decision making and process • Importance of evidence-based physiotherapy for patients, physiotherapists, profession and funders of physiotherapy services • History of evidence-based health care • Steps for practicing evidence-based physiotherapy.	Assignments: Case study on clinical decision-making process. Analyze and discuss the history of evidence-based physiotherapy. Readings: Articles on clinical decision making and historical evolution of evidence-based healthcare.
Week 3	**Informational needs** • Relevant clinical questions • Refining your question • Effects of intervention • Experiences • Prognosis • Diagnosis	Assignments: Formulate relevant clinical questions based on a case study. Refine clinical questions related to intervention effects. Readings: How to develop clinical questions and refine them.
Week 4	**Constitution of evidence** • Evidence about effects of interventions • Different forms of evidence • Different sources of evidence • Hierarchy of evidence • Research study design	Assignments: Research and summarize different sources of evidence in physiotherapy. Study the hierarchy of evidence and explain its significance. Readings: Research on study designs and evidence hierarchies in healthcare.
Week 5	**Finding the evidence** • Search Strategies • The World Wide Web • Selecting search terms AND OR • Finding Evidence of Effects of Interventions • PEDro • The Cochrane Library	Assignments: Practice search strategies on PEDro and the Cochrane Library. Document the findings. Readings: Guidelines for effective search strategies and databases like PEDro and Cochrane.
Week 6	**Finding the evidence** • Finding Evidence of Prognosis and Diagnostic Tests • Finding Evidence of Experiences • CINAHL • PubMed • Getting full text	Assignments: Conduct a search for prognosis and diagnostic test evidence on PubMed and CINAHL. Report on retrieving full-text articles. Readings: Explore resources for finding

	• Finding evidence of advances in clinical • Practice (Browsing)	evidence of prognosis and diagnostic tests.
Week 7	**Trust upon evidence** • A process for critical appraisal of evidence • Critical appraisal of evidence about the Effects of intervention • Randomized trials • Systematic reviews of randomized trials • Critical appraisal of evidence about experiences	Assignments: Critically appraise a randomized trial and a systematic review. Submit the appraisal of evidence about intervention effects. Readings: Appraisal guidelines for randomized trials and systematic reviews.
Week 8	**Trust upon evidence** • Critical appraisal of evidence about prognosis • Individual studies of prognosis • Systematic reviews of prognosis • Critical Appraisal of Evidence about Diagnostic Tests • Individual studies of diagnostic tests • Systematic reviews of diagnostic tests.	Assignments: Appraise individual studies of prognosis and diagnostic tests. Write a report on critical appraisal of evidence. Readings: Understanding critical appraisal of prognosis and diagnostic test studies.
Week 9	**Clinical guidelines as a resource for evidence-based physiotherapy** • What are clinical guidelines? • History of clinical guidelines and why they are important • Where can I find clinical guidelines? • How do I know if I can trust the recommendations in a clinical guideline? • Scope and purpose	Assignments: Research clinical guidelines for a specific condition. Discuss their relevance and reliability. Readings: Articles on the importance and history of clinical guidelines.
Week 10	**Clinical guidelines as a resource for evidence-based physiotherapy** • Stakeholder involvement • Rigor of development • Clarity and presentation • Applicability • Editorial independence • What do the results of the critical appraisal mean for my practice? • Legal Implications of Clinical Guidelines	Assignments: Analyze stakeholder involvement in developing clinical guidelines. Review and present findings on the rigor and applicability of guidelines. Readings: Review articles on stakeholder involvement and legal implications in clinical guidelines.
Week 11	**Clinical guidelines as a resource for evidence-based physiotherapy** • Clinical guidelines or ‗reasonable care: which do the courts consider more important? • Documenting the use of a clinical guideline in practice: legal implications • Reflections on the Future of Guideline Development • Who should develop clinical guidelines? • Collaboration in guideline development • Unprofessional or multiprofessional guideline development?	Assignments: Prepare a report on the legal implications of clinical guidelines. Discuss the future of clinical guideline development and its collaboration models. Readings: Research on the development and legal aspects of clinical guidelines.
Week 12	**Critical thinking** • The Benefit of Asking the Right Questions • What Are the Issue and the Conclusion? • What Are the Reasons? • What Words or Phrases Are Ambiguous? • What Are the Value Conflicts and Assumptions?	Assignments: Write a critical analysis of a clinical case using the principles of critical thinking. Discuss the role of assumptions and ambiguous terms. Readings: Critical thinking techniques and strategies in clinical practice.
Week 13	• What Are the Descriptive Assumptions? • Are There Any Fallacies in the Reasoning?	Assignments: Identify and analyze fallacies in reasoning from a case study. Evaluate the quality of evidence based on

	• How Good Is the Evidence: Intuition, Personal Experience? • Testimonials, and Appeals to Authority? • How Good Is the Evidence: Personal Observation, Research?	intuition, personal experience, and research. Readings: Articles on identifying fallacies and evaluating evidence quality.
Week 14	• Studies, Case Examples, and Analogies • Are There Rival Causes? • Are the Statistics Deceptive? • What Significant Information Is Omitted? • What Reasonable Conclusions Are Possible? • Practice and Review • The Tone of Your Critical Thinking • Strategies for Effective Critical Thinking.	Assignments: Review a case study and identify omitted information or deceptive statistics. Submit your analysis of reasonable conclusions. Readings: Case examples, statistics interpretation, and strategies for effective critical thinking.
Week 15	**Lab work** • Identify the different sources of evidence • Critically appraised topics (CAT) • How to evaluate web page	Assignments: Perform a lab-based exercise on identifying different sources of evidence and critically appraise a topic. Readings: Guidelines on evaluating web pages and appraising evidence.
Week 16	**Lab work** • Ways of searching strategies for different databases • Selection of search terminology • Retrieving of articles from data bases	Assignments: Conduct a lab exercise on advanced search strategies across multiple databases. Retrieve and organize articles for a clinical question. Readings: Best practices for selecting search terms and retrieving articles.

Lab Work

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

Textbooks and Reading Material

1. Practical Evidence based physiotherapy By, Rob Herbert, GroJamtdvedt, Judy Mead & KareBirger Hagen.
2. Asking the right question-A guide to critical thinking, 8th Edition By, M. Neil. Browne & Stuart M Keeley.

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment			
Sr. No.	**Elements**	**Weightage**	**Details**
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-406	Credit Hours	3(2+1)
Course Title	**Radiology and Diagnostic Imaging**				

Course Introduction

This course focuses on common diagnostic and therapeutic imaging studies. Students will graduate from the course knowing the signs and consequences of common diagnostic imaging tests in relation to patient care.

Learning Outcomes

- Describe in detail examination and understanding of radiological imaging (X-Rays) of Extremities, Spine and Chest.
- Explain briefly an overview of radiological imaging including Mammography, Fluoroscopy, Computer Tomography, Magnetic Resonance Imaging, Ultrasound, Endoscopy, Nuclear Medicine and Interventional Radiology.
- Explain briefly indications to prescribe X-Rays, Mammography, MRI and Ultrasound.

	Course Content	Assignments/Readings
Week 1	**From the Watching of Shadows** • History • A New Kind of Ray • How a Medical Image Helps • What Imaging Studies Reveal • Radiography(x-rays)	History, A New Kind of Ray, How a Medical Image Helps, What Imaging Studies Reveal, Radiography (x-rays)
Week 2	**From the Watching of Shadows** • Fluoroscopy • Computed Tomography (CT) • Magnetic Resonance Imaging (MRI) • Ultrasound • Endoscopy	Fluoroscopy, Computed Tomography (CT), Magnetic Resonance Imaging (MRI), Ultrasound, Endoscopy
Week 3	**Radiography and Mammography** • Equipment components • Procedures for Radiography & Mammography	Equipment components, Procedures for Radiography & Mammography
Week 4	**Radiography and Mammography** • Benefits versus Risks and Costs • Indications and contraindications.	Benefits versus Risks and Costs, Indications and contraindications
Week 5	**Fluoroscopy** • Fluoroscopy • Equipment used for fluoroscopy • Indications and Contra indications	Fluoroscopy, Equipment used for fluoroscopy, Indications and Contraindications
Week 6	**Fluoroscopy** • How it helps in diagnosis • The Findings in Fluoroscopy • Benefits versus Risks and Costs	How it helps in diagnosis, The Findings in Fluoroscopy, Benefits versus Risks and Costs
Week 7	**Computed Tomography** • Computed Tomography • Equipment used for Computed Tomography • Indications and Contra indications	Computed Tomography, Equipment used for Computed Tomography, Indications and Contraindications
Week 8	**Computed Tomography** • How it helps in diagnosis • The Findings in Computed Tomography • Benefits versus Risks and Costs	How it helps in diagnosis, The Findings in Computed Tomography, Benefits versus Risks and Costs
Week 9	**Magnetic Resonance Imaging (MRI)** • MRI • Equipment used for MRI	MRI, Equipment used for MRI, Indications and

	• Indications and Contra indications • How it helps in diagnosis	Contraindications, How it helps in diagnosis
Week 10	**Magnetic Resonance Imaging (MRI)** • The Findings in MRI • Benefits versus Risks and Costs • Functional MRI.	The Findings in MRI, Benefits versus Risks and Costs, Functional MRI
Week 11	**Ultrasound** • What is Ultrasound? • Equipment used for Ultrasound • Indications and Contra indications	What is Ultrasound? Equipment used for Ultrasound, Indications and Contraindications
Week 12	**Ultrasound** • How it helps in diagnosis • The Findings in Ultrasound • Benefits versus Risks and Costs	How it helps in diagnosis, The Findings in Ultrasound, Benefits versus Risks and Costs
Week 13	**Endoscopy** • Endoscopy • Equipment used for Endoscopy • Indications and Contra indications	Endoscopy, Equipment used for Endoscopy, Indications and Contraindications
Week 14	**Endoscopy** • How it helps in diagnosis • The Findings in Endoscopy • Benefits versus Risks and Costs	How it helps in diagnosis, The Findings in Endoscopy, Benefits versus Risks and Costs
Week 15	**Nuclear Medicine** • Nuclear Medicine • Equipment used for Nuclear Medicine	Nuclear Medicine, Equipment used for Nuclear Medicine
Week 16	**Nuclear Medicine** • Indications and Contra indications • How it helps in diagnosis. • Benefits versus Risks and Costs **Interventional Radiology**	Indications and Contraindications, How it helps in diagnosis, Benefits versus Risks and Costs, Interventional Radiology

Textbooks and Reading Material

Textbooks.

1. **Looking Within (How X-ray, CT, MRI, Ultrasound and Other Medical Images Created and How They Help Physicians Save Lives)** by Anthony Brinton Wolbarst.
2. **A-Z of Musculoskeletal and Trauma Radiology** By: James R. D. Murray
3. **Essentials of Radiology** by Fred. A. Mettler, 2nd edition.
4. **Imaging in rehabilitation**, By: Terry. R. Malone, Charles Hazle& Michael L. Grey. McGraw Hill Publishers.

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.

Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.

Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.

Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.

Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments
Quiz-1 Quiz-II Presentation Professional Writing Assignments

Assessment			
Sr. No.	**Elements**	**Weightage**	**Details**
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Semester-VIII

Programme	DPT	Course Code	DPT-407	Credit Hours	3(0+3)
Course Title	Supervised Clinical Practice – IV				

Course Introduction

In this supervised clinical practice, students are tasked with the effective execution of examination, evaluation, and intervention techniques for neurological disorders. They gain hands-on experience in both inpatient and outpatient settings, addressing a variety of conditions, including surgical, non-surgical, pediatric, and geriatric cases. Under the supervision of experienced physical therapists, students learn to perform these skills objectively. Students are required to maintain a performance log documenting their competencies and must demonstrate their proficiency by successfully applying these skills to real patients during the final course evaluation.

Learning Outcomes

- Demonstrate the ability to assess, diagnose, and treat patients in real-world clinical settings.
- Apply evidence-based practices and theoretical knowledge to enhance patient care.
- Develop effective communication skills with patients, healthcare teams, and colleagues.
- Exhibit professional behavior, including ethical decision-making and patient-centered care.
- Critically evaluate clinical performance and reflect on areas for improvement in practice.

	Course Content	Assignments/Readings
Week 1	**Examination** • Analyze data based on best available evidence select examination tests and measures that are appropriate for the patient/client Perform posture tests and measures of postural alignment and positioning • Perform gait, locomotion and balance tests including quantitative and qualitative measures such as: • Balance during functional activities with or without the use of assistive, adaptive, orthotic, protective, supportive, or prosthetic devices or equipment • Balance (dynamic and static) with or without the use of assistive, adaptive, orthotic, protective, supportive, or prosthetic devices or equipment • Gait and locomotion during functional activities with or without the o use of assistive, adaptive, orthotic, protective, supportive, or prosthetic devices or equipment to include: • Bed mobility • Transfers (level surfaces and floor) • Wheelchair management • Uneven surfaces • Safety during gait, locomotion, and balance • Perform gait assessment including step length, speed, characteristics of gait, and abnormal gait patterns. • Recognize and characterize signs and symptoms of inflammation.	Analyze data based on best available evidence, select examination tests and measures that are appropriate for the patient/client, Perform posture tests and measures of postural alignment and positioning, Perform gait, locomotion and balance tests.
Week 2	**Examination** • Perform neurological tests and measures including o Arousal, attention and cognition tests and measures. o Cranial and peripheral nerve integrity tests and measures. ▪ Motor distribution of the cranial nerves (eg, muscle	Perform neurological tests and measures, including arousal, attention and cognition tests, cranial and peripheral nerve integrity tests, sensory integration tests, and reflex integrity tests.

	▪ tests, observations) Motor distribution of the peripheral nerves (eg. dynamometry, muscle tests observations, thoracic outlet tests) ▪ Response to neural provocation (eg. tension test, vertebral artery compression tests) ▪ Response to stimuli, including auditory, gustatory, olfactory, pharyngeal, vestibular, and visual (eg, observations, provocation tests) • Neuromotor development and sensory integration tests • Acquisition and evolution of motor skills, including age- appropriate development o Sensorimotor integration, including postural responses. equilibrium, and righting reactions • Tests and measures for reflex integrity including: o Deep reflexes (eg, myotatic reflex scale, observations, reflex tests) o Postural reflexes and reactions, including righting, equilibrium and protective reactions o Primitive reflexes and reactions, including developmental o Resistance to passive stretch o Superficial reflexes and reactions o Resistance to velocity dependent movement • Sensory integrity tests and measures that characterize or quantify including: o Light touch o Sharp/dull o Temperature o Deep pressure o Localization o Vibration o Deep sensation o Stereognosis o Graphesthesia.	
Week 3	**Evaluation** • Synthesize available data on a patient/client expressed in terms of the International Classification of Function, Disability and Health (ICF) model to include body functions and structures, activities, and participation. • Use available evidence in interpreting the examination findings. • Verbalize possible alternatives when interpreting the examination • findings. • Cite the evidence (patient/client history, lab diagnostics, tests and measures and scientific literature) to support a clinical decision.	Synthesize available data on a patient/client expressed in terms of the ICF model. Use evidence to interpret examination findings. Cite the evidence (patient/client history, lab diagnostics, tests, and measures) to support clinical decisions.
Week 4	**Diagnosis** • Integrate the examination findings to classify the patient/client problem in terms of body functions and structures, and activities and participation (ie, practice patterns in the Guide) • Identify and prioritize impairments in body functions and structures, and activity limitations and participation restrictions to0 determine specific body function and structure, and activities and participation towards which the intervention will be directed.	Integrate examination findings to classify the patient/client problem. Identify and prioritize impairments in body functions, structures, activity limitations, and participation restrictions for intervention.

Week 5	**Prognosis** • Determine the predicted level of optimal functioning and the amount of time required to achieve that level. • Recognize barriers that may impact the achievement of optimal functioning within a predicted time frame including: Age, Medication(s), Socioeconomic status and Co-morbidities	Determine the predicted level of optimal functioning and the time required to achieve that level. Recognize barriers (age, medications, socioeconomics, co-morbidities) that may impact progress.
Week 6	**Plan of care** • Perform goal setting, coordination of care, progression of care, discharge • Design a plan of care • Write measurable functional goals (short-term and long-term) that are time referenced with expected outcomes. • Consult patient/client and/or caregivers to develop a mutually agreed to plan of care. • Identify patient/client goals and expectations. • Identify indications for consultation with other professionals. • Make referral to resources needed by the patient/client (assumes knowledge of referral sources). • Select and prioritize the essential interventions that are safe and meet the specified functional goals and outcomes in the plan of care	Perform goal setting, coordination of care, progression of care, discharge. Design a plan of care, write measurable functional goals, consult with patient/caregivers to develop a mutually agreed plan.
Week 7	**Plan of care** • Identify precautions and contraindications, • Provide evidence for patient-centered interventions that are identified and selected, • Define the specificity of the intervention (time, intensity, duration, and frequency). • Set realistic priorities that consider relative time duration in conjunction with family, caregivers, and other health care professionals). • Establish criteria for discharge based on patient goals and current functioning and disability.	Identify precautions and contraindications. Provide evidence for patient-centered interventions, define specificity of the intervention (time, intensity, duration, frequency), and establish discharge criteria.
Week 8	**Coordination of care** • Identify who needs to collaborate in the plan of care. • Identify additional patient/client needs that are beyond the scope of physical therapist practice, level of experience and expertise, and warrant referral • Refer and discuss coordination of care with other health care professionals • Articulate a specific rational for a referral. Advocate for patient/client access to services.	Identify collaborators in the care plan. Discuss coordination of care with other healthcare professionals, advocate for patient/client access to services, and make referrals.
Week 9	**Progression of care** • Identify outcome measures of progress relative to when to progress the patient further. • Measure patient/client response to intervention. • Monitor patient/client response to intervention. • Modify elements of the plan of care and goals in response to • Changing patient/client status, as needed. Make on-going adjustments to interventions according to outcomes including environmental factors and personal factors and, medical therapeutic interventions.	Identify outcome measures for progress, monitor patient/client response to interventions, and adjust interventions according to outcomes. Make decisions regarding intensity and frequency of interventions.

	• Make accurate decisions regarding intensity and frequency when adjusting interventions in the plan of care.	
Week 10	**Discharge plan** • Re-examine patient/client if not meeting established criteria for • Discharge based on the plan of care. • Differentiate between discharge of the patient/client, discontinuation of service, and transfer of care with re-evaluation." • Prepare needed resources for patient/client to ensure timely discharge, including follow-up care. • Include patient/client and family/caregiver as a partner in discharge." • Discontinue care when services are no longer indicated. • When services are still needed, seek resources and/or consult with others to identify alternative resources that may be available. • Determine the need for equipment and initiate requests to obtain.	Re-examine the patient/client if not meeting established discharge criteria, differentiate between discharge, discontinuation of service, and transfer of care, and prepare needed resources for discharge.
Week 11	**Interventions** • Perform safety, emergency care, cpr and first aid, standard • Precautions, body mechanics and positioning demonstrate appropriate sequencing of events related to universal precautions. • Determine equipment to be used and assemble all sterile and non-sterile materials. • Use transmission-based precautions. • Demonstrate aseptic techniques. • Apply sterile procedures. • Properly discard soiled items.	Perform safety, emergency care, CPR, and first aid, apply body mechanics and positioning, demonstrate aseptic techniques, and apply sterile procedures. Use proper equipment and transmission-based precautions.
Week 12	**Apply body mechanics and positioning** • Apply proper body mechanics (utilize, teach, reinforce, and observe) properly position, drape, and stabilize a patient/client when providing physical therapy.	Apply proper body mechanics, position, drape, and stabilize a patient/client when providing physical therapy, and ensure effective body mechanics during interventions.
Week 13	**Apply body mechanics and positioning** • Coordination, communication, and documentation may include: addressing required functions: • Establish and maintain an ongoing collaborative process of decision-making with patients/clients, families, or caregivers prior to initiating care and throughout the provision of services. • Discern the need to perform mandatory communication and reporting (eg, incident reports, patient advocacy and abuse reporting). • Follow advance directives.	Establish and maintain collaborative decision-making with patients/clients, families, and caregivers. Perform mandatory communication, incident reporting, and follow advance directives.
Week 14	**Admission and discharge planning** • Case management. • Collaboration and coordination with agencies, including: • Home care agencies • Equipment suppliers • Schools • Transportation agencies • Payer groups	Case management, collaboration, and coordination with agencies, including home care, equipment suppliers, schools, transportation agencies, and payer groups.

Week 15	**Communication across settings, including** • Case conferences • Documentation • Education plans • Cost-effective resource utilization. • Data collection, analysis, and reporting of: • Outcome data • Peer review findings • Record reviews • Documentation across settings, following APTA's Guidelines for Physical Therapy Documentation, including: • Elements of examination, evaluation, diagnosis, prognosis, and Intervention • Changes in body structure and function, activities and participation. • Changes in interventions • Outcomes of intervention • Interdisciplinary teamwork: • Patient/client family meetings • Patient care rounds • Case conferences • Referrals to other professionals or resources • Patient/client-related instruction may include: • Instruction, education, and training of patients/clients and caregivers regarding: • Current condition, health condition, impairments in body structure and function, and activity limitations, and participation restrictions) Enhancement of performance • Plan of care: • Risk factors for health condition, impairments in body structure • and function, and activity limitations, and participation restrictions. Preferred interventions, alternative interventions, and alternative • modes of delivery • Expected outcome • Health, wellness, and fitness programs (management of risk factors) • Transitions across settings	Case conferences, documentation, education plans, cost-effective resource utilization, and reporting of outcome data. Document all elements of examination, evaluation, diagnosis, prognosis, and intervention.
Week 16	**Therapeutic exercise may include performing** • Balance coordination and agility training: • Developmental activities training • Motor function (motor control and motor learning) training • Neuromuscular education or reeducation • Perceptual training • Posture awareness training • Sensory training or retraining • Standardized, programmatic approaches • Task-specific performance training • Neuromotor development training: • Developmental activities training • Motor training • Movement pattern training • Neuromuscular education or reeducation	Perform balance coordination, agility training, neuromuscular education, task-specific performance training, functional training in self-care and home management, and injury prevention education. Include assistive device training and therapeutic modalities.

	• Functional training in self-care and home management may include • Functional training in work (job/school/play), community, and • leisure integration or reintegration may include • Activities of daily living (ADL) training: Bed mobility and transfer training, Age appropriate functional skills • Barmer accommodations or modifications • Device and equipment use and training: • Assistive and adaptive device or equipment training during ADL (specifically for bed mobility and transfer training, gait and locomotion, and dressing)" • Orthotic, protective, or supportive device or equipment training during self-care and home management • Prosthetic device or equipment training during ADL (specifically for bed mobility and transfer training, gait and locomotion, and dressing)" • Functional training programs: • Simulated environments and tasks" • Injury prevention or reduction: • Safety awareness training during self-care and home management" • Injury prevention education during self-care and home management • Injury prevention or reduction with use of devices and equipment • Prescription, application, and, as appropriate, fabrication of devices and equipment may include: • Adaptive devices • Hospital beds • Raised toilet seats • Seating systems - prefabricated • Assistive devices: • Canes • Crutches • Long-handled reachers • Static and dynamic splints-prefabricated • Walkers • Wheelchairs • Orthotic devices: • Prefabricated braces • Prefabricated shoe inserts • Prefabricated splints • Prosthetic devices (lower-extremity) • Protective devices: • Braces • Cushions • Helmets • Protective taping • Supportive devices • Prefabricated compression garments • Corsets • Elastic wraps • Neck collars • Slings • Supplemental oxygen apply and adjust • Supportive taping • Electrotherapeutic modalities may include:	

	• Biofeedback • Electrotherapeutic delivery of medications (eg, iontophoresis) Electrical stimulation: Electrical muscle stimulation (EMS), Functional electrical stimulation (FES) High voltage pulsed current (HVPC) Neuromuscular electrical stimulation (NMES) Transcutaneous electrical nerve stimulation (TENS) • Physical agents and mechanical modalities may include: Physical • agents: • Cryotherapy • Cold packs • Ice massage • Vapocoolant spray • Hydrotherapy • Contrast bath • Pools • Whirlpool tanks • Sound agents • Phonophoresis • Ultrasound • Thermotherapy • Dry heat • Hot packs • Paraffin baths • Mechanical modalities: • Compression therapies (prefabricated) • Compression garments: Skill Category Description of Minimum • Skills • Vaso pneumatic compression devices • Taping • Compression bandaging (excluding lymphedema) • Gravity-assisted compression devices: • Standing frame • Tilt table • Mechanical motion devices • Continuous passive motion (CPM) • Traction devices • Intermittent • Positional • Sustained • Documentation of all listed competencies in SOAP notes	

Textbooks and Reading Material
It is mandatory for each student to document minimum 16 cases per semester (1 cases per week) in clinical log book duly checked and signed by clinical supervisor on weekly basis and head of institute at completion
Teaching Learning Strategies
Interactive Lectures Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors. **Collaborative Learning** Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations. **Case Studies** Use case studies to explore real-life examples of communication in business, academic, and casual settings.

Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1, Quiz-II, Presentation and Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-408	Credit Hours	3(2+1)
Course Title	**Scientific Inquiry & Research Methodology**				

Course Introduction

This course covers fundamental quantitative methods and research designs, emphasizing concepts such as reliability and validity. It includes the interpretation of inferential statistics relevant to research designs, correlational statistics and designs, intraclass correlation coefficients, and the critical appraisal of scientific literature.

Learning Outcomes

1. Recognize the fundamental concepts of research and scientific inquiry along with their methodologies.
2. Identify suitable topics for research.
3. Define a relevant research problem and establish its parameters.
4. Develop a project proposal for conducting a research study.
5. Explain the principles of scientific inquiry and their application in medical research.
6. Describe effective search techniques for conducting a literature review.
7. Distinguish between various levels of evidence, critically appraise studies, and evaluate their effectiveness within the literature.

Course Content		Assignments/Readings
Week 1	**Research fundamentals** • Research in physical therapy and rehabilitation	Assignments: Review the role of research in physical therapy and rehabilitation. Write a short essay on the importance of research in improving patient care.
Week 2	**Research fundamentals** • Role, importance, principles and application of ethics in rehabilitation research. • Basic vs applied research.	Assignments: Prepare a report on ethical considerations in rehabilitation research.
Week 3	**Research fundamentals** • Research problems / questions, and hypotheses, research paradigms, research validity and reliability	Assignments: Develop a research question and hypothesis for a hypothetical research study.
Week 4	**Sampling** • Discuss selection of sample: sample &population, basic • Considerations in sampling, determination of sample size, elimination of sampling bias and types of sampling such as: random sampling, stratified random sampling, cluster sampling and systematic sampling.	Assignments: Design a sampling strategy for a research project, including sample size and type of sampling.
Week 5	**Research design** • Describe different research designs • Differentiate between experimental & non-experimental, qualitative and quantitative and epidemiological research designs.	Assignments: Create a comparison table of different research designs.
Week 6	**Research design** • Discuss different research methodologies used in experimental, and non-experimental, qualitative and qualitative and epidemiological research designs	Assignments: Analyze a research study and identify the methodology used.
Week 7	**Research project** • Discuss various components of research synopsis and thesis • Develop a research plan while taking into account, the ethical, legal and professional obligations	Assignments: Write a synopsis for a potential research project including objectives, methodology, and ethical considerations.
Week 8	**Instrumentation and data collection** • Discuss, objectivity and standardization, types of tests and scales, validity and reliability of an instrument, assessment of validity and reliability, development of tests/scale	Assignments: Evaluate a commonly used instrument or scale in physical therapy research for validity and reliability.

Week 9	**Data analysis & interpretation** • Analyze data • Describe types of measurement scales, descriptive statistics and inferential statistic.	Assignments: Analyze a sample dataset and present descriptive and inferential statistics.
Week 10	**Data analysis & interpretation** • Perform data entry and Analysis using statistical package for Social Sciences (SPSS)	Assignments: Conduct data analysis using SPSS software on a given dataset.
Week 11	**Preparation of a research report** • Use formatting & styling, citation, references & bibliography • Differentiate theses writing, dissertations & journal articles writing.	Assignments: Write a draft research report, focusing on formatting, citations, and references.
Week 12	**Scientific inquiry** • Describe scientific inquiry, evidence based approach to scientific inquiry, principles of scientific inquiry, the application of scientific inquiry to physical therapy.	Assignments: Write an essay on the principles of scientific inquiry and their application in physical therapy.
Week 13	**Scientific inquiry** • Access digital libraries and different research databases, effective searching and reviewing literature material. • Examination and evaluation • Interpret critical appraisal of published research in the areas of: • Diagnosis • Prognosis	Assignments: Conduct a literature search on a specific topic in physical therapy using digital libraries.
Week 14	**Scientific inquiry** • Interpret critical appraisal of published research in the areas of: • Diagnosis • Prognosis • Intervention	Assignments: Critically appraise a research article in the area of intervention.
Week 15	**Scientific inquiry** • Interpret Critical appraisal of published research in the areas of: • Intervention • Harm • Interpret Critical evaluation of Randomized Control Trial (RCT), Systemic review, Diagnosis and screening tests, Case reports	Assignments: Analyze a randomized controlled trial (RCT) and write a critique.
Week 16	**Scientific inquiry** • Discuss how to conduct clinical research and hierarchy of evidences in clinical researches • Revisions	Assignments: Prepare for a final exam by revising key concepts in clinical research.
Lab Work		
• Literature review • Preparation, presentation and defence of research proposal • Poster presentation		
Textbooks and Reading Material		
Textbooks 1. Essentials of clinical research By Stephan P. Glasser. 2. Rehabilitation Research (Principles and Applications) 3 Edition By Elizabeth Domholdt.		
Teaching Learning Strategies		
Interactive Lectures Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.		

Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-409	Credit Hours	3(3+0)
Course Title	**Surgery- II**				

Course Introduction

This course is designed to provide students with a foundational understanding of the principles of surgery, equipping them with the knowledge and skills to effectively interpret and utilize surgical information in clinical practice. Students will become proficient in the use of surgical terminology and abbreviations, essential for accurate chart review, efficient communication, and thorough documentation. The course delves into a range of conditions requiring surgical intervention, offering an in-depth exploration of their epidemiology, underlying pathology, and associated clinical features. Both primary characteristics of the conditions and secondary complications will be analyzed, alongside their respective surgical management strategies. Through this comprehensive approach, students will gain valuable insights into the rationale behind surgical decisions, enhancing their ability to collaborate within multidisciplinary teams and contribute to improved patient outcomes.

Learning Outcomes

1. Demonstrate the pre- and post-operative care of patients.
2. Explain how significant surgical issues manifest, and find connections between clinical observation and surgical (operation) pathology, as well as the physiological changes brought about by surgery.
3. Distinguish how surgical care is provided to inpatients and outpatients in various contexts.
4. Explain how diseases are managed surgically.
5. Recognize the surgical patient's complete course of care, from diagnosis to management during surgery and recovery

	Course Content	Assignments/Readings
Week 1	**General surgery** • Describe the Indications for surgery, Types of incisions, Wounds, types of wounds, factors affecting wounds healing, care of wounds, Bandages and dressing, Trauma and metabolic response to trauma • Explain chest and abdominal trauma, Hemorrhage, hemostasis and blood transfusion. • Classification of shock, Fluid and _ electrolyte balance, • Classification of body fluid changes, Pre, intra and post-operative fluid therapy	Assignments: Research different types of surgical incisions and discuss their indications. Write a report on the factors influencing wound healing. Readings: Surgery textbook on trauma, fluid balance, and wound care.
Week 2	**General surgery** • Precautions for Surgery in diabetic patients • Classify Burns, Types and degrees of Burns in pediatric and adults, • Classify Grafts, Types of Grafts, Identify post- grafting precautions	Assignments: Prepare a case study on burns in pediatric patients. Discuss the types of grafts and post-operative care. Readings: Articles on surgical precautions for diabetic patients, burn classifications, and grafting.
Week 3	**General surgery** • Different types of tumors and their classifications. • Discuss Preoperative assessment & preparation, Post – operative treatment, complications and their management	Assignments: Write a comparative analysis of different types of tumors and their surgical management. Readings: Literature on tumor classification and surgical management.
Week 4	**General surgery** • Describe the Types of anaesthesia, Local anaesthetic agents and Regionalanaesthesia (spinal and _ epidural), Intravenous anaesthetic agents, Muscle relaxants, Inhalational anaesthetic agents, Anaesthesia and associated diseases, Complications of anaesthesia, Perioperative management, Recovery from anaesthesia. • Review Pain management and postoperative care.	Assignments: Research the different types of anesthesia used in surgery. Write a report on pain management strategies and post-operative care. Readings: Textbook chapters on anesthesia types and pain management.

Week 5	**General surgery** • Identify Ulcers, sinuses and fistulas • Describe operation performed on: oesophagus, stomach, intestine gall bladder, bile duct, spleen, pancreas, liver, abdominal wall, hernias, breast, kidneys, ureters, prostate, peritoneum, mesentery and retroperitoneal space • Describe the Indications of Transplantation, Post-Operative • Complications and precautions of Transplantation of liver and kidney	Assignments: Prepare a case report on the surgical management of a gastrointestinal disorder. Research organ transplantation and post-operative care. Readings: Resources on transplantation and major abdominal surgeries.
Week 6	**Thoracic surgery** **Pulmonary surgery** • Explain the Indications of pulmonary surgery, types of incision, types of operation, complications of pulmonary surgery, drains, and tubes. • Describe pneumonectomy, lobectomy, thoracoplasty and • Operations on pleura. • Recognize the types of Chest injuries, Causes, management procedures.	Assignments: Write a report on the indications and types of pulmonary surgeries. Discuss chest injuries and their management. Readings: Literature on pulmonary surgery techniques and chest injury management.
Week 7	**Thoracic surgery** **Pulmonary surgery** • Describe the Diseases of chest wall and pleura, Diseases of bronchi • Identify different types of Lung tumors and their classifications, • Lung abscess, Hydatid disease of lung, pulmonary embolism, • Mediastinal masses, Problems related to diaphragm	Assignments: Research and prepare a case study on lung tumors. Write about the complications of pulmonary embolism. Readings: Articles on diseases of the chest wall, bronchi, and lung tumors.
Week 8	**Cardiac surgery** • Explain the Indications of Cardiac surgery, Special investigation procedures in cardiac surgery, Basic techniques in cardiac surgery, Types of incision, Types of operation, Complications of cardiac surgery, Lines, drains and tubes, Congenital heart disease, Acquired heart diseases, Diseases of the pericardium	Assignments: Discuss the types of congenital heart diseases and their surgical interventions. Write a report on the complications of cardiac surgery. Readings: Textbook chapters on cardiac surgery techniques and diseases of the heart.
Week 9	**Cardiac surgery** • Describe the Indications of Cardiac Transplantation, Post- • Operative Complications and precautions of Transplantation	Assignments: Prepare a presentation on cardiac transplantation and its post-operative care. Discuss the indications and challenges of cardiac transplantations. Readings: Articles on cardiac transplantation and its complications.
Week 10	**Vascular surgery** • Describe the Indications of Vascular surgery, Investigation in vascular disease types of operation, Complication of vascular, surgery, arterial occlusion, Gangrene, amputation and its types, Aneurysm, Burgers disease, Raynaud's disease and syndrome.	Assignments: Write a report on vascular surgery procedures and complications. Discuss the management of arterial occlusion and gangrene. Readings: Vascular surgery resources on arterial diseases and aneurysms.
Week 11	**Vascular surgery** • Varicose veins, Superficial and deep venous thrombosis, Venous hemorrhage, Lymph edema, Lymph adenitis and lymphomas	Assignments: Prepare a case study on varicose veins and thrombosis. Write about the treatment of venous hemorrhage.

		Readings: Articles on venous diseases and lymphatic disorders.
Week 12	**Neurosurgery** **Cranial surgery** • Describe the Indications of Cranial surgery, Special investigation in brain diseases and traumas, Types of operations and complications of cranial surgery	Assignments: Write a paper on the indications for cranial surgery and its complications. Research cranial surgery techniques. Readings: Textbook chapters on cranial surgery and brain disease investigations.
Week 13	**Neurosurgery** **Cranial surgery** • Explain Traumatic brain injuries, Acute intracranial hematomas and Fractures of the skull • Describe the Intra cranial abscess, intracranial tumors, intracranial aneurysm and hydrocephalus	Assignments: Prepare a report on traumatic brain injuries and their management. Discuss intracranial abscesses and their surgical treatment. Readings: Literature on traumatic brain injuries and intracranial tumors.
Week 14	**Surgery of vertebral column, spinal cord and peripheral nerves** • Describe Dislocation and management of dislocation of vertebral column, Tumors of vertebral column • Explain Prolapse intervertebral disc, Disc protrusion, Spondylosi and spondylolisthesis.	Assignments: Write about the management of vertebral dislocations and spinal tumors. Discuss surgical options for disc protrusion. Readings: Resources on vertebral column surgery and spinal cord management.
Week 15	**Surgery of vertebral column, spinal cord and peripheral nerves** • Classify Spinal cord injuries and syndromes. • Assess the level, complete and incomplete spinal cord injuries and rehabilitation potential. • Describe the Surgical, medical Management and post-operative care of Spinal cord injuries.	Assignments: Prepare a case study on spinal cord injuries and their rehabilitation. Discuss post-operative care for spinal injuries. Readings: Textbook chapters on spinal cord injuries and their management.
Week 16	**Surgery of vertebral column, spinal cord and peripheral nerves** • Describe Tumors of spinal cord types of operations performed on nerves, Nerve injuries and their surgical management, • Describe the lesions of cranial and spinal nerves and their management.	Assignments: Write a report on nerve injuries and their surgical management. Discuss the surgical options for spinal cord tumors. Readings: Articles on nerve injuries and cranial/spinal nerve lesions.

Textbooks and Reading Material

1. **Short practice of surgery** by Baily and Love's.
2. **Text Book of Surgery** by ljaz Ahsan.
3. **Outline of Fractures** by davidhamblen, Hamish Simpsons.
4. **Outline of orthopedics**. By davidhamblen, Hamish Simpsons

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments			
Quiz-1, Quiz-II, Presentation and Professional Writing Assignments			
Assessment			
Sr. No.	**Elements**	**Weightage**	**Details**
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-410	Credit Hours	3(3+0)
Course Title	**Medicine-II**				

Course Introduction

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

Learning Outcomes

- Engage in a comprehensive examination of the historical context and physical assessment pertinent to dermatological conditions, neurological disorders affecting the brain and spinal cord, renal pathologies, hematological issues, and other miscellaneous ailments referenced in the course syllabus. Furthermore, it elucidates the socio-psychological dimensions associated with patients' medical dilemmas.
- Examine the pathophysiological mechanisms, clinical indications, inherent limitations of diagnostic modalities such as laboratory analyses and radiographic imaging, and the significance of familial contributions and archival medical records in the acquisition and interpretation of data essential for effective problem resolution.

	Course Content	Assignments/Readings
Week 1	**Dermatology** • Acne vulgaris • Psoriasis • Boils	Assignments: Write a report on the pathophysiology of acne vulgaris and psoriasis. Discuss treatment options. Readings: Dermatology textbook on acne, psoriasis, and boils.
Week 2	**Dermatology** • Carbuncles • Alopecia	Assignments: Research the causes of carbuncles and alopecia. Write a case study on a patient with alopecia. Readings: Articles on carbuncles, alopecia, and their management.
Week 3	**Dermatology** • Mycosis fungoides • Polymorphic light eruptions	Assignments: Prepare a presentation on mycosis fungoides and its clinical features. Discuss polymorphic light eruptions. Readings: Literature on mycosis fungoides and polymorphic light eruptions.
Week 4	**Dermatology** • Vitilogo • Pityriasis • Hyperhidrosis	Assignments: Write a case study on vitiligo. Discuss the diagnostic approach for pityriasis. Readings: Dermatology resources on vitiligo, pityriasis, and hyperhidrosis.
Week 5	**Disease of the brain and spinal cord** • Identify the common neurological symptoms including brain death, Sleep, Unconsciousness, and Comma • Carry out a general neurological examination	Assignments: Conduct a general neurological examination and document findings. Readings: Textbook chapters on neurological symptoms and examination techniques.
Week 6	**Disease of the brain and spinal cord** • Stroke, types of strokes • Parkinson's disease • Epilepsy	Assignments: Write a comparative analysis of different types of strokes. Study Parkinson's disease and its management. Readings: Articles

		on stroke, Parkinson's disease, and epilepsy.
Week 7	**Disease of the brain and spinal cord** • Multiple Sclerosis • Infective and Inflammatory diseases • Hydrocephalus	Assignments: Research the pathophysiology and treatment options for multiple sclerosis. Read about hydrocephalus and its management. Readings: Articles on multiple sclerosis, infectious and inflammatory diseases of the brain.
Week 8	**Disease of the brain and spinal cord** • Headache, Migraine, Facial pain, Head injury, Motor neuron disease, • Diseases of the spinal cord • Diseases of Cranial nerves	Assignments: Discuss the different causes of headaches and migraines. Prepare a presentation on motor neuron disease. Readings: Texts on headache management, cranial nerve diseases, and spinal cord disorders.
Week 9	**Disease of the brain and spinal cord** • Diseases of Peripheral nerve lesions • Diseases of voluntary muscles and the neuromuscular junction • Different types of Intracranial tumors	Assignments: Research and prepare a report on peripheral nerve lesions. Discuss types of intracranial tumors and their treatment options. Readings: Articles on peripheral nerve lesions and intracranial tumors.
Week 10	**Renal Diseases** • Glomerulonephritis • Acute nephritic syndrome • Nephrotic syndrome • Urinary tract infection	Assignments: Research glomerulonephritis and prepare a case study. Discuss nephrotic syndrome and its management. Readings: Renal disease resources on glomerulonephritis, nephrotic syndrome, and UTIs.
Week 11	**Renal Diseases** • Renal hypertension • Renal failure	Assignments: Write a report on renal hypertension and its clinical approach. Research renal failure and document findings. Readings: Literature on renal hypertension and failure.
Week 12	**Prostate Diseases** • Benign enlargement of the prostate gland • Prostatic carcinoma	Assignments: Discuss the treatment options for benign prostate enlargement. Prepare a case study on prostatic carcinoma. Readings: Articles on prostate diseases and their management.
Week 13	**Diseases of Blood** • Anaemia • Types of Anaemia • Haemophilia	Assignments: Write a paper on the different types of anemia and their management. Discuss haemophilia in clinical practice. Readings: Hematology textbook on anemia and haemophilia.
Week 14	**Diseases of Blood** • Bleeding and Coagulation • Thrombosis	Assignments: Research the mechanisms of bleeding and coagulation. Prepare a presentation on thrombosis and its management. Readings: Blood disease resources on

		coagulation disorders and thrombosis.
Week 15	**Miscellaneous diseases** • Diabetes Mellitus and its complications • Diabetic • Diabetic foot	Assignments: Write a case report on a patient with diabetic foot complications. Discuss the systemic effects of diabetes mellitus. Readings: Articles on diabetes mellitus and diabetic foot care.
Week 16	**Miscellaneous diseases** • Neuropathy • Steroid-induced Myopathy	Assignments: Research neuropathy and steroid-induced myopathy. Write a report discussing the management of these conditions. Readings: Texts on neuropathy and steroid-induced myopathy.

Textbooks and Reading Material

Textbooks.

1. **Practice of medicine** by: Davidson.
2. **Clinical medicine** by: Parveen j Kumar & Michael Clark.
3. **J. Short textbook on medicine** by: M. Inam Danish.
4. **Hutchison's clinical methods** by: Michael swash. 21st edition

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-411	Credit Hours	3(2+1)
Course Title	**Emergency Procedures & Primary Care In Physical Therapy**				

Course Introduction

This course equips students with the essential skills required to respond effectively in emergencies across various practice settings. It covers basic life support, first aid, and emergency procedures. The course is designed to impart both theoretical knowledge and practical skills in emergency techniques, enabling students to take the necessary actions to care for patients or clients in critical situations.

Learning Outcomes

1. Equip students with the knowledge and skills required for emergency techniques.
2. Demonstrate the application of appropriate actions needed to manage patient/client care in emergencies.
3. Explain the principles and procedures of Basic Life Support.
4. Outline the key aspects of first aid and emergency preparedness.

	Course Content	Assignments/Readings
Week 1	**Organization and administration of emergency care** • Developing and implementing emergency action plan, emergency team. • Initial patient assessment and care, emergency equipment, venue location, emergency transportation, emergency care facilities, legal need and documentation.	**Assignments**: Develop an emergency action plan for a physical therapy clinic. **Readings**: Articles on emergency action plans and patient assessment in emergency situations.
Week 2	**Physical examination of the critically injured patient/athlete** • Conduct scene assessment, vital signs and safety • Description of body substance, isolation precautions differentiate between primary survey and secondary survey	**Assignments**: Write a report on the differences between primary and secondary surveys during a physical examination. **Readings**: Case studies on physical examination procedures for critically injured patients.
Week 3	**Airway management** • Air way anatomy, air way compromise, oxygen therapy and advanced airway devices.	**Assignments**: Prepare a case study on managing airway compromise. **Readings**: Research articles on airway anatomy and management strategies in emergencies.
Week 4	**Sudden cardiac death** • Outline of incidence, etiology of sudden death in general population. Sudden, cardiac arrest in athletes and management of sudden cardiac arrest • Identify screening and recognition of cardiac warning signs. Preparation for cardiac emergencies	**Assignments**: Create a checklist for recognizing cardiac warning signs and preparing for cardiac emergencies. **Readings**: Review articles on the causes and management of sudden cardiac arrest in athletes.
Week 5	**Head injuries** • Patho-mechanics of brain injuries • Identify cerebral concussion, contusion, cerebral hematoma, second impact syndrome. • Performing initial on site assessment, sideline assessment, special tests for assessment of coordination and cognition	**Assignments**: Conduct a sideline assessment for head injuries using special tests. **Readings**: Case studies on the management of head injuries, concussion, and second impact syndrome.
Week 6	**Emergency care of cervical spine injuries** • Mechanism of injuries to the spinal cord, assessment and management. • Emergent general medical conditions • Identify sudden death, exercise induced anaphylaxis, acute asthma, diabetes mellitus, mononucleosis, sickle cell traits and hypertension.	**Assignments**: Write a report on cervical spine injury management in emergency care. **Readings**: Articles on the management of acute medical conditions like asthma and diabetes in emergencies.

Week 7	**Environment-related conditions** • Heat related emergencies, their prevention, cold related injuries, lightning and altitude related emergencies.	**Assignments**: Prepare an emergency action plan for heat and cold-related injuries. **Readings**: Articles on prevention and management of environment-related conditions in physical therapy.
Week 8	**Orthopedic injuries** • Describe basic emergency medical care, fundamentals of skeletal fractures and • Perform splinting techniques for • Fractures and dislocations of upper extremity • Fractures and dislocations of lower extremity • Fractures and dislocations of spine.	**Assignments**: Practice splinting techniques for fractures and dislocations. **Readings**: Articles on emergency management of orthopedic injuries.
Week 9	**Abdominal injuries** • Describe initial evaluation of abdominal injuries identify abdominal wall contusions, splenic injuries, liver injuries, renal injuries, intestinal injuries, pancreatic injuries, non-traumatic abdominal injuries: appendicitis, ectopic pregnancy.	**Assignments**: Write a report on the emergency management of abdominal injuries. **Readings**: Case studies on abdominal injuries and their management in emergency situations.
Week 10	**Thoracic injuries** • Describe initial assessment and management of different types of injuries: fractures, pneumothorax, hemothorax, pulmonary embolism.	**Assignments**: Create a protocol for assessing and managing thoracic injuries. **Readings**: Articles on the management of thoracic injuries and pneumothorax.
Week 11	**The psychological and emotional impact of emergency situations** • Defining psychological trauma • Describe psychological trauma in athletic environment and pharmacologic considerations for the physical therapist • Define the psychological emergency response in both external and internal team members • Describe the science behind the art the patient's interview.	**Assignments**: Write an essay on the psychological impact of emergency situations in athletes. **Readings**: Research on psychological trauma in sports and emergency care.
Week 12	**Examination/Evaluation** • Prologue • Symptoms investigation, Part I: Chief complaint by body region • Symptoms investigation, Part II: Chief complaint by symptom • Patient health history including identifying health risk factor Review of systems • Patient interview: the physical examination begins • Review of cardiovascular and pulmonary systems and vital signs • Upper quadrant screening examination • Lower quadrant screening examination Diagnostic imaging Laboratory tests and values.	**Assignments**: Conduct a patient interview and perform physical examination for a case study. **Readings**: Articles on patient evaluation techniques in emergency care.
Week 13	**Disorders and management** • Acute Care Physical Therapy Examination and Discharge • Planning. • Clinical Laboratory Values and Diagnostic Testing. • Physiologic Monitors and Patient Support Equipment. • Bed Rest, Deconditioning, and Hospital-Acquired Neuromuscular Disorders.	**Assignments**: Develop a discharge plan for a patient in acute care. **Readings**: Research on the role of physical therapy in acute care and discharge planning.

Week 14	**Disorders and management** • The Immune System and Infectious Diseases and Disorders. • Cardiovascular Diseases and Disorders. Pulmonary Diseases and Disorders. • Musculoskeletal/Orthopedic Diseases and Disorders • Neurologic and Neurosurgical Diseases and Disorders. • Endocrine Diseases and Disorders. • Gastrointestinal Diseases and Disorders. • Genitourinary Diseases and Disorders. • Oncological Diseases and Disorders. • Transplantation. • Integumentary Diseases and Disorders Wound Management	**Assignments**: Create a management protocol for a patient with a musculoskeletal or cardiovascular disorder. **Readings**: Articles on disorders and the management of various health conditions in emergency situations.
Week 15	**Special populations** • The Pediatric and adolescent population • The obstetric client • The geriatric population • Health and wellness perspective in primary care. • Basic Life Supports & Supervised Intra Muscular/Intra venous Injection Therapy	**Assignments**: Develop an emergency care protocol for a geriatric patient. **Readings**: Articles on providing emergency care to pediatric, obstetric, and geriatric populations.
Week 16	**Disaster management** • Floods, Earth quakes • Blasts, Fire • War, Foods and communication in disasters	**Assignments**: Create a disaster management plan for an emergency facility. **Readings**: Case studies on disaster management in emergency care.

Textbooks and Reading Material

1. Emergency Care in Athletic Training by: Keith M. Gorse, Robert O. Blanc, Francis Feld, Matthew Radelet, 1 edition, 2010, F.A Davis Company.
2. Acute care hand book for Physical Therapists by: Jaime C paz, Michelle P West, 2nd edition, 2002, Butterworth Heinemann.

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1, Quiz-II, Presentation and Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.

2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-412	Credit Hours	3(2+1)
Course Title	**Neurological Physical Therapy - I**				

Course Introduction

This course offers an in-depth study of the assessment and intervention procedures for individuals with neurological pathologies, with a primary focus on conditions acquired in adulthood. It integrates theories of motor control and motor learning, applying them to the evaluation and treatment of neurological impairments. Through a combination of lectures and hands-on laboratory sessions, students will refine their skills in movement analysis, clinical examination, and the design, implementation, and modification of treatment plans. Emphasis is placed on developing clinical competence in using medical terminology, conducting comprehensive evaluations, and comparing contemporary and traditional interventions. Additionally, the course examines the role of emerging technologies in neurological rehabilitation, preparing students to incorporate innovative tools and approaches into their practice for optimal patient outcomes.

Learning Outcomes

1. Exhibit evaluation of patients with a range of neurological disorders.
2. Describe different approaches to intervention and techniques for treating patients with different neurological conditions.
3. Explain the theories of motor learning and control and how they are used in the current treatment of neurological disorders.
4. Explain motor control and neurodevelopmental intervention strategies.
5. Discuss and show how to treat people with different neurological conditions.

	Course Content	Assignments/Readings
Week 1	**Applied anatomy and physiology of the nervous system** • Functional and applied anatomy of Brain, Spinal cord, CNS • Support Structures, Neurons, Peripheral nervous' system, autonomic Nervous System and Spinal Level Reflexes	Assignments: Research the functional anatomy of the brain and spinal cord. Prepare a report on the autonomic nervous system and spinal level reflexes. Readings: Textbook chapters on the nervous system and its functions.
Week 2	**Neurological examination** • Perform assessment of patients with various neurological pathologies. • Conduct & document clinical examination (History, System review, Test and measures, used in standardized assessment procedure	Assignments: Conduct a mock neurological examination and document findings. Discuss the importance of clinical assessment procedures. Readings: Articles on neurological examination and clinical assessment.
Week 3	**Neurological examination** • Evaluate and Analyze clinical assessment procedures to construct a problem list, long term Goals, Short term goals, • Treatment plan, Progression and discharge planning	Assignments: Write a case study on constructing problem lists and setting goals in neurological rehabilitation. Readings: Resources on clinical assessment and treatment planning in neurological therapy.
Week 4	**Interventions** • Different theories of Motor Control and Motor Learning, their limitations and clinical implications • Neurodevelopmental (NDT)approaches and _ their clinical implications in the management of patients with neurological pathologies such as; o Roods approach o Bobath approach o Kabat, Knott, Voss (Proprioception neuro facilitation PNF Approach). o Burnstorm Approach.	Assignments: Research and compare the different approaches to motor control and motor learning in neurological therapy. Prepare a report on the NDT approaches. Readings: Literature on motor learning theories and neurodevelopmental therapy.

Week 5	**Interventions** • Contemporary approaches and their clinical implications in the management of patients with neurological pathologies such as; o Motor Control / Motor Learning Approach o Neural plasticity/ adoptability o Constraint induced movement therapy (CIMT) o Modified Constrained Induced Movement Therapy (mCIMT) o Task-Related Training Approach o Compensatory Training Approach o Normal Reach, Grasp and Manipulation	Assignments: Write an essay on constraint-induced movement therapy (CIMT) and its clinical implications. Prepare a report on neural plasticity and task-related training in neurological rehabilitation. Readings: Textbook chapters and articles on contemporary approaches to neurorehabilitation.
Week 6	**Interventions** • Construct treatment strategies to improve, strength, Balance, coordination, locomotion and gait, skill acquisition, postural control, mobility functions. • Role of sensory system in improving motor control and sensory rehabilitation.	Assignments: Develop a treatment strategy to improve balance and coordination in patients with neurological impairments. Discuss the role of sensory rehabilitation in motor control. Readings: Resources on treatment strategies for improving motor control and mobility functions.
Week 7	**Neurological dysfunctions** • Assess and manage stroke, types of strokes, problems associated with stroke • Assess and manage traumatic Brain Injury (TBI), Types and severity of problems associated with TBI	Assignments: Prepare a report on stroke management and treatment approaches. Research the different types and severity of traumatic brain injuries (TBI). Readings: Articles on stroke, TBI, and neurological rehabilitation techniques.
Week 8	**NEUROLOGICAL DYSFUNCTIONS** • Assess and manage Spinal Cord Injury (SCI), Complete and incomplete SCI, clinical Syndromes and problems associated with SCI. • Assess and manage brain and spinal cord disorders	Assignments: Write a case study on spinal cord injury (SCI) and its rehabilitation. Discuss the management of brain and spinal cord disorders. Readings: Textbook chapters on SCI and brain/spinal cord disorders.
Week 9	**Neurological dysfunctions** • Multiple Sclerosis (MS) • Cerebellar Disorders	Assignments: Prepare a case report on the rehabilitation of patients with Multiple Sclerosis. Discuss cerebellar disorders and their management in neurological therapy. Readings: Literature on MS and cerebellar disorders.
Week 10	**Neurological dysfunctions** • Parkinson's Disease (PD) • Motor Neuron Disease (MND)	Assignments: Write a report on Parkinson's Disease and the role of physical therapy in its management. Research Motor Neuron Disease (MND) and its neurological rehabilitation approaches. Readings: Articles on PD, MND, and related rehabilitation techniques.
Week 11	**Neurological dysfunctions** • Poly Neuropathies. • Post polio Syndrome (PPS)	Assignments: Prepare a report on polyneuropathies and their treatment strategies. Write about Post Polio Syndrome (PPS) and rehabilitation approaches.

		Readings: Resources on polyneuropathies and PPS rehabilitation.
Week 12	**Neurological dysfunctions** • Vestibular Disorders • Cranial Nerves Disorders	Assignments: Research vestibular disorders and their rehabilitation strategies. Prepare a case study on cranial nerve disorders and physical therapy management. Readings: Literature on vestibular and cranial nerve disorders.
Week 13	**Neurological dysfunctions** • Myasthenia gravis • Spinal muscular atrophy	Assignments: Write an essay on Myasthenia Gravis and its management in physical therapy. Research Spinal Muscular Atrophy and rehabilitation strategies. Readings: Articles on Myasthenia Gravis and spinal muscular atrophy.
Week 14	**Peripheral nerve disorders and management** • Peripheral nerve structure; nerve structure, nervous system mobility characteristics	Assignments: Research peripheral nerve structure and their role in rehabilitation. Discuss the mobility characteristics of the nervous system. Readings: Textbook chapters on peripheral nerve disorders.
Week 15	**Peripheral nerve disorders and management** • Common sites of injury to peripheral nerves, impaired nerve function and recovery process • Neural tension disorders and their managements	Assignments: Prepare a report on common peripheral nerve injuries and their rehabilitation strategies. Write about neural tension disorders and management techniques. Readings: Articles on peripheral nerve injuries and recovery processes.
Week 16	**Peripheral nerve disorders and management** Neuromuscular disorders involving impaired nerve function such as: • Thoracic outlet syndrome • Carpal tunnel syndrome • Compression in tunnel of Guyon • Complex regional pain syndrome: • Reflex sympathetic Dystrophy and causalgia	Assignments: Write a report on thoracic outlet syndrome and carpal tunnel syndrome. Discuss complex regional pain syndrome and reflex sympathetic dystrophy. Readings: Literature on neuromuscular disorders and their management.
	Lab Work • In the laboratory sessions, neurological physiotherapy skills will be demonstrated and practiced. Various reflective case studies related to the neurological rehabilitation will be assigned to the students	Assignments: Practice and demonstrate neurological physiotherapy skills learned throughout the course. Complete reflective case studies on neurological rehabilitation. Readings: Review of the latest research on neuromuscular disorders and their management in neurological physiotherapy.

Lab Work
In the laboratory sessions, neurological physiotherapy skills will be demonstrated and practiced. Various reflective case studies related to the neurological rehabilitation will be assigned to the students. **Note:** The students are expected to make a record of his/her achievements in the log book. The log book is a collection of evidence that learning has taken place. It is a reflective record of achievements. The log book shall also contain a

record of the procedures which student would have performed/observed. This log book will be an integral part of the Physiotherapy in Practice I and Physiotherapy in Practice II.

Textbooks and Reading Material

Textbooks

1. Neurological Physiotherapy Bases of evidence for practice Treatment and management of patients described by specialist clinicians by Cecily Partridge
2. Neurological Physiotherapy A problem-solving approach By Susan Edwards, second edition.
3. Neurologic examination By Robert j. Schwartzman, first edition

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-413	Credit Hours	3(2+1)
Course Title	**Musculoskeletal Physical Therapy - II**				

Course Introduction

Musculoskeletal Physical Therapy - II focuses on advanced assessment, diagnosis, and treatment of musculoskeletal disorders. Students will learn to apply manual therapy, therapeutic exercises, and modalities for managing conditions like joint pathologies, soft tissue injuries, and post-surgical rehabilitation.

Learning Outcomes

- Conduct advanced musculoskeletal assessments and diagnoses.
- Develop individualized treatment plans using manual therapy and exercise.
- Apply manual therapy techniques like joint mobilization and soft tissue release.
- Use therapeutic modalities for pain management and tissue healing.
- Create rehabilitation plans for post-surgical patients.
- Integrate evidence-based practice into treatment decisions.
- Educate patients on injury prevention and self-management.
- Demonstrate professionalism in patient care.

Course Content		Assignments/Readings
Week 1	Introduction to Musculoskeletal Physical Therapy - II	Read course syllabus and introduction to advanced musculoskeletal assessments. Assignment on musculoskeletal disorders overview.
Week 2	Advanced Musculoskeletal Assessment Techniques	Read materials on special tests, range of motion, and strength testing. Assignment on conducting assessments.
Week 3	Manual Therapy: Joint Mobilization	Read about joint mobilization techniques and their clinical applications. Assignment on joint mobilization techniques.
Week 4	Manual Therapy: Soft Tissue Mobilization and Myofascial Release	Read about soft tissue mobilization and myofascial release methods. Complete assignment on techniques and their indications.
Week 5	Therapeutic Exercises: Strengthening and Stretching Techniques	Read materials on therapeutic exercises for musculoskeletal conditions. Assignment on creating exercise plans.
Week 6	Therapeutic Modalities: Heat and Cold Therapy	Read about the physiological effects and indications of heat and cold therapy. Complete assignment on clinical applications.
Week 7	Therapeutic Modalities: Electrical Stimulation and Ultrasound	Review electrical stimulation and ultrasound modalities. Assignment on choosing appropriate modalities for conditions.
Week 8	Pain Management Techniques in Musculoskeletal Therapy	Read on pain mechanisms and management strategies in musculoskeletal therapy. Assignment on pain management approaches.

Week 9	Rehabilitation of Post-Surgical Musculoskeletal Patients	Study rehabilitation protocols for post-surgical musculoskeletal patients. Complete assignment on post-surgical rehab plans.
Week 10	Biomechanics and Kinematics in Musculoskeletal Therapy	Read about the role of biomechanics in physical therapy. Assignment on applying biomechanical principles to treatment.
Week 11	Injury Prevention and Patient Education	Study injury prevention strategies and patient education principles. Assignment on developing an injury prevention program.
Week 12	Functional Movement Patterns and Assessment	Read about assessing functional movement patterns. Complete assignment on analyzing movement patterns in patients.
Week 13	Evidence-Based Practice in Musculoskeletal Physical Therapy	Review current research and evidence-based guidelines in musculoskeletal therapy. Assignment on applying research to practice.
Week 14	Patient-Centered Care and Ethics in Musculoskeletal Therapy	Read about patient-centered care and ethical considerations in physical therapy. Complete assignment on ethical decision-making.
Week 15	Clinical Decision Making and Treatment Planning	Study clinical decision-making models and treatment planning strategies. Assignment on creating a treatment plan for a case study.
Week 16	Review and Final Exam Preparation	Review key concepts from the course. Assignment on revising major topics and preparing for the final exam.

Lab Work

- **Advanced Musculoskeletal Assessment Techniques (Lab)**: Perform special tests, ROM, and strength assessments on peers.
- **Manual Therapy: Joint Mobilization (Lab)**: Practice joint mobilization techniques for musculoskeletal conditions.
- **Manual Therapy: Soft Tissue Mobilization and Myofascial Release (Lab)**: Apply soft tissue mobilization and myofascial release techniques.
- **Therapeutic Modalities: Heat and Cold Therapy (Lab)**: Apply heat and cold modalities for pain management and healing.
- **Therapeutic Modalities: Electrical Stimulation and Ultrasound (Lab)**: Use electrical stimulation and ultrasound for therapeutic purposes.
- **Rehabilitation of Post-Surgical Musculoskeletal Patients (Lab)**: Simulate post-surgical rehabilitation exercises and recovery plans.

Textbooks and Reading Material

- **"Orthotic Intervention for the Hand and Upper Extremity: Splinting Principles and Process"** by MaryLynn A. A. L. P. – Comprehensive guide on orthotic interventions for musculoskeletal conditions.
- **"Musculoskeletal Physical Therapy"** by David K. S. – In-depth coverage of assessment techniques, therapeutic exercises, and rehabilitation for musculoskeletal disorders.

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.

Collaborative Learning
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Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-414	Credit Hours	3(2+1)
Course Title	**Cardiopulmonary Physical Therapy**				

Course Introduction

This course covers applied anatomy, physiology, and pathology of the cardiopulmonary system. It explores relevant tests and measures for identifying impairments and differentiating diagnoses, emphasizing the specificity and sensitivity of assessment tools for patients with cardiopulmonary system disorders. The course highlights evidence-based physical therapy interventions for these disorders, focusing on medical terminology, clinical examination, evaluation, and a comparison of contemporary and traditional interventions, as well as the influence of evolving technology in this field.

Learning Outcomes

- Demonstrate foundational knowledge of applied anatomy, physiology, and pathology.
- Perform, evaluate, and demonstrate clinical examinations for cardiopulmonary conditions.
- Implement evidence-based physical therapy interventions.

	Course Content	Assignments/Readings
Week 1	**Introduction** **Applied anatomy and physiology** • Anatomy of the cardiovascular and respiratory systems • Physiology of the cardiovascular and respiratory systems.	Review anatomy of the cardiovascular and respiratory systems. Study the physiology of the cardiovascular and respiratory systems.
Week 2	**Patho-physiology** • Ischemic cardiac condition • Cardiac muscle dysfunction • Restrictive lung dysfunction • Chronic obstructive pulmonary diseases • Cardiopulmonary implications of specific diseases.	Study ischemic cardiac conditions, cardiac muscle dysfunction, restrictive lung dysfunction, chronic obstructive pulmonary diseases, and cardiopulmonary implications of specific diseases.
Week 3	**Diagnostic tests and procedures** • Cardiovascular diagnostic tests and procedures • Electro cardiography • Pulmonary diagnostic tests and procedures. **Surgical interventions, monitoring and support** • Cardiovascular and thoracic interventions • Thoracic organ transplantation, heart, lung, and heart-lung	Study cardiovascular diagnostic tests, electrocardiography, pulmonary diagnostic tests, and procedures. Review surgical interventions, monitoring, and support in cardiopulmonary care.
Week 4	• Monitoring and Life-Support Equipment. **Cardiopulmonary assessment and intervention** • Assessment Procedures • Treatment of Acute Cardiopulmonary Conditions • Therapeutic Interventions in Cardiac Rehabilitation and Prevention • Pulmonary Rehabilitation • Outcome Measures.	Study cardiopulmonary assessment and intervention, including acute cardiopulmonary conditions, therapeutic interventions in cardiac rehabilitation and prevention, pulmonary rehabilitation, and outcome measures.
Week 5	**The needs of specific patients** **Intensive care for the critically ill adult** • Assessment of the critically ill patient in the intensive care unit (ICU) • Mechanical ventilation - implications for physiotherapy • Musculoskeletal problems • Patient groups with specific needs. • Systemic inflammatory response syndrome (SIRS) and sepsis • Acute respiratory distress syndrome (ARDS) Disseminated intravascular coagulation (DIC) • Inhalation burns	Review assessment of critically ill patients in the ICU, mechanical ventilation, musculoskeletal problems, specific patient groups (SIRS, sepsis, ARDS, DIC), inhalation burns, and trauma care.

	• Neurological conditions requiring intensive care. Physiotherapy techniques • Trauma • Emergency situations.	
Week 6	**Pulmonary rehabilitation** • Definition and aims of pulmonary rehabilitation • Benefits of pulmonary rehabilitation Setting up pulmonary rehabilitation • Resources Selection of patients • Patient assessment for pulmonary rehabilitation • Structure of pulmonary rehabilitation • Pulmonary rehabilitation team • Exercise component • Outcome measures.	Study the definition, aims, benefits, and structure of pulmonary rehabilitation. Understand the resources needed, patient selection, assessment, and outcome measures for pulmonary rehabilitation.
Week 7	**CARDIAC REHABILITATION** • Introduction • Goals of cardiac rehabilitation • Cardiac rehabilitation team • Role of the physiotherapist • Rationale for cardiac rehabilitation • Early ambulation • Exercise training • Secondary prevention • Education	Study the introduction and goals of cardiac rehabilitation, the cardiac rehabilitation team, the role of the physiotherapist, early ambulation, exercise training, secondary prevention, and patient education.
Week 8	• Manifestations of ischaemic heart disease • Cardiac arrest • Angina pectoris • Myocardial infarction • Cardiac surgery • Drugs to control the cardiovascular system • Physiotherapy • Assessment	Study conditions such as cardiac arrest, angina pectoris, myocardial infarction, cardiac surgery, and drugs used to control the cardiovascular system. Review physiotherapy assessment and management.
Week 9	• Recording • Treatment • Outcome evaluation • Complications of exercise • Other considerations • The older patient • Cardiac failure	Study the recording of physiotherapy data, treatment options, evaluation of outcomes, complications of exercise, and considerations for older patients and cardiac failure.
Week 10	• Valvular heart disease • Congenital heart disease • Compliance • Cost-effectiveness • Legal aspects. **CARDIOPULMONARY TRANSPLANTATION (Overview with reference to the Physical Therapist)** • Introduction and Assessment	Study the impact of valvular heart disease, congenital heart disease, compliance, cost-effectiveness, and legal aspects in cardiopulmonary rehabilitation.
Week 11	• The transplantation process • Donors • Operative procedures • Postoperative care • Rejection of the transplanted organs • Immunosuppressant • Special considerations for the physiotherapist	Study the transplantation process, donor requirements, operative procedures, postoperative care, rejection of transplanted organs, immunosuppressant use, and special considerations for physiotherapists.

Week 12	• Denervation of the heart/lungs • Infection/rejection • Physiotherapy management. **HYPERVENTILATION** • Introduction • Signs and symptoms • Causes of hyperventilation • Personality	Study denervation of the heart/lungs, infection/rejection issues, and physiotherapy management for transplantation patients. Understand signs, symptoms, causes of hyperventilation, and personality factors.
Week 13	• Diagnostic tests • Breathing patterns • Treatment • The assessment • Treatment plan • Breathing education • Breathing pattern re-education	Review diagnostic tests for hyperventilation, breathing patterns, assessment techniques, and treatment plans for hyperventilation and breathing pattern re-education.
Week 14	• Compensatory procedures in the short term • Planned rebreathing • Speech • Home programme • Exercise and fitness programme • Group therapy.	Study compensatory procedures in the short term, planned rebreathing, speech therapy, home programs, exercise and fitness programs, and group therapy.
Week 15	**Bronchiectasis, primary ciliary dyskinesia and cystic fibrosis** • Bronchiectasis • Medical management • Physiotherapy • Evaluation of physiotherapy • Primary ciliary dyskinesia • Medical management	Study bronchiectasis, medical management, physiotherapy, evaluation of physiotherapy, primary ciliary dyskinesia, and its medical management.
Week 16	• Physiotherapy • Evaluation of physiotherapy • Cystic fibrosis • Medical management • Physiotherapy • Evaluation of physiotherapy • Continuity of care.	Study cystic fibrosis, its medical management, physiotherapy, evaluation of physiotherapy, and the importance of continuity of care for patients.

Lab Work

- Principles of assessment and outcome measures
- Documentation in SOAP notes format
- Evidence based cardiopulmonary Physical Therapy Treatment protocols.
- Airway clearance
- Breathing exercises
- Postural drainage
- Cardiao pulmonary exercise prescriptions Practical related to the course work

Textbooks and Reading Material

1. *Physiotherapy in Respiratory Care: An Evidence-Based Approach to Respiratory and Cardiac Management*
   By Alexandra Hough (3rd Edition), Nelson Thornes.
2. *Essentials of Cardiopulmonary Physical Therapy*
   By Hillegass and Sadowsky (2nd Edition)
3. *Physiotherapy for Respiratory and Cardiac Problems*
   By Jennifer A. Pryor & Barbara A. Webber (2nd Edition), Churchill Livingstone.
4. *Tidy's Physiotherapy*
   By Thomas A. Skinner & Piercy
5. *Therapeutic Exercises and Techniques*
   By Carolyn Kisner & Lynn Allen Colby (5th & 6th Edition)
6. *Cash's Textbook of General Medical & Surgical Conditions for Physiotherapists*
   By Patricia A. Downie

7. *Cash's Textbook of Chest, Heart, and Vascular Conditions for Physiotherapists*
   By Patricia A. Downie
8. *Chest Physiotherapy for the War Wounded*
   By Mahboob-ur-Rehman, National Book Foundation

Teaching Learning Strategies

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Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

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1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
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3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-415	Credit Hours	2(2+0)
Course Title	**Integumentary Physical Therapy**				

Course Introduction

This course covers the anatomy and physiology of the integumentary system, along with the pathological changes that affect its function, including relevant diagnostic tests and measurements. Emphasis is placed on evidence-based physical therapy interventions for integumentary conditions. The course will compare contemporary and traditional interventions, as well as explore the impact of emerging technologies in this field. Topics also include medical terminology, clinical examination, and evaluation methods.

Learning Outcomes

Assess and evaluate integumentary conditions. Apply physical therapy interventions for integumentary conditions.

	Course Content	Assignments/Readings
Week 1	• Medical Terminology Regarding Integumentary System • Wound Care Concepts • Quality of Life and Ethical Issues • Regulation and Wound Care • Skin, an Essential Organ	Readings: Integumentary system terminology, wound care concepts. Assignments: Medical terminology quiz, case study on ethical issues in wound care.
Week 2	• Acute and Chronic Wound Healing • Wound Assessment • Wound Bioburden • Wound Debridement	Readings: Acute vs. chronic wound healing, assessment techniques. Assignments: Wound assessment case study, report on bioburden in wound care.
Week 3	• Wound Treatment Options • Nutrition and Wound Care • Seating, Positioning, and Support Surfaces • Pain Management and Wounds	Readings: Nutritional considerations in wound care, pain management strategies. Assignments: Develop a treatment plan for a chronic wound, analysis of support surfaces for wound healing.
Week 4	• Wound Classifications and Management Strategies • Pressure Ulcers • Vascular Ulcers	Readings: Classification of wounds, pressure ulcer management. Assignments: Case study on pressure ulcer management, report on vascular ulcers.
Week 5	• Diabetic Foot Ulcers • Sickle Cell Ulcers • Wounds in Special Populations	Readings: Management of diabetic foot ulcers, sickle cell ulcers. Assignments: Research paper on wound care for special populations, case study on diabetic foot ulcers.
Week 6	• Complex Wounds • Atypical Wounds • Wound Care: Where We Were, Where We Are, and Where We Are Going	Readings: Management of complex and atypical wounds, evolution of wound care. Assignments: Case analysis of complex wound care, research on future trends in wound care.
Week 7	• Burns: Skin and Appendage • Classification of Burns • Types of Burns	Readings: Burn classifications, skin and appendage involvement in burns. Assignments: Burn classification case study, report on the types of burns and their treatment.

Week 8	• Criteria of Care in Burn Centers • Physical Therapy in Different Phases of Burns	Readings: Criteria for burn center care, physical therapy interventions for burns. Assignments: Plan a physical therapy program for burn patients, research on burn rehabilitation phases.
Week 9	Case Histories: Principles of Assessment and Outcome Measures	Readings: Case histories in wound care, outcome measures in physical therapy. Assignments: Analyze a case study using assessment and outcome measures, discuss the impact of assessment on treatment.
Week 10	• Documentation in SOAP Notes Format • Evidence-Based Integumentary Physical Therapy Treatment Protocols	Readings: SOAP note format for wound care, evidence-based treatment protocols. Assignments: Document a case study using SOAP notes, review of evidence-based wound care treatment protocols.
Week 11	Medical Terminology and Integration of Traditional vs. Contemporary Wound Care Strategies	Readings: Comparison of traditional and contemporary wound care strategies. Assignments: Paper on the integration of medical terminology with wound care strategies, research on advancements in wound care.
Week 12	Emerging Technologies in Integumentary Physical Therapy	Readings: Emerging technologies in wound care, impact on treatment. Assignments: Research paper on emerging technologies in wound care, presentation on new technologies in integumentary physical therapy.
Week 13	Complex Case Analysis: Principles of Assessment and Treatment Planning	Readings: Advanced case analysis in wound care, principles of assessment. Assignments: Analyze a complex wound care case, develop a detailed treatment plan.
Week 14	Practical Applications and Problem-Solving Scenarios in Wound Management	Readings: Problem-solving scenarios in wound management. Assignments: Develop a practical solution for a wound management issue, case study on wound care challenges.
Week 15	Final Review of Course Topics: Integumentary Physical Therapy Integration	Readings: Review of all course topics and integration of wound care principles. Assignments: Comprehensive review assignment, final case study analysis.
Week 16	Final Assessment: Comprehensive Case Study Review	Readings: Final review material on wound care. Assignments:

		Complete a comprehensive case study review and assessment.

Textbooks and Reading Material

- Wound Care Essentials, practice principles, By Sharon Baranoski& Elizabeth A. Ayello.
- APTA. Guide to Physical Therapy Practice: Revised second edition. Alexandria, VA: American Physical Therapy Association; 2003. ISBN: 978-1-887759-85.

Teaching Learning Strategies

Interactive Lectures
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Collaborative Learning
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Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

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1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-416	Credit Hours	3(3+0)
Course Title	**Clinical Decision Making & Differential Diagnosis**				

Course Introduction

This course will explore the principles and methods of clinical screening in physical therapy practice. It will present a structured approach to musculoskeletal, neuromuscular, integumentary, and cardiopulmonary screening, with an emphasis on differential diagnosis within the scope of physical therapy. The role of the physical therapist will be discussed in relation to that of the physician. The course will highlight red flags that distinguish systemic conditions from neuro-musculoskeletal issues. Decision-making skills in physical therapy will be emphasized through patient case scenarios, focusing on when to treat and when to refer. Additionally, strategies for effectively communicating medical diagnostic information and patient status with healthcare colleagues and patients will be introduced.

Learning Outcomes

- Examine the screening process and differentiate between medical conditions.
- Explore clinical decision-making in physical therapy.

Course Content		Assignments/Readings

Week 1	**Screening and interviewing, the pt scope of practice: to refer or treat**
	• Introduction to screening for referral in physical therapy
	  ○ Reasons to screen
	  ○ Screenings and surveillance
	  ○ Diagnosis by the physical therapist
	  ○ Differential diagnosis versus screening
	  ○ Direct access
	  ○ Decision-making process
	  ○ Case examples and case studies.
		Readings: (Screening for Referral), Case Studies. Assignments: Screening Practice Scenarios.

Week 2	**Introduction to the interviewing process** • Concepts in communication • Cultural competence • The screening interview • Subjective examination • Core interview • Hospital inpatient information • Physician referral.	Readings: (Interviewing Techniques), Cultural Competence in Healthcare. Assignments: Interviewing Role Play, Subjective Examination Practice.

Week 3	**Overview of the physiology of pain and systemic causes of pain**
	• Mechanisms of referred visceral pain
	• Multi-segmental innervations
	• Assessment of pain and symptoms
	  ○ Sources of pain
	  ○ Types of pain
	  ○ Comparison of systemic versus musculoskeletal pain
	  ○ Patterns
	  ○ Characteristics of viscerogenic pain
	• Screening for emotional and psychologic overlay
	• Screening for systemic versus psychogenic symptoms
	• Physician referral.
		Readings: (Pain Mechanisms and Assessment), Visceral Pain Patterns. Assignments: Pain Assessment Exercise, Case Study on Systemic vs. Musculoskeletal Pain.

Week 4	**Physical assessment as a screening tool**
	• General survey
	• Techniques of physical examination
	  ○ Integumentary screening examination
	  ○ Nail bed assessment
	  ○ Lymph node palpation
	  ○ Musculoskeletal screening examination
		Readings: (Physical Assessment Techniques), Regional Screening Tools. Assignments: Integumentary and Musculoskeletal Screening Practice.

	○ Neurologic screening examination ○ Regional screening examination • Systems review • Physician referral.	
Week 5	**Screening for hematologic disease** • Signs and symptoms of hematologic disorders • Classification of blood disorders • Physician referral.	Readings: (Hematologic Diseases and Disorders). Assignments: Case Study on Hematologic Disease, Blood Disorder Identification.
Week 6	**Screening for cardiovascular disease** • Signs and symptoms of cardiovascular disease • Cardiac pathophysiology • Cardiovascular disorders • Laboratory values.	Readings: (Cardiovascular Disorders), Cardiac Pathophysiology. Assignments: Cardiovascular Disease Screening Worksheet, Lab Value Interpretation.
Week 7	**Screening for the effects of cardiovascular medications** • Physician referral.	Readings: (Cardiovascular Medications and Effects). Assignments: Medication Effects Case Study.
Week 8	**Screening for pulmonary disease** • Signs and symptoms of pulmonary disorders ○ Inflammatory/infectious disease ○ Genetic disease of the lung ○ Occupational lung diseases ○ Pleuropulmonary disorders • Physician referral.	Readings: (Pulmonary Diseases and Disorders), Inflammatory Lung Diseases. Assignments: Pulmonary Disease Screening Checklist.
Week 9	**Screening for gastrointestinal disease** • Signs and symptoms of gastrointestinal disorders • Gastrointestinal disorders • Physician referral.	Readings: (Gastrointestinal Disorders). Assignments: Case Study on GI Disorders, Screening Tool Practice.
Week 10	**Screening for hepatic and biliary disease** • Hepatic and biliary signs and symptoms • Hepatic and biliary pathophysiology • Gallbladder and duct diseases • Physician referral.	Readings: (Hepatic and Biliary Disease), Gallbladder Pathophysiology. Assignments: Hepatic Screening Practice, Case Analysis.
Week 11	**Screening for urogenital disease** • Signs and symptoms of renal and urological disorders • The urinary tract • Renal and urological pain • Renal and urinary tract problems • Physician referral.	Readings: (Renal and Urological Disorders), Urogenital Disease Signs. Assignments: Urogenital Disease Screening Worksheet.
Week 12	**Screening for endocrine and metabolic disease** • Associated neuromuscular and musculoskeletal signs and symptoms • Endocrine pathophysiology • Introduction to metabolism • Physician referral.	Readings: (Endocrine Disorders and Musculoskeletal Symptoms). Assignments: Endocrine Disorder Case Study.
Week 13	**Screening for immunologic disease** • Using the screening model • Immune system pathophysiology • Physician referral • Screening for cancer ○ Cancer statistics ○ Risk factor assessment ○ Cancer prevention ○ Major types of cancer, Metastases	Readings: (Immunologic Diseases and Cancer Screening), Cancer Prevention and Risk Factors. Assignments: Cancer Risk Factor Assessment, Oncologic Pain Screening.

	○ Clinical manifestations of malignancy ○ Oncologic pain ○ Side effects of cancer treatment ○ Cancers of the musculoskeletal system ○ Primary central nervous system tumors ○ Cancers of the blood and lymph system ○ Physician referral.	
Week 14	**Screening the head, neck, and back** • Using the screening model to evaluate the head, neck, or back, Location of pain and symptoms • Sources of pain and symptoms, Screening for various causes (oncologic, cardiac, pulmonary, etc.) • Physician referral.	Readings: (Head, Neck, and Back Screening), Pain Source Identification. Assignments: Screening Case Study on Head and Neck Pain.
Week 15	**Screening the sacrum, sacroiliac, and pelvis** • Using the screening model for lower quadrants and other regions, Trauma and other causes of pain • Physician referral.	Readings: (Sacrum, SI Joint, and Pelvic Screening). Assignments: Screening Exercise for Sacral and Pelvic Pain.
Week 16	**Clinical Decision Making (CDM)** • Definition and Process of CDM, Skills Required • Models of CDM	Readings: (Clinical Decision Making Process), CDM Models. Assignments: Case Study on Clinical Decision Making.

Textbooks and Reading Material

- Goodman CC, Snyder TEK. Differential Diagnostics for Physical Therapists: Screening for Referral. Saint Louis, MO: Saunders: Elsevier, 2006. ISBN: 978-0-7216-0619-4.
- APTA. Guide to Physical Therapy Practice: Revised second edition. Alexandria, VA: American Physical Therapy Association; 2003. ISBN: 978-1-887759-85.
- Additional readings as assigned by the instructors.

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1, Quiz-II, Presentation and Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-417	Credit Hours	3(2+1)
Course Title	**Manual Therapy – II (Spine)**				

Course Introduction

Manual Therapy – II (Spine) focuses on advanced manual therapy techniques for the treatment of spinal disorders, including the cervical, thoracic, and lumbar regions. The course aims to deepen students' understanding of spinal biomechanics, pathology, and therapeutic techniques such as joint mobilization, spinal manipulation, and soft tissue mobilization. Students will gain hands-on experience in assessing and treating common spinal conditions, emphasizing evidence-based practice, patient education, and rehabilitation. The course prepares students to integrate manual therapy techniques effectively into clinical practice for optimal patient outcomes.

Learning Outcomes

- **Perform advanced spinal assessments**: Conduct thorough evaluations for spinal dysfunction, including special tests and functional movement screening.
- **Apply spinal joint mobilization techniques**: Use manual therapy to improve spinal mobility, addressing both acute and chronic conditions.
- **Utilize soft tissue mobilization techniques**: Apply soft tissue treatments to relieve pain, reduce tension, and promote healing in spinal regions.
- **Administer spinal manipulations**: Demonstrate proficiency in spinal manipulation techniques for specific spinal conditions, including cervical, thoracic, and lumbar spine.
- **Create treatment plans for spinal disorders**: Develop individualized treatment strategies based on assessment results, focusing on manual therapy, rehabilitation exercises, and pain management.
- **Promote spinal health and rehabilitation**: Educate patients on posture correction, injury prevention, and home exercise programs for long-term spinal health.
- **Apply evidence-based practice**: Integrate the latest research findings into clinical practice to ensure effective and safe spinal manual therapy treatments.
- **Demonstrate professionalism**: Exhibit clinical reasoning, empathy, and communication skills while providing patient-centered care in spinal manual therapy.

Course Content		Assignments/Readings
Week 1	Introduction to Manual Therapy for Spine	Read course overview on spinal manual therapy. Assignment: Review of basic spinal anatomy and biomechanics.
Week 2	Assessment of Spinal Dysfunction	Read about techniques for assessing spinal dysfunctions. Assignment: Perform a spinal assessment on peers.
Week 3	Spinal Joint Mobilization Techniques	Read on joint mobilization techniques for the spine. Assignment: Practice spinal joint mobilization techniques.
Week 4	Soft Tissue Techniques for Spinal Disorders	Read on soft tissue mobilization techniques for the spine. Assignment: Practice soft tissue mobilization on peers.
Week 5	Manual Therapy for Cervical Spine	Read materials on cervical spine conditions and treatment techniques. Assignment: Perform cervical spine mobilizations.
Week 6	Manual Therapy for Thoracic Spine	Study manual therapy techniques for thoracic spine dysfunctions. Assignment: Perform thoracic spine mobilization techniques.
Week 7	Manual Therapy for Lumbar Spine	Read on lumbar spine manual therapy techniques. Assignment: Practice lumbar spine mobilizations.

Week 8	Spinal Manipulation Techniques	Read on spinal manipulation techniques for the cervical, thoracic, and lumbar regions. Assignment: Demonstrate spinal manipulations.
Week 9	Posture Correction and Spinal Alignment	Study the role of posture in spinal dysfunctions. Assignment: Develop a posture correction program for patients.
Week 10	Spinal Pain Management Strategies	Read about pain management approaches in spinal therapy. Assignment: Write a report on pain management techniques for spinal conditions.
Week 11	Rehabilitation of Spinal Injuries	Study rehabilitation methods for spinal injuries. Assignment: Design a rehabilitation program for spinal injury recovery.
Week 12	Biomechanics of Spinal Movements	Review spinal biomechanics and its effect on treatment. Assignment: Analyze the biomechanics of spinal movements.
Week 13	Patient Education and Home Exercise Programs for Spinal Health	Read materials on patient education strategies for spinal health. Assignment: Create a home exercise program for spinal health.
Week 14	Evidence-Based Practice in Spinal Manual Therapy	Review current research on spinal manual therapy. Assignment: Prepare a presentation on evidence-based spinal manual therapy practices.
Week 15	Clinical Decision Making in Spinal Manual Therapy	Study clinical decision-making in the context of spinal manual therapy. Assignment: Create a case study treatment plan.
Week 16	Review and Final Exam Preparation	Review all topics covered in the course. Assignment: Final exam preparation and review of clinical techniques.

Lab Work

- **Spinal Joint Mobilization Techniques (Lab)**: Practice joint mobilization for cervical, thoracic, and lumbar spine.
- **Soft Tissue Mobilization for Spinal Disorders (Lab)**: Apply soft tissue mobilization techniques on spinal regions.
- **Manual Therapy for Cervical Spine (Lab)**: Perform cervical spine mobilizations and manipulations.
- **Posture Correction and Spinal Alignment (Lab)**: Practice posture correction techniques for spinal alignment.
- **Spinal Pain Management Techniques (Lab)**: Implement pain management strategies using manual therapy for spinal conditions.

Textbooks and Reading Material

- **"Orthopedic Manual Therapy: An Evidence-Based Approach"** by Kevin P. D. – Comprehensive guide on manual therapy techniques for orthopedic conditions, including spinal disorders.
- **"Musculoskeletal Examination and Assessment: A Handbook for Therapists"** by Nicola J. Petty – Focuses on spinal assessment techniques and clinical decision-making in musculoskeletal therapy.

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1, Quiz-II, Presentation and Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-418	Credit Hours	3(0+3)
Course Title	**SUPERVISED CLINICAL PRACTICE – V**				

Course Introduction

Semester	Supervision	Focus	Wards	Competencies
9	Supervised by trained PT	Evaluation, Examination & Intervention	Cardiovascular and pulmonary (IPD/OPD; surgical & non- surgical)	Listed below

In this supervised clinical practice, students are responsible for effectively carrying out examinations, evaluations, and interventions related to cardiovascular and pulmonary disorders. They will gain hands-on experience performing these skills in various settings (inpatient and outpatient) and across a range of conditions (surgical, non-surgical, pediatric, and geriatric). Under the supervision of experienced physical therapists, students will learn to perform these skills competently. Students are required to maintain a performance record of all competencies and demonstrate proficiency in treating real patients during the final evaluation of the course.

Learning Outcomes

- Demonstrate competency in patient assessment and diagnosis using evidence-based techniques.
- Design and implement individualized plans of care with measurable goals.
- Make informed clinical decisions and predict optimal patient outcomes.
- Monitor patient progress and adjust interventions to ensure effective treatment.
- Communicate effectively and document patient care in professional formats

	Course Content	Assignments/Readings
Week 1	**Clinical competencies** • EXAMINATION o Based on best available evidence, select examination tests and measures appropriate for the patient/client. o Perform posture tests and measures of postural alignment and positioning. o Perform gait, locomotion, and balance tests including quantitative and qualitative measures: ▪ Balance during functional activities (with or without assistive devices). ▪ Balance (dynamic and static) with or without assistive devices. ▪ Gait and locomotion during functional activities.	Readings: Evidence-based examination techniques, gait and balance assessment methods. Assignments: Perform postural assessment, analyze gait and balance patterns in case studies.
Week 2	Use assistive, adaptive, orthotic, protective, supportive, or prosthetic devices or equipment, including: • Bed mobility, transfers (level surfaces and floor), wheelchair management, uneven surfaces, and safety during gait, locomotion, and balance. **Perform gait assessment:** • Step length, speed, characteristics of gait, and abnormal gait patterns. • Characterize or quantify body mechanics during self-care, home management, work, community tasks, or leisure activities.	Readings: Assistive devices in rehabilitation, body mechanics during daily activities. Assignments: Case study on assistive device selection, gait assessment report.
Week 3	**Characterize or quantify ergonomic performance during work (job/school/play):** • Dexterity and coordination during work. • Safety in work environment and specific work conditions or activities. • Tools, devices, equipment, and workstations related to work tasks or activities.	Readings: Ergonomics in work and school settings, assessing environmental barriers. Assignments: Analyze ergonomic performance in a case study, report on environmental

	Characterize or quantify environmental home and work (job/school/play) barriers: • Current and potential barriers. • Physical space and environment.	barriers in work/home environments.
Week 4	• Community access. • Observe self-care and home management (including ADL and IADL). • Measure and characterize pain: • Pain, soreness, and nocioception for specific body parts. • Recognize and characterize signs and symptoms of inflammation. **Perform cardiovascular/pulmonary tests and measures, including:** • Heart rate, respiratory rate, pattern, and quality; blood pressure; aerobic capacity test (e.g., 6-minute walk test); pulse oximetry.	Readings: Pain measurement techniques, cardiovascular and pulmonary assessment. Assignments: Conduct a cardiovascular assessment on a patient, evaluate community access needs.
Week 5	• Assess breath sounds (normal/abnormal). • Assess response to exercise (RPE), signs, and symptoms of hypoxia. • Assess peripheral circulation (deep vein thrombosis, pulse, venous stasis, lymphedema).	Readings: Breath sound assessment, exercise response, peripheral circulation evaluation. Assignments: Document breath sounds and circulation status, report on peripheral vascular health.
Week 6	**Evaluation** • Clinical reasoning and decision-making: o Synthesize available data using the ICF model. o Use evidence in interpreting findings. o Verbalize alternatives when interpreting findings. o Cite evidence (patient/client history, diagnostics, scientific literature).	Readings: Clinical reasoning models, ICF framework in clinical decision-making. Assignments: Complete evaluation case study, use ICF model for patient analysis.
Week 7	**Diagnosis** • Integrate examination findings to classify the patient/client problem. • Prioritize impairments in body functions and structures, activities, and participation to direct intervention.	Readings: Diagnostic classification in physical therapy, prioritizing impairments. Assignments: Classify patient problems in a case study, prioritize impairments for treatment.
Week 8	**Prognosis** • Predict optimal functioning levels and timelines. • Recognize barriers to achieving goals: o Age, medication, socioeconomic status, co-morbidities, cognitive status, nutrition, social support, and environment.	Readings: Prognosis models, barriers to recovery. Assignments: Develop a prognosis based on case study, identify barriers to recovery in a patient profile.
Week 9	**Plan of care** • Goal setting, coordination, and progression of care. • Discharge planning. • Design a Plan of Care with measurable functional goals (short-term and long-term). • Consult patients/caregivers to develop mutually agreed plans.	Readings: Goal-setting strategies, discharge planning principles. Assignments: Create a comprehensive plan of care with functional goals, consult with caregivers for treatment planning.
Week 10	• Identify essential interventions: o Precautions and contraindications. o Evidence-based interventions (time, intensity, duration, frequency).	Readings: Interventions in physical therapy, evidence-based guidelines. Assignments: Identify appropriate interventions for a

	○ Realistic priorities based on patient conditions. • Establish discharge criteria based on patient goals.	case study, establish discharge criteria.
Week 11	**Coordination of Care** • Identify collaborators for care planning. • Identify patient/client needs beyond physical therapist expertise for referrals. • Advocate for access to services.	Readings: Interdisciplinary care coordination, referral processes. Assignments: Develop a referral plan for additional patient services, collaborate on care planning.
Week 12	**Progression of Care** • Measure and monitor patient response to interventions. • Modify Plan of Care and interventions based on patient progress and outcomes. • Adjust intensity and frequency of interventions as needed.	Readings: Monitoring patient progress, modifying interventions. Assignments: Assess patient progress, adjust the plan of care accordingly.
Week 13	**Discharge planning** • Re-examine patient if discharge criteria are unmet. • Differentiate between discharge, discontinuation, and transfer of care. • Prepare resources for timely discharge, including follow-up care.	Readings: Discharge planning process, managing care transitions. Assignments: Develop discharge plans, prepare follow-up resources for a patient.
Week 14	**Interventions** • Safety, emergency care, CPR, and First Aid. • Standard precautions: ○ Use Universal Precautions and aseptic techniques. ○ Properly position, drape, and stabilize patients during care.	Readings: CPR and emergency care procedures, aseptic techniques. Assignments: Review emergency care protocols, practice patient positioning and stabilization.
Week 15	Coordination, communication, and documentation: • Collaborate with patients/families and healthcare teams. • Prepare incident reports, patient advocacy reports, and follow advanced directives. • Perform case management and cost-effective resource utilization.	Readings: Documentation and communication in healthcare, cost-effective care strategies. Assignments: Prepare an incident report, collaborate on a case management plan.
Week 16	T**herapeutic exercises:** • Aerobic capacity/endurance, gait training, relaxation, and airway clearance techniques. **Functional training:** • ADLs, barrier accommodations, injury prevention, and safety training. **Use of devices:** • Adaptive, assistive, orthotic, prosthetic, and electrotherapeutic modalities. **Document all competencies in SOAP notes format.**	Readings: Therapeutic exercise protocols, assistive devices in rehabilitation. Assignments: Plan a functional training session, document progress using SOAP notes.

Textbooks and Reading Material

1. **Netter's Atlas of Human Anatomy** by Frank H. Netter
2. **Atlas of Anatomy** by Anne M. Gilroy, Brian R. MacPherson, and Lawrence M. Ross
3. **Grant's Atlas of Anatomy** by Anne M.R. Agur and Arthur F. Dalley
4. **Last's Anatomy: Regional and Applied** by Chummy S. Sinnatamby
5. **Essential Clinical Anatomy** by Keith L. Moore, Anne M.R. Agur, and Arthur F. Dalley

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.

Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-419	Credit Hours	3(2+1)
Course Title	**Neurological Physical Therapy – II**				

Course Introduction

Neurological Physical Therapy – II is an advanced course that delves deeper into the assessment, diagnosis, and treatment of neurological conditions. Building upon foundational knowledge, the course covers rehabilitation techniques for patients with central and peripheral nervous system disorders, including stroke, spinal cord injury, Parkinson's disease, and multiple sclerosis. Students will gain practical skills in utilizing various therapeutic interventions, neuroplasticity-based therapies, and evidence-based practices to enhance recovery and improve quality of life for patients with neurological impairments.

Learning Outcomes

- **Conduct advanced neurological assessments**: Perform detailed neurological examinations, including sensory, motor, and cognitive evaluations.
- **Design individualized rehabilitation plans**: Develop tailored treatment strategies based on assessment results, integrating physical, cognitive, and emotional support.
- **Utilize neuroplasticity-based therapies**: Apply therapeutic techniques that promote neural regeneration and functional recovery, including task-specific training and motor learning strategies.
- **Manage neurological disorders effectively**: Implement evidence-based treatments for conditions such as stroke, spinal cord injury, Parkinson's disease, and multiple sclerosis.
- **Implement functional training**: Facilitate functional mobility, balance, and coordination exercises to improve patients' daily activities and independence.
- **Educate patients and caregivers**: Provide education on managing neurological impairments, promoting self-care, and preventing secondary complications.
- **Use assistive devices**: Properly assess and recommend assistive devices such as wheelchairs, orthoses, and prosthetics for neurological patients.
- **Apply ethical and professional standards**: Demonstrate professionalism, empathy, and cultural competence in neurological rehabilitation.

Course Content		Assignments/Readings
Week 1	Introduction to Neurological Physical Therapy – II	Read course syllabus and introduction to advanced neurological conditions. Assignment: Overview of neurological disorders.
Week 2	Advanced Neurological Assessment Techniques	Read about neurological assessment techniques, including sensory, motor, and cognitive evaluations. Assignment: Perform neurological assessments on peers.
Week 3	Stroke Rehabilitation: Assessment and Treatment	Study stroke rehabilitation techniques. Assignment: Develop an assessment and treatment plan for stroke patients.
Week 4	Spinal Cord Injury Rehabilitation	Read materials on spinal cord injury rehabilitation methods. Assignment: Create a rehabilitation program for spinal cord injury patients.
Week 5	Parkinson's Disease: Assessment and Treatment	Study Parkinson's disease management strategies. Assignment: Design a treatment plan for Parkinson's disease patients.

Week 6	Multiple Sclerosis Rehabilitation	Read about rehabilitation strategies for multiple sclerosis patients. Assignment: Develop a comprehensive rehabilitation plan for MS patients.
Week 7	Neuroplasticity and Motor Learning	Read about neuroplasticity and its role in rehabilitation. Assignment: Analyze motor learning techniques for neurological recovery.
Week 8	Balance and Coordination Training	Study balance and coordination interventions for neurological patients. Assignment: Develop balance training exercises for neurological rehabilitation.
Week 9	Functional Training and Gait Rehabilitation	Read on functional training techniques for gait rehabilitation. Assignment: Create a functional mobility training program for neurological patients.
Week 10	Cognitive and Perceptual Rehabilitation	Study cognitive and perceptual interventions in neurological therapy. Assignment: Develop cognitive rehabilitation exercises for patients.
Week 11	Assistive Devices and Technology in Neurological Rehabilitation	Read about the use of assistive devices for neurological patients. Assignment: Evaluate and recommend assistive devices for case studies.
Week 12	Neurodynamic Techniques in Physical Therapy	Study neurodynamic techniques for treating neurological impairments. Assignment: Perform neurodynamic assessments and treatments.
Week 13	Patient and Caregiver Education	Read materials on effective patient and caregiver education. Assignment: Develop an educational presentation for caregivers.
Week 14	Managing Secondary Complications in Neurological Disorders	Study prevention and management of secondary complications (e.g., pressure sores, spasticity). Assignment: Create a prevention plan for secondary complications.
Week 15	Clinical Decision Making in Neurological Rehabilitation	Study clinical reasoning and decision-making processes in neurological therapy. Assignment: Write a case study based on clinical decision-making.
Week 16	Review and Final Exam Preparation	Review all topics covered in the course. Assignment: Final exam preparation and practice.
Lab Work		
• **Neurological Assessment Techniques (Lab)**: Perform detailed neurological exams, including sensory, motor, and cognitive assessments.		

- **Stroke Rehabilitation Techniques (Lab)**: Practice stroke rehabilitation interventions, including motor and functional recovery exercises.
- **Spinal Cord Injury Rehabilitation (Lab)**: Simulate spinal cord injury rehabilitation techniques, focusing on mobility and positioning.
- **Balance and Coordination Training (Lab)**: Develop and practice balance training exercises for patients with neurological impairments.
- **Assistive Devices in Neurological Rehabilitation (Lab)**: Practice assessing and fitting assistive devices for neurological patients.
- **Cognitive and Perceptual Rehabilitation (Lab)**: Implement cognitive rehabilitation exercises and perceptual training techniques.

Textbooks and Reading Material

- **"Neurological Rehabilitation"** by Suzanne C. Behrman – A comprehensive guide to the rehabilitation of neurological disorders, covering assessment and treatment techniques.
- **"Physical Rehabilitation"** by Susan B. O'Sullivan – In-depth coverage of rehabilitation strategies for neurological patients, including motor learning and neuroplasticity.

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-420	Credit Hours	2(2+0)
Course Title	**Internship**				

Course Introduction

The internship for Doctor of Physiotherapy (DPT) students is an integral part of their professional education, providing hands-on experience in clinical settings. This internship allows students to apply theoretical knowledge to real-world situations, enhancing their clinical reasoning, therapeutic skills, and overall professionalism in patient care. It typically spans several weeks to months and involves working under the supervision of licensed physiotherapists in various healthcare environments, including hospitals, outpatient clinics, rehabilitation centers, and specialized physiotherapy units.

Learning Outcomes

- **Clinical Competence**: Develop and refine the clinical skills required for diagnosing and treating a wide range of musculoskeletal, neurological, and other conditions.
- **Professional Communication**: Enhance communication skills with patients, caregivers, and the healthcare team.
- **Critical Thinking and Problem Solving**: Strengthen clinical reasoning and critical thinking in managing diverse cases and complex conditions.
- **Evidence-Based Practice**: Apply current research and evidence-based guidelines in the development and implementation of treatment plans.
- **Patient-Centered Care**: Develop empathetic, ethical, and professional behavior when delivering care, ensuring patient safety and well-being.

	Course Content	Assignments/Readings
Week 1	Introduction to Internship and Clinical Expectations	Read internship guidelines and code of conduct. Assignment: Write a reflection on personal goals for the internship.
Week 2	Patient Assessment Techniques	Read materials on effective patient assessments in physiotherapy. Assignment: Conduct an initial assessment with supervision.
Week 3	Manual Therapy Techniques	Review manual therapy techniques. Assignment: Practice and demonstrate manual therapy techniques under supervision.
Week 4	Neurological Physiotherapy Assessment and Treatment	Read about neurological assessments and treatment strategies. Assignment: Perform an assessment and create a treatment plan for a neurological patient.
Week 5	Musculoskeletal Physiotherapy in Clinical Settings	Study musculoskeletal assessment and rehabilitation techniques. Assignment: Develop a rehabilitation plan for a musculoskeletal patient.
Week 6	Electrotherapy and Modalities in Treatment	Read on the use of electrotherapy modalities in physiotherapy. Assignment: Apply electrotherapy modalities to a patient under supervision.
Week 7	Cardiopulmonary Physiotherapy Techniques	Study cardiopulmonary assessment and rehabilitation strategies. Assignment: Develop a treatment plan for a cardiopulmonary patient.

Week 8	Pediatric Physiotherapy in Clinical Practice	Review pediatric physiotherapy techniques and conditions. Assignment: Perform a pediatric assessment and design an intervention plan.
Week 9	Patient Education and Health Promotion	Read on patient education techniques and health promotion strategies. Assignment: Develop a patient education session for a condition treated.
Week 10	Rehabilitation of Post-Surgical Patients	Study rehabilitation techniques for post-surgical recovery. Assignment: Create a rehabilitation program for a post-surgical patient.
Week 11	Evidence-Based Physiotherapy Practices	Review evidence-based practices in physiotherapy. Assignment: Present an evidence-based treatment strategy for a patient.
Week 12	Clinical Decision Making and Case Management	Study clinical decision-making processes in physiotherapy. Assignment: Develop a clinical management plan for a complex patient case.
Week 13	Interdisciplinary Collaboration in Patient Care	Read about collaboration with other healthcare professionals. Assignment: Participate in a team meeting to discuss a patient case.
Week 14	Documentation and Legal/Professional Standards	Study the importance of documentation and adhering to professional standards. Assignment: Complete patient progress notes based on clinical observations.
Week 15	Patient Progress and Treatment Adjustment	Read materials on adjusting treatment plans based on patient progress. Assignment: Modify an existing treatment plan based on progress.
Week 16	Final Review and Reflection on Internship Experience	Review all the topics covered during the internship. Assignment: Submit a comprehensive report reflecting on your internship experience and learning outcomes.

Textbooks and Reading Material

1. Prosthetics and Patient Management: A Comprehensive Clinical Approach By: Kevin Carroll; Joan Edelstein.
2. Orthotics a comprehensive clinical approach By: Joan E Eldestein & Jan Bruckner.

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.

Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-421	Credit Hours	3(2+1)
Course Title	**Pediatric Physical Therapy**				

Course Introduction

This course focuses on the medical and rehabilitation management of pediatric patients through an interdisciplinary approach. It highlights the etiology and clinical characteristics of common diseases and disorders in the pediatric population. Students will engage in case studies and participate in an interdisciplinary evaluation project.

Learning Outcomes

- Explore common pediatric conditions pertinent to physical therapy.
- Assess and analyzepediatric issues to identify key concerns.
- Develop and implement effective rehabilitation plans tailored to pediatric patients.

Course Content		Assignments/Readings
Week 1	**Medical terminology regarding pediatrics** • History and examination/pediatric examination	Readings on pediatric medical terminology, Assignment on pediatric examination techniques
Week 2	**Medical Terminology Regarding Pediatrics (continued)** • Assessment and outcome measurement • Theories of Development	Readings on theories of child development, Assignment on pediatric assessment tools
Week 3	**Medical care of children with disabilities** • Psychological assessment in pediatric rehabilitation	Readings on medical care for children with disabilities, Assignment on psychological assessments in pediatric rehabilitation
Week 4	• Approaches to working with children • Normal Developmental Milestones	Readings on working with children in therapy, Assignment on normal developmental milestones
Week 5	• Language Development in Disorders of Communication and Oral Motor Function • Adaptive Sports and Recreation	Readings on language development and disorders, Assignment on adaptive sports for children with disabilities
Week 6	• Orthotic and Assistive Devices • Electrodiagnosis in Pediatrics	Readings on orthotic and assistive devices, Assignment on electrodiagnostic techniques in pediatrics
Week 7	• Motor Learning & Principles of Motor Learning • The Child, Parents, and Physiotherapist	Readings on motor learning in children, Assignment on the role of parents and therapists in pediatric care
Week 8	• Aging With Pediatric Onset Disability and Diseases • The Assessment of Human Gait • Motion • Motor Function	Readings on pediatric disabilities across the lifespan, Assignment on assessing pediatric gait and motor function
Week 9	• Psychosocial Aspects of Pediatric Rehabilitation • Pediatric and Neonatal Intensive Therapy	Readings on psychosocial issues in pediatric rehabilitation, Assignment on pediatric intensive care therapies
Week 10	• Disorders of Respiratory System • Cystic Fibrosis	Readings on respiratory disorders in children, Assignment on cystic fibrosis and its management
Week 11	• Duchenne muscular • Hemophilia • Lower limb deformities	Readings on Duchenne muscular dystrophy, hemophilia, and lower

		limb deformities, Assignment on physical therapy interventions
Week 12	• Orthopedics and Musculoskeletal Conditions • Talipes Equino Varus • Torticolis	Readings on pediatric orthopedic conditions, Assignment on treating talipes equino varus and torticollis
Week 13	• Pediatric limb deficiencies • Neuromuscular diseases	Readings on pediatric limb deficiencies, Assignment on pediatric neuromuscular diseases
Week 14	• Myopathies • Traumatic Brain Injury • Cerebral Palsy	Readings on myopathies and traumatic brain injury in children, Assignment on cerebral palsy rehabilitation
Week 15	• Spinal cord injuries • Spina bifida • Oncology • Palliative care	Readings on spinal cord injuries and spina bifida, Assignment on pediatric oncology and palliative care
Week 16	**Case histories** • Principles of assessment and outcome measures • Documentation in SOAP notes format • Evidence-based pediatric Physical Therapy Treatment protocols	Readings on case history analysis and SOAP note documentation, Assignment on evidence-based treatment protocols

Textbooks and Reading Material

- Physical Therapy for Children By, Suzann K. Campbell, Robert J. Palisano&Darl W. Vander Linden.
- Paediatric Rehabilitation Principles and practice (Fourth Edition) By, Michael A Alexander & Dennis j. Matthews.
- Additional reading material as assigned.

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1, Quiz-II, Presentation and Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%

3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	**Course Code**	**DPT-422**	**Credit Hours**	2(2+0)
Course Title	**Gerontology & Geriatric Physical Therapy**				

Course Introduction

This course explores the normal aging process, focusing on the physiological and psychological changes that affect activities of daily living (ADL) and instrumental activities of daily living (IADL). It covers relevant tests and measures to assess impairments and differentiate diagnoses, considering the specificity and sensitivity of assessment tools in relation to geriatric patients. The course emphasizes evidence-based physical therapy interventions for geriatric conditions, with topics including medical terminology, clinical examination, evaluation techniques, comparisons of contemporary and traditional interventions, and the impact of advancing technology in this field.

Learning Outcomes

- Explore common geriatric conditions relevant to physical therapy and gain an understanding of human development.
- Assess and evaluate geriatric issues to identify key concerns.
- Develop and implement effective rehabilitation plans for geriatric patients.

	Course Content	**Assignments/Readings**
Week 1	**Gerontology**: • Introduction to gerontology • Demographic trends of an aging society • Social gerontology	Readings on introduction to gerontology, Assignment on demographic trends and societal impacts of aging
Week 2	• The Physiology and Pathology of Aging • The Cognitive and Psychological Changes Associated with Aging Functional Performance in Later Life: • Basic Sensory • Perceptual • Physical Changes Associated with Aging	Readings on physiology and pathology of aging, Assignment on cognitive and psychological changes
Week 3	• Geriatric pharmacotherapy • Sexuality and aging • Living options and the continuum of care	Readings on pharmacotherapy and sexuality in aging, Assignment on living options and care continuum
Week 4	• Legal and Financial Issues Related to Health • Care for older people • Health care providers working with older adults • Future concerns in an aging society	Readings on legal/financial issues in aging, Assignment on the role of healthcare providers in geriatric care
Week 5	• Health Literacy and Clear Health Communication **Geriatric physical therapy**: **medical terminology regarding geriatrics** • Attitudes and Ageism • Ageism	Readings on health literacy, Assignment on ageism and its impact on healthcare
Week 6	• Myths and Facts about Older Adults • Age Bias in Healthcare • Geriatric Training and Role of Physical Therapist	Readings on myths/facts about older adults, Assignment on addressing age bias in healthcare
Week 7	**Normal physical changes in older adults** • Breathing the respiratory system • Beating the cardiovascular system • Thinking and reacting the nervous system	Readings on normal physical changes, Assignment on respiratory and cardiovascular system changes in older adults
Week 8	• Moving - the Musculoskeletal System • Eating & Eliminating the Gastrointestinal and Urinary Systems • Metabolizing the Endocrine System	Readings on musculoskeletal and gastrointestinal changes, Assignment on endocrine system changes in geriatrics

Week 9	• Responding - the Sensory System • Sleeping and Other Physical Changes **Psychological changes** • The 3 Ds and Suicide in Older Adults	Readings on sensory system changes, Assignment on psychological changes and the 3 Ds (Delirium, Dementia, Depression)
Week 10	• Delirium • Dementia • Depression **Older adult abuse and neglect** • Scope of Older Adult Abuse and Neglect • Clues to Abuse and Interventions	Readings on delirium, dementia, depression, and abuse, Assignment on identifying and intervening in cases of abuse
Week 11	**Triage and assessment** • ABCs of Geriatric Assessment • Assessment Techniques and Atypical Presentations **Pain**: • Pain in Older Adults	Readings on geriatric assessment techniques, Assignment on pain management in older adults
Week 12	• Pain Assessment and Challenges • Impact of Physiological Changes • Medication and Pain Management • Medication Interactions	Readings on pain assessment, Assignment on managing medication interactions and challenges in pain management
Week 13	• Medication and Food **Effects of age** • Task Complexity • Exercise • Ambulation **Physical therapy for geriatrics in various neuromuscular disorders** • Alzheimer's disease • Parkinsonism	Readings on medication, exercise, and ambulation, Assignment on physical therapy for Alzheimer's and Parkinson's
Week 14	• Cerebrovascular accident (C.V.A) • Polyneuropathies • Pre-operative and Post-operative Physical Therapy for Geriatrics in Various Musculoskeletal Disorders • Balance and Fall in Elderly: Issues in Evaluation and Treatment • Defining the problem of falls	Readings on C.V.A, polyneuropathies, and falls in elderly, Assignment on pre/post-op PT interventions and fall risk management
Week 15	• Risk factors • aging theory concept • pertinent to falls in the elderly • Multi-faceted approach to the falls problem • Postural control theory • physiology of balance • Summary influence of age on postural control • relationship between postural control and falls	Readings on postural control theory, Assignment on multi-faceted fall management and postural control
Week 16	• A model, examination and evaluation, history, biological assessment, sensory effectors, strength, ROM • endurance, central processing, functional assessment • environmental assessment, psychosocial assessment, intervention **Medications**, **nutritional deficiencies**: • Primary nutritional problems, Limited fixed incomes • Severely limited food choices and availability **Case histories**: • Principles of assessment and outcome measures • Documentation in SOAP notes format • Evidence-based geriatric Physical Therapy Treatment protocols	Readings on case histories and geriatric assessment, Assignment on SOAP notes documentation and evidence-based treatment protocols

Textbooks and Reading Material

- Geriatric Physical Therapy by Andrew A. Guccione.
- Fundamentals of Geriatric Medicine.
- Gerontology for health care professional by regula H robbnet/ walter.
- Handbook of gerontology by James A Blackburn and Catherine N Dulmus.

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-423	Credit Hours	2(2+0)
Course Title	**Obstetrics & Gynecological Physical Therapy**				

Course Introduction

This course explores the normal aging process, focusing on the physiological and psychological changes that impact activities of daily living (ADL) and instrumental activities of daily living (IADL). It emphasizes the use of appropriate tests and measures to assess impairments and differentiate diagnoses in geriatric patients, considering the specificity and sensitivity of assessment tools. Evidence-based physical therapy interventions for geriatric conditions are a central focus, with discussions on medical terminology, clinical examination, and evaluation techniques. The course also compares contemporary and traditional therapeutic approaches while examining the role of advancing technology in improving geriatric care.

Learning Outcomes

- Explore common geriatric conditions pertinent to physical therapy and gain an understanding of human development.
- Assess and analyze geriatric issues to identify underlying problems.
- Develop and implement effective rehabilitation plans tailored to the needs of geriatric patients.

	Course Content	Assignments/Readings
Week 1	**Gerontology** • Introduction to Gerontology • Demographic Trends of an Aging Society • Social Gerontology	Readings on Introduction to Gerontology and Aging Society, Assignment on demographic trends and societal impact of aging
Week 2	• The Physiology and Pathology of Aging • The Cognitive and Psychological Changes Associated with Aging • Functional Performance in Later Life • Basic Sensory • Perceptual and Physical Changes Associated with Aging	Readings on Physiology and Pathology of Aging, Assignment on cognitive and psychological changes
Week 3	• Geriatric pharmacotherapy • Sexuality and aging • Living options and the continuum of care • Legal and financial issues related to health care for older people	Readings on Geriatric Pharmacotherapy, Assignment on legal/financial issues and continuum of care
Week 4	• Health care providers working with older adults • Future concerns in an aging society • Health literacy and clear health communication	Readings on roles of healthcare providers, Assignment on health literacy and aging society concerns
Week 5	**Geriatric physical therapy** **Medical terminology regarding geriatrics** • Attitudes and Ageism • Ageism • Myths and Facts about Older Adults • Age Bias in Healthcare	Readings on Geriatric Physical Therapy and Ageism, Assignment on myths and facts about older adults
Week 6	• Geriatric Training and Role of Physical Therapist **Normal physical changes in older adults** • Breathing the Respiratory System • Beating the Cardiovascular System • Thinking and Reacting the Nervous System	Readings on Role of Physical Therapist in Geriatrics, Assignment on physiological changes and systems affected by aging
Week 7	• Moving - the Musculoskeletal System • Eating & Eliminating the Gastrointestinal and Urinary Systems • Metabolizing the Endocrine System • Responding - the Sensory System	Readings on Musculoskeletal and Gastrointestinal systems, Assignment on endocrine and sensory system changes

Week 8	• Sleeping and Other Physical Changes **Psychological changes** • The 3 Ds and Suicide in Older Adults • Delirium • Dementia • Depression	Readings on sleep disturbances and psychological changes, Assignment on 3 Ds (Delirium, Dementia, Depression) in aging
Week 9	**Older adult abuse and neglect** • Scope of older adult abuse and neglect • Clues to abuse and interventions **Triage and assessment** • ABCs of geriatric assessment • Assessment techniques and atypical presentations	Readings on Older Adult Abuse and Neglect, Assignment on assessment techniques for abuse in older adults
Week 10	**Pain** • Pain in older adults • Pain assessment and challenges • Impact of physiological changes • Medication and pain management • Medication interactions	Readings on Pain management in older adults, Assignment on medication interactions and pain assessment
Week 11	• Medication and Food **Effects of age** • Task Complexity • Exercise • Ambulation **Physical therapy for geriatrics in various neuromuscular disorders** • Alzheimer's disease • Parkinsonism	Readings on medication effects and physical therapy approaches, Assignment on managing Parkinsonism and Alzheimer's in geriatrics
Week 12	• Cerebrovascular accident (C.V.A) • Polyneuropathies • Pre-operative and Post-operative Physical Therapy for Geriatrics in Various Musculoskeletal Disorders	Readings on C.V.A and Polyneuropathies, Assignment on pre- and post-operative PT interventions
Week 13	**Balance and fall in elderly** **Issues in evaluation and treatment** • Introduction • Defining the problem of falls • Risk factors • Aging theory concept pertinent to falls in the elderly	Readings on balance and fall risk in older adults, Assignment on evaluation and treatment of falls
Week 14	• Multi-faceted approach to the falls problem • Postural control theory • Physiology of balance • Summary influence of age on postural control • Relationship between postural control and falls • A model • Examination and evaluation	Readings on postural control and balance physiology, Assignment on multi-faceted fall management approaches
Week 15	• History, biological assessment • Sensory effectors • Strength • ROM • Endurance • Central processing • Functional assessment • Environmental assessment • Psychosocial assessment • Intervention **Medications, nutritional deficiencies** • Primary nutritional problems	Readings on assessment techniques and intervention strategies, Assignment on sensory and functional assessments

Week 16	• Limited fixed incomes • Severely limited food choices and availability **Case histories** • Principles of assessment and outcome measures • Documentation in SOAP notes format • Evidence-based geriatric Physical Therapy Treatment protocols	Readings on limited food choices and case histories, Assignment on documentation and evidence-based PT treatment protocols

Textbooks and Reading Material

- Geriatric Physical Therapy by Andrew A. Guccione.
- Fundamentals of Geriatric Medicine.
- Gerontology for health care professional by regula H robbnet/ walter.
- Handbook of gerontology by James A Blackburn and Catherine N Dulmus.

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-424	Credit Hours	2(2+0)
Course Title	**Prosthetics & Orthotics**				

Course Introduction

This course focuses on prosthetic and orthotic management across various patient populations throughout the lifespan. It covers the considerations of different pathologies and medical and surgical treatments, enabling the formulation of appropriate patient examinations, evaluations, diagnoses, prognoses, and interventions that align with physical therapy practice guidelines. A key emphasis will be on normal biomechanics, pathomechanics, physiology, and pathophysiology for the assessment, treatment, and education of patients with vascular, neuromuscular, and/or musculoskeletal impairments who require prosthetic or orthotic devices. The course will also apply basic principles of mechanical physics and material properties.

Learning Outcomes

- Explain the different types of prosthetics and orthotics.
- Discuss the prescription of orthotics and prosthetics based on various conditions.

	Course Content	Assignments/Readings
Week 1	**Orthotics** **Introduction to orthotics** • Basic terminology • Historical background • Factors in prescription orthotics • Nomenclature of orthotics • Biomechanical principles • Materials used in orthotics manufacturing • Methods of construction.	Study the basic terminology of orthotics, historical background, factors in orthotics prescription, nomenclature, biomechanical principles, and materials used in orthotics manufacturing.
Week 2	**Foot orthoses** • Shoe style • Parts of shoes • Special purpose shoes • Foot examination • Orthotics interventions	Review the parts of shoes, shoe styles, special-purpose shoes, foot examination, and orthotic interventions.
Week 3	• Fabrication options • Pediatric foot orthoses • Guideline for prescription foot orthoses. **Ankle foot orthoses** • Plastic ankle foot orthoses • Lather metal ankle foot orthoses • Composite materials	Study the fabrication options for foot orthoses, guidelines for prescription foot orthoses, and pediatric foot orthoses.
Week 4	• Weight relieving ankle foot orthoses • Support (fabric, leather, gel and air) • Contracture reducing ankle foot orthoses • Guidelines for prescription ankle foot orthoses. **Knee ankle foot orthoses and knee orthoses** • Plastic metal knee ankle foot orthoses • Knee immobilizer • Supra- condylar knee ankle foot orthoses	Study plastic and leather metal ankle foot orthoses, composite materials, weight-relieving and contracture-reducing ankle foot orthoses, and guidelines for prescription ankle foot orthoses.
Week 5	• Weight relieving orthoses, fracture orthoses • Lather metal knee ankle foot orthoses • Knee orthoses • Guidelines for prescription knee ankle foot orthoses.	Study plastic metal knee ankle foot orthoses, knee immobilizers, supra-condylar knee ankle foot orthoses, and weight-relieving fracture orthoses. Review guidelines for prescription knee ankle foot orthoses.

Week 6	**Orthoses for paraplegia and hip disorders** • Paraplegia • Standing frames • Orthoses designed for ambulation • Functional electrical stimulation • Specific devices for paraplegia • Hip orthoses • Guidelines for prescription.	Study paraplegia, standing frames, orthoses for ambulation, functional electrical stimulation, devices for paraplegia, and hip orthoses. Review guidelines for prescription.
Week 7	**Evaluation procedures for lower limb orthoses** • Need of evaluation • Static evaluation • Dynamic evaluation • Gait disorders with orthoses usage.	Review the need for static and dynamic evaluations, gait disorders, and evaluation procedures for lower limb orthoses.
Week 8	**Trunk and cervical orthoses** • Trunk orthoses • Trunk orthoses evaluation • Scoliosis and kyphosis orthoses • Scoliosis and kyphosis orthoses evaluation • Cervical orthoses • Cervical orthoses evaluation • Guideline for prescription.	Study trunk orthoses, scoliosis and kyphosis orthoses, cervical orthoses, their evaluations, and guidelines for prescription.
Week 9	**Upper limb orthoses** • Hand and wrist hand orthoses • Forearm and elbow orthoses • Shoulder orthoses, fabrication option • Upper limb orthoses evaluation (hand, wrist, fingers, shoulder and elbow) • Guideline for prescription.	Study hand and wrist orthoses, forearm and elbow orthoses, shoulder orthoses, and upper limb orthoses evaluation. Review guidelines for prescription.
Week 10	**Orthoses for burns and other soft tissue disorders** • Importance of orthoses for burns and other soft tissue disorders • Orthoses for burn management • Orthoses for patients with soft tissues problem • Associated with neuromuscular disorders.	Study the importance of orthoses for burns and soft tissue disorders, and orthoses for burn management and neuromuscular disorders.
Week 11	**Goal setting and treatment plan** • Long-term goals • Short-term goals • Treatment planning • Criteria for discharge • Care of orthoses.	Study how to set long-term and short-term goals, treatment planning, criteria for discharge, and care of orthoses.
Week 12	**Prosthetics** **Early management** • Clinic team approach to rehabilitation • Amputation surgery: osteomyoplastic reconstructive technique • Postoperative management • Pain management	Study the clinic team approach to rehabilitation, amputation surgery (osteomyoplastic technique), postoperative management, and pain management.
Week 13	• Skin Disorders and Their Management. • Psychological Consequences of Amputation. **REHABILITATION OF ADULTS WITH LOWER-LIMB AMPUTATIONS** • Partial Foot and Syme's Amputations and Prosthetic Designs	Study skin disorders and their management, psychological consequences of amputation, and prosthetic designs for partial foot and Syme's amputations.
Week 14	• Transtibial prosthetic designs • Transfemoral prosthetic designs • Hip disarticulations and transpelvic prosthetic designs • Basic lower-limb prosthetic training.	Study transtibial, transfemoral, hip disarticulations, and transpelvic prosthetic designs, along with basic lower-limb prosthetic training.

Week 15	**Rehabilitation of adults with upper-limb amputations** • Body-powered upper-limb prosthetic designs • Upper-limb externally powered prosthetic designs training patients with upper-limb amputations.	Study body-powered upper-limb prosthetic designs, externally powered prosthetic designs, and training techniques for patients with upper-limb amputations.
Week 16	**Beyond the basics** • Special considerations with children • Rehabilitation outcomes • Adaptive prostheses for recreation • Future prosthetic advances and challenges • Future surgical and educational advances and challenges.	Study special considerations with children, rehabilitation outcomes, adaptive prostheses for recreation, and future prosthetic, surgical, and educational advances and challenges.

Textbooks and Reading Material

3. Prosthetics and Patient Management: A Comprehensive Clinical Approach By: Kevin Carroll; Joan Edelstein.
4. Orthotics a comprehensive clinical approach By: Joan E Eldestein & Jan Bruckner.

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-425	Credit Hours	2(2+0)
Course Title	**Professional Practice In Physical Therapy**				

Course Introduction

The **Professional Practice in Physical Therapy** course is designed to provide students with an in-depth understanding of the core competencies, ethical standards, and professional responsibilities required for practice as a physical therapist. The course will emphasize the practical application of physical therapy principles in a clinical setting, and the development of essential skills such as patient care, interprofessional collaboration, and effective communication.

This course will equip students with the necessary knowledge to navigate complex clinical situations, make sound clinical decisions, and maintain a high standard of professionalism. Topics will include ethical practice, legal considerations, cultural competence, patient safety, and teamwork within multidisciplinary healthcare environments.

Learning Outcomes

- Understand the scope of physical therapy practice within various healthcare settings.
- Apply ethical and professional standards in all aspects of patient care.
- Communicate effectively with patients, families, and healthcare professionals.
- Demonstrate cultural competence and sensitivity in patient interactions.
- Navigate the legal and regulatory aspects of physical therapy practice.
- Develop and implement patient care plans based on evidence-based practices.
- Manage complex clinical situations with a focus on patient safety and quality care.
- Reflect on personal growth and development as a professional in physical therapy.

	Course Content	Assignments/Readings
Week 1	**The physical therapist as professional** • What does professional mean? • Preliminary definitions of profession and professional • Sociological perspective • Structural approach • Processual approach • Characteristics of professions cited in the literature • Power approach • Dimensions of occupation & profession • Autonomy, self-regulation of ethical standards, and accountability • Self-regulation of ethical standards • Privileges of autonomous practice in 2020 • Accountability of professionals • Individual professionalism-professionalism without professions? • The history of a profession • Professional recognition	Readings: Definition of professionalism in healthcare, ethical standards for physical therapists. Assignments: Case study on professionalism in physical therapy, reflection on the history of the profession.
Week 2	**Contemporary practice issues** • A vision for the future • The doctorate in physical therapy • Perspective of the profession • Perspective of the practitioner • Direct access issue • Selected curriculum requirements from evaluative criteria for physical therapist • Plan of care • Social responsibility • Career development • Physical therapy practice patterns	Readings: The future of physical therapy, Doctoral education in physical therapy. Assignments: Analyze curriculum requirements for physical therapy, reflection on future practice patterns.

	• Components of a practice pattern • Important factors that affect health	
Week 3	**The five roles of the physical therapist as patient/client manager** • Evaluation and diagnosis • Diagnosis as clinical decision-making • Prognosis • Discharge planning and discontinuance of care • Discontinuance of care • Outcomes • Clinical decision-making • Referral relationships • Interpersonal relationships • Ethical and legal issues • Informed consent • Managed care and fidelity	Readings: Clinical decision-making in physical therapy, informed consent procedures. Assignments: Case study on discharge planning, clinical decision-making process.
Week 4	**The physical therapist as consultant** • Physical therapy consultation • Building a consulting business • The consulting process • The skills of a good consultant • Trust in the consultant/client relationship • Ethical and legal issues in consultation • Components of a consulting agreement	Readings: The role of physical therapists as consultants, building a consulting business. Assignments: Design a consultation process for a physical therapy practice, case study on ethical issues in consultation.
Week 5	**The physical therapist as critical inquirer** • History of critical inquiry • Evidence-based medicine • Outcomes research • Whose responsibility is research? • Roles of the staff physical therapist in critical inquiry • Collaboration in clinical research • Ethical and legal issues in critical inquiry	Readings: Evidence-based practice in physical therapy, history of critical inquiry in healthcare. Assignments: Research design in physical therapy, critical inquiry case study.
Week 6	**The physical therapist as educator** • History of physical therapy education • Contemporary educational roles of the physical therapist • Teaching opportunities in continuing education • Academic teaching opportunities • Theories of teaching and learning in professional education • Ethical and legal issues in physical therapy education	Readings: Teaching theories and models in physical therapy education. Assignments: Reflection on educational roles, analysis of contemporary issues in PT education.
Week 7	**The physical therapist as administrator** • History of physical therapy administration • Contemporary physical therapy administration • Patient/client management • First-line management • Midlevel managers and chief executive officers • Leadership • Ethical and legal issues	Readings: The role of the physical therapist in healthcare administration, leadership in physical therapy. Assignments: Analyze the role of physical therapists in administration, case study on ethical leadership.
Week 8	**Professional development, competence, and expertise** • Lifelong process of skill enhancement • The professional development continuum: from competence to expertise • Activities that promote professional development	Readings: Lifelong learning and professional growth, competence in physical therapy. Assignments: Develop a personal professional development plan,

	• Evaluation of competence and professional development • Professional development planning • Possible evaluators of professional achievement • Career advancement • Organizational impact on professional development	case study on career advancement in PT.
Week 9	**Future challenges in physical therapy** • Physical therapy's moral mission • The future in three realms: individual, institutional & societal • Professionalism and the physical therapist	Readings: Challenges and opportunities for physical therapy in the future. Assignments: Analyze the future of physical therapy in individual, institutional, and societal contexts.
Week 10	**Consultation in physical therapy** • Introduction to consultation in physical therapy • The way the consultation is carried out • Patient-related consultation • Client-related consultation • Consultation activities of physical therapist • Responding to a request for a second opinion • Advising a referring practitioner about the indications for intervention • Advising employers about the requirements of the patients/clients with disabilities	Readings: Best practices in physical therapy consultation. Assignments: Case study on client-related consultation, role-play consultation activities.
Week 11	**Screening in physical therapy** • Introduction to screening in physical therapy • The way the screening is carried out • The basis of screening • Problem-focused, systematic collection, and analysis of data • Screening activities of physical therapist • Identifying children who may need an examination for idiopathic scoliosis • Identifying risk factors in the workplace	Readings: Screening techniques in physical therapy, risk factor identification. Assignments: Practice screening for scoliosis and workplace risk factors, case study analysis on screening practices.
Week 12	**Delegation in physical therapy** • Introduction to delegation in physical therapy • Delegation pertinent responsibilities of physical therapist • Treatment review in a timely manner • Documentation of goals of treatment • Revision of plan of care when indicated	Readings: Delegation in physical therapy practice, ethical considerations in delegation. Assignments: Review and revise a treatment plan, role-play delegation scenarios.
Week 13	**Cultural competency in physical therapy** • General considerations of cultural competence in physical therapy • Key concepts: Culture, principles, and assumptions • Equitable access and addressing racism & oppression • Physical therapist's understanding of patient's culture	Readings: Cultural competency in healthcare, addressing health disparities. Assignments: Reflection on cultural competence in patient care, case study on cultural sensitivity in physical therapy.
Week 14	**Standards of competence in physical therapy** • Developing standards of competence • Domain 1: Professional Practice • Domain 2: Patient/Client Management • Communication in cultural contexts	Readings: Standards of competence in physical therapy practice, communication in diverse cultural contexts. Assignments: Develop a competency checklist for patient management, analyze

		communication strategies in cultural contexts.
Week 15	**Laws, regulations, and policies for physical therapy** • National laws, regulations, and policies for physical therapy • International perspectives • Employer policies • Statutes and regulations	Readings: Legal and regulatory frameworks for physical therapy practice. Assignments: Case study on laws and regulations impacting physical therapy, review of international policies on PT practice.
Week 16	**Education techniques** • The teaching-learning process • Educational theory • Curriculum design for physical therapy educational programs • Assessing and improving teaching and learning processes	Readings: Theories of education in physical therapy, curriculum design principles. Assignments: Design a curriculum for a physical therapy course, assess teaching and learning strategies.

Textbooks and Reading Material

1. Professionalism in Physical Therapy: History, Practice, & Development, Lisa L. Dutton, PT, PhD.
2. APTA. Guide to Physical Therapy Practice: Revised second edition. Alexandria, VA: American Physical Therapy Association; 2003. ISBN: 978-1-887759-85.
3. Handbook of Teaching for Physical Therapists
4. Katherine Shepard, Gail Jensen, 2011, ISBN: 978-1-4557-3470-2

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-426	Credit Hours	2(2+0)
Course Title	**Sports Physical Therapy**				

Course Introduction

This course primarily focuses on the role of physical therapists in both the industrial setting and sports physical therapy. It emphasizes the acute management of traumatic injuries and sudden illnesses, along with strategies for injury prevention. Advanced clinical competencies essential for the practice of sports physical therapy are also thoroughly addressed.

Learning Outcomes

- Explore common sports injuries and gain an understanding of their mechanics and path mechanics.
- Discuss the roles and responsibilities of a sports physiotherapist.
- Assess and analyze sports injuries to determine appropriate interventions.
- Develop and implement tailored rehabilitation plans for sports injuries.

	Course Content	Assignments/Readings
Week 1	**Medical terminology related to sports physical therapy** **Introduction to sports rehabilitation** • Introduction to sport injury management.	Reading: Introduction to sports rehabilitation; Assignment: Research and summarize common sports injuries and their management.
Week 2	**Injury screening and assessment of performance** • Injury prevention and screening assessment and needs analysis.	Reading: Injury prevention techniques; Assignment: Case study on injury screening and performance assessment.
Week 3	**Pathophysiology of musculoskeletal injuries** • Pathophysiology of skeletal muscle injuries	Reading: Pathophysiology of skeletal muscle injuries; Assignment: Research on muscle injury recovery phases and their implications.
Week 4	• Pathophysiology of tendon injuries • Pathophysiology of ligament injuries	Reading: Tendon and ligament injuries in sports; Assignment: Create a presentation on tendon and ligament healing processes.
Week 5	• Pathophysiology of skeletal injuries • Peripheral nerve injuries.	Reading: Peripheral nerve injuries and recovery; Assignment: Identify and describe common skeletal and peripheral nerve injuries in athletes.
Week 6	**Effective clinical decision making** • An introduction to periodization	Reading: Periodization in sports rehabilitation; Assignment: Write a report on clinical decision-making strategies in sports PT.
Week 7	• Management of acute sport injury • Musculoskeletal assessment	Reading: Acute injury management; Assignment: Case study on management of acute sports injuries in athletes.
Week 8	• Progressive systematic functional rehabilitation • Strength and conditioning	Reading: Principles of strength and conditioning; Assignment: Design a basic rehabilitation program for a sports injury.
Week 9	• Nutritional considerations for performance and rehabilitation	Reading: Nutrition for athletic recovery; Assignment: Research nutritional strategies to optimize performance and recovery.

Week 10	• Psychology and sports rehabilitation • Clinical reasoning.	Reading: Psychological factors in sports rehabilitation; Assignment: Analyze the role of psychology in athlete recovery.
Week 11	**Joint specific sport injuries and pathologies** • Shoulder injuries in sport • The elbow • Wrist and hand injuries in sport	Reading: Joint-specific injuries in sports; Assignment: Case study on shoulder, elbow, wrist, and hand injuries in athletes.
Week 12	• The grain in sport • The knee	Reading: Knee injuries and pathologies in sports; Assignment: Develop a rehabilitation plan for a common knee injury in athletes.
Week 13	• Ankle complex injuries in sport • The foot in sport.	Reading: Ankle and foot injuries in athletes; Assignment: Research rehabilitation techniques for ankle and foot injuries in sports.
Week 14	**Traveling with a team drugs and the athlete ethics and sports medicine case histories** • Principles of assessment and outcome measures	Reading: Ethics in sports physical therapy; Assignment: Discuss ethical considerations in sports rehabilitation and drug use.
Week 15	• Documentation in SOAP notes format	Reading: SOAP note documentation guidelines; Assignment: Complete a SOAP note based on a sports injury case.
Week 16	• Evidence based sports Physical Therapy Treatment protocols.	Reading: Evidence-based practices in sports physical therapy; Assignment: Develop a treatment protocol for a sports injury using evidence-based guidelines.

Textbooks and Reading Material

- Sports Rehabilitation and Injury Prevention by: Paul Comfort &Earie Abrahamson, 1 Edition, 2010, Wiley Blackwell Publishers.
- Clinical Sports Medicine by: Brukner& Khan, 4ed, McGraw-Hill Publishers
- A guide to sports and injury management by: Mike Bundy & Andy Leaver, 1 edition, 2010, Churchill Livingstone

Teaching Learning Strategies

Interactive Lectures
Engage students with interactive presentations, discussions, and real-time corrections of writing and speaking errors.
Collaborative Learning
Students will work in pairs or small groups to write essays, analyze readings, and give peer feedback on presentations.
Case Studies
Use case studies to explore real-life examples of communication in business, academic, and casual settings.
Role-Playing and Simulations
To practice persuasive speaking, public speaking, and informal conversations.
Technology Integration
Use educational apps and software like Google Docs for collaborative writing and peer reviews, and Zoom for virtual presentations.

Assignments

Quiz-1
Quiz-II
Presentation
Professional Writing Assignments

Assessment			
Sr. No.	**Elements**	**Weightage**	**Details**
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Formative assessment includes: 1. Classroom presentations: 10 % 2. Quiz before mid-exam: 5% 3. Quiz before final-exam: 5% 4. Attendance regularity: 5%
3.	Final Assessment	40%	Written Examination at the end of the semester.

Programme	DPT	Course Code	DPT-427	Credit Hours	3 (0+3)
Course Title	Capstone Project				

Course Introduction

The **Capstone Project** is a culmination of the knowledge and skills that Doctor of Physiotherapy students acquire throughout their program. It involves independent research, analysis, and the application of clinical principles to solve real-world problems in physiotherapy practice. The project is designed to demonstrate the student's ability to critically assess, evaluate, and contribute to advancing physiotherapy practice through evidence-based approaches.

Learning Outcomes

On the completion of the course, the students will:

- **Critical Thinking**: Demonstrate the ability to critically analyze research and apply it to clinical practice.
- **Research Skills**: Develop skills in research design, data collection, and data analysis in the context of physiotherapy.
- **Problem Solving**: Address real-world issues in physiotherapy through innovative approaches and evidence-based solutions.
- **Professional Communication**: Effectively communicate research findings through written reports and oral presentations.
- **Leadership and Collaboration**: Show leadership in managing a research project while collaborating with faculty, mentors, and peers

Content

A capstone project is a multifaceted academic experience typically required for students during the final year of an academic program. It is a comprehensive and complusory project that often requires students to apply the knowledge and skills acquired throughout their academic careers to solve real-world problems or issues.

Capstone projects come in all shapes and sizes, including research papers, case studies, creative works, internships, and field placement projects. They are designed to challenge students to think critically, solve complex problems, and demonstrate their readiness for work in their field. Capstone projects are often a highlight of a student's academic career and can provide valuable experience and skills for their future endeavors.

Checklist for a New Academic Program

Parameters	YES/NO
1. Department Mission and Introduction	YES ☐ NO ☐
2. Program Introduction	YES ☐ NO ☐
3. Program Alignment with University Mission	YES ☐ NO ☐
4. Program Objectives	YES ☐ NO ☐
5. Market Need/ Rationale	YES ☐ NO ☐
6. Admission Eligibility Criteria	YES ☐ NO ☐
7. Duration of the Program	YES ☐ NO ☐
8. Assessment Criteria	YES ☐ NO ☐
9. Courses Categorization as per HEC Recommendation	YES ☐ NO ☐
10. Curriculum Difference	YES ☐ NO ☐
11. Study Scheme / Semester-wise Workload	YES ☐ NO ☐
12. Award of Degree	YES ☐ NO ☐
13. Faculty Strength	YES ☐ NO ☐
14. NOC from Professional Councils (if applicable)	YES ☐ NO ☐

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Program Coordinator **Chairperson**