Faculty of Medical, Paramedical & Allied Health Sciences

Syllabus

For

MASTER OF PHYSIOTHERAPY (M.P.T)

(Program Code: HS0151)

(2020-21)

***Approved by the Academic Council vide resolution no ……**

INDEX

1. INTRODUCTION

The quality of medical care has improved tremendously in the last few decades due to the advances in technology, thus creating fresh challenges in the field of healthcare. It is now widely recognized that health service delivery is a team effort involving both clinicians and non-clinicians, and is not the sole duty of physicians and nurses. Professionals that can competently handle sophisticated machinery and advanced protocols are now in high demand. In fact, diagnosis is now so dependent on technology, that allied and healthcare professionals (AHPs) are vital to successful treatment delivery. So, the quality of higher education in BPT should be improved in such a manner that young minds are able to compete in this field globally in terms of their knowledge and skills, for this purpose Learning Outcome-based Curriculum Framework (LOCF) is developed.

Incorporation of Learning Outcome-based Curriculum Framework (LOCF) in the Postgraduate MPT programme makes it student-centric, interactive and outcome-oriented to achieve well-defined aims, objectives and goals. The learning outcomes are attained by students through skills acquired during a programme of study. Programme learning outcomes will include subject-specific skills and generic skills, including transferable global skills and competencies. It would also focus on knowledge and skills that prepare students for further study, employment and society development. LOCF help ensure comparability of learning levels and academic standards across colleges/universities.

At present, the goal of higher education in MPT may be achieved using the following measures:

i. Curriculum reform based on learning outcome-based curriculum framework (LOCF).
ii. Improving learning environment and academic resources.
iii. Elevating the quality of teaching and research.
iv. Involving students in discussions, problem-solving and out of box thinking about various ideas and their applicability, which may lead to empowerment and enhancement of the social welfare.
v. Motivating the learners to understand various concepts of their educational programme keeping in view the regional context.
vi. Enabling learners to create research atmosphere in their colleges/ institutes/ universities.
vii. Teach courses based on Choice Based Credit System (CBCS).

2. LEARNING OUTCOME-BASED APPROACH TO CURRICULUM PLANNING

The Master's Degree in Physiotherapy is awarded to the students on the basis of knowledge, understanding, clinical skills, and project and academic achievements. Hence, the learning outcomes of this programme are aimed at facilitating the learners to acquire these attributes, keeping in view of their preferences and aspirations for knowledge.

The LOCF have designed courses of MPT in the light of post- graduate attributes, description of qualifications, courses and programme learning outcomes. It may lead to all round development and delivery of complete curriculum planning. Hence, it provides

specific guidelines to the learners to acquire sufficient knowledge during this programme. The programme has been planned in such manner that there is scope of flexibility and innovation in

i. Modifications of prescribed syllabi.
ii. Teaching-learning methodology.
iii. Assessment technique of students and knowledge levels.
iv. Learning outcomes of courses.
v. Addition of new elective courses subject to availability of experts in colleges/institutes/universities across the country.

2.1. Nature and Extent of Master's Degree Programme

As a part of effort to enhance employability of MPT post- graduates, expected learning outcomes are very essential in present day perspective. Therefore, higher education degrees must formulate Post-Graduate Attributes (PGAs), qualification descriptors, learning outcomes and course learning outcomes which will help in curriculum planning and development in the form of design and delivery of courses. The overall formulation of the degree programme must equip learner to have competencies to provide deliverables to the industry.

2.2. Aims of Master's Degree programme in MPT

The overall aims are to-

i. Create deep interest in Physiotherapy and its allied areas.
ii. Develop broad and balanced knowledge and understanding of definitions, concepts and principles.
iii. Familiarize the students with suitable tools related to Physiotherapy.
iv. Enhance the ability of learners to apply the knowledge and skills acquired by them during the MPT programme.
v. Provide learners sufficient knowledge and skills enabling them to undertake further studies.
vi. Encourage the students to develop a range of generic skills helpful in employment, internships and social activities.

2.3. Motive behind curriculum planning and development

The committee considered and discussed the following factors for LOCF for the graduates:

i. Framing of syllabi
ii. Learners attributes
iii. Qualification descriptors
iv. Programme learning outcomes
v. Course learning outcomes
vi. Necessity of having elective courses
vii. Academic standards

3. PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

After successful completion of the program, the graduates will be

PEO 1: Able to pursue a successful career in the field of physiotherapy and broaden the horizon of physiotherapy in specialized fields.

PEO 2: Able to develop ability to evolve clinical reasoning and professional expertise to meet desired healthcare needs of patients and society..

PEO 3: Able to practice in a consistent manner with established legal standards, professional behavior and ethical guidelines as an individual as well as multidisciplinary team.

4. POST- GRADUATE ATTRIBUTES (PGAs)

The graduate attributes in MPT are the summation of the expected course learning outcomes mentioned in the end of each course. Some of them are stated below. These learning goals for MPT are divided into nine key areas:-

PGA1: **ROLE OF PHYSIOTHERAPY**-Recognize the role of Physiotherapy in the context of the health needs of the community and National priorities in the health sector.

PGA2: **ACQUISITION OF KNOWLEDGE** -To acquire knowledge and skills in various fields like, Exercise testing physiology, Movement analysis, Electro diagnosis, Physiotherapy Diagnosis etc.

PGA3: **EVIDENCE BASED PRACTICE**-Using an Evidence Based analysis to interpret assessment findings and to apply general principles of Practice in order to set realistic short and long term goals and undertake discharge plan.

PGA4: **RESEARCH PROCESS**- To appreciate the importance of clinical epidemiology, research ethics and advance in computer applications and formulate research process in physiotherapy.

PGA5: **ADVANCED LEARNING-**Experiment with new approaches, challenges, existing knowledge, boundaries and design novel solution to various critical problems through logical, analytical and critical thinking.

PGA6: **TEACHING** - Able to teach Physiotherapy with appropriate teaching methodology.

PGA7: **ETHICS-** Demonstrate professional and ethical behavior appropriate to at least the minimum standard expected for a Physiotherapy Post Graduate.

PGA8: **RECENT TRENDS**- Able to practice recent trends in investigative methods and intervention modalities in the field of physiotherapy.

5. QUALIFICATION DESCRIPTORS (QDs)

The qualification descriptor suggests the generic outcomes and attributes to be obtained while obtaining the degree of MPT. The qualification descriptors indicate the academic standards on the basis of following factors:

i. Level of knowledge

ii. Understanding
iii. Skills
iv. Competencies and attitudes
v. Values.

These parameters are expected to be attained and demonstrated by the learners after becoming post-graduates in this programme. The learning experiences and assessment procedures should be so designed that every post- graduate may achieve the programme learning outcomes with equal opportunity irrespective of the class, gender, community and regions. Each post graduate in physiotherapy should be able to:

- Integrate the core areas of physiotherapy practice with emphasis on demonstrated mastery of evidence-based practice, clinical skills, clinical reasoning and decision making in order to apply creativity and initiative to new situations in professional practice
- Implement interventions safely, independently and effectively with the patient/client's informed consent, with the ability to mitigate or manage adverse events, and to provide strategies for patient/client self-management
- Utilize assessment information, advice from other health care professionals, evidence-based guidelines and research to conduct physiotherapy planning, solve complex problems and achieve appropriate person-centered outcomes.
- Conduct physiotherapy assessments across the life span and identify opportunities for enhancing physiotherapy planning and interventions for individuals, careers, families, groups and communities.
- Develop individualized and cost effective management plans for clients across the lifespan utilizing a range of appropriately integrated methods and techniques, such as manual interventions, therapeutic exercise and electro-physical agents.
- Apply treatment methods and techniques, to address client needs, safely and with appropriate regard to professional and legislative guidelines, standards and requirements.
- Identify patient/client bio-psychosocial characteristics and provide appropriate intervention and/or referral to other health professionals as indicated

6. PROGRAMME LEARNING OUTCOMES (POs)

Students Post- graduating with the MPT degree should be able to acquire-

PO1: Capability of demonstrating comprehensive knowledge of physiotherapy in health sector.

PO2: Ability to utilize the knowledge gained and apply them in various problems.

PO3: Ability to acquire critical thinking in understanding the goals.

PO4: Capability to solve problems by using research-based knowledge and research methods and can set short term and long term goals for rehabilitation.

PO5: Possess knowledge of the values and beliefs of multiple cultures and a global perspective and capability to effectively engage in a multicultural society and

interact respectfully with diverse groups. Define and apply appropriate techniques and resources.

PO6: Ability to teach students and choose a suitable teaching methodology.

PO7: Ability to identify unethical behavior and adopting objective, unbiased and truthful actions in all aspects of their programme.

PO8: Develop a sense of utilizing recent trends to investigate and practice conditions.

Mapping of Graduate Attributes (GAs) and Programme Learning Outcomes (PLOs):

	PGA1	PGA2	PGA3	PGA4	PGA5	PGA6	PGA7	PGA8
PL01	■							
PLO2		■						
PLO3			■					
PLO4				■				
PLO5					■			
PLO6						■		
PLO7							■	
PLO8								■

7. PROGRAM SPECIFIC OUTCOMES (PSO's)

MPT (NEUROLOGY)

PSO1: Demonstrate sufficient understanding of knowledge in the subject of neurological physiotherapy.

PSO2: Develop ability to take history from the patient, perform relevant clinical examination, decide appropriate management plan with advanced techniques used in neurological patients.

PSO3: To identify, frame and carry out research in the specialty.

PSO4: Develop skills as a self-directed learner, recognize continuing educational needs, use appropriate learning resources, and critically analyze relevant published literature in order to practice evidence-based physiotherapy.

PSO5: Develop effective communication with patients, family, colleagues and students.

MPT(MUSCULO-SKELETAL)

PSO1: To acquaint himself/herself with the past and current literature on relevant aspects of orthopedic Physiotherapy.

PSO2: To acquaint with relevant education delivery system to be able to function as a health educator.

PSO3: To assess, plan and interpret various musculoskeletal conditions and plan relevant advanced therapeutic methods.

PSO4: To identify, frame and carry out research in the specialty.

PSO5: Develop skills as a self-directed learner, recognize continuing educational needs, use appropriate learning resources, and critically analyze relevant published literature in order to practice evidence-based physiotherapy.

MPT (SPORTS)

PSO1: Demonstrate sufficient understanding of knowledge in sports physiotherapy.

PSO2: Develop ability to take history from the patient, perform relevant on field examination and plan the physiotherapy management for the benefit of the sports persons.

PSO3: Develop skills as a self-directed learner, recognize continuing educational needs, use appropriate learning resources, and critically analyze relevant published literature in order to practice evidence-based physiotherapy.

PSO4: To develop reasonable understanding of recent advances in the specialty and carry out efficient management for all types of sports emergency and thus train the sports persons for the events and injury prevention.

PSO5: To be able to critically analyze relevant publish research literature and use them appropriately to influence sports physiotherapy practice.

8. TYPES OF COURSES

1. Courses in a programme may be of four kinds: Core, Elective, Ability Enhancement and Skill Enhancement.

a) Core Course:-

There may be a Core Course in every semester. This is the course, which is to be compulsorily studied by a student as a requirement to complete the programme in a said discipline of study.

b) Elective Course:-

Elective course is a course, which can be chosen from a pool of papers. It may be

- Supportive to the discipline of study
- Providing an expanded scope
- Enabling an exposure to some other discipline/domain

- Nurturing student's proficiency/skill.

An Elective Course may be 'Discipline Centric/Specific' & Generic Elective

a Discipline Centric/Specific Elective (DSE): Elective courses offered under the main discipline/subject of study is referred to as Discipline Centric/Specific.

b Generic/Open Elective (GE): An elective course chosen from an unrelated discipline/subject is called Generic/Open Elective. These electives will be focusing on those courses, which add generic proficiency of students.

c) Ability Enhancement Compulsory Courses (AECC):-

AECC courses are based upon the content that leads to knowledge enhancement, for example: English Communication, Environment Science/ Studies, etc.

d) Skill Enhancement Courses (SEC):-

SEC Courses provide value based and/or skill based knowledge and may content both Theory and Lab/Training/Field Work. The main purpose of these courses is to provide students life- skills in hands- on mode so as to increase their employability.

2. List of Courses (MPT)

Core Courses

Applied Basic Medical Sciences
Applied Physiotherapy Methods
Research Methodology & Biostatistics
Basics & applied exercise Physiology
Physical and functional evaluation
Bio-Engineering and Rehabilitation Principles
Major project cum dissertation
Assessment & evaluation in neurological disorders
Physiotherapy & rehabilitation in neurological disorders
Current Concept in Neuro- Physiotherapy
Assessment & evaluation in neurological disorders
Physiotherapy & rehabilitation in orthopedic disorders
Current Concepts in Ortho Physiotherapy
Assessment & evaluation in sports disorders
Sports Psychology
Physiotherapy & rehabilitation in sports
Assessment & Evaluation In Cardiopulmonary Conditions
Physiotherapy & Rehabilitation In Cardio Pulmonary Disorders
Physiotherapy Techniques & ICU Management

Assessment & Evaluation In Obs & Gynecological Conditions
Physiotherapy & Rehabilitation In Obs & Gynecological Conditions
Current Concepts In Obs &Gynecological Physiotherapy
Assessment & Evaluation In pediatric Conditions
Physiotherapy & Rehabilitation In pediatric Conditions
Current Concepts In pediatric Physiotherapy

Elective Courses (Discipline Centric)
Applied biomechanics
laser

Ability Enhancement Compulsory Course (AECC)
ANANDAM

Skill Enhancement Course (SEC)

Computation of Workload:

Lecture (L) : 1 Credit = 1 Theory period of one hour duration
Tutorial (T) : 1 Credit = 1 Tutorial period of one hour duration
Practical (P) : 1 Credit = 1 Practical period of two hour duration

9. PROGRAM STRUCTURE (MPT)

FIRST YEAR

Compulsory Papers

			THEORY			PRACTICAL					
Code No.	**Paper**	**Type**	**Total Marks**	**Internal Marks**	**External Marks**	**Total Marks**	**Internal Marks**	**External Marks**	**L**	**T/P**	**Credits**
MPT101	Applied Basic Medical Sciences	CORE	100	30	70	-	-	-	3	1	4x2
MPT102 A	Applied Biomechanics	ELECTIVE	100	30	70	-	-	-	3	1	4x2
MPT 102 B	Laser	ELECTIVE	100	30	70	-	-	-	3	1	4x2
MPT 103	Applied Physiotherapy Methods	CORE	100	30	70	-	-	-	3	1	4x2
MPT 104	Research Methodology & Biostatics	CORE	100	30	70	-	-	-	3	1	4x2
MPT 105	Basics and applied Exercise Physiology	CORE	100	30	70	-	-	-	3	1	4x2
MPT 106	Physical and functional evaluation	CORE	100	30	70	100	30	70	2	10	7x2
MPT107	ANANDAM	AECC	100	50	50	-	-	-	1	-	4
	TOTAL		**700**	**230**	**470**	**100**	**30**	**70**			**66**

SECOND YEAR

S.NO.	SPECIALIZATIONS
A	**Specialization in Neuro Physiotherapy**
B	**Specialization in Orthopedic Physiotherapy**
C	**Specialization in Sports Physiotherapy**
D	**Specialization in Cardio-Pulmonary Physiotherapy**
E	**Specialization in Women Health Physiotherapy**
F	**Specialization in Pediatrics Physiotherapy**
G	**Specialization in Musculoskeletal & Sports Physiotherapy**
H	**Specialization in Neurology-Pediatrics Physiotherapy**

			THEORY			PRACTICAL					
Code No.	**Paper**	**Type**	**Total Marks**	**Internal Marks**	**External Marks**	**Total Marks**	**Internal Marks**	**External Marks**	**L**	**T/P**	**Credits**
MPT 201	Bio-Engineering and Rehabilitation Principles	CORE	100	30	70	-	-	-	3	1	4x2
MPT 205	Major Project Cum Dissertation	CORE	-	-	-	100	30	70	-	14	14
MPT 206	ANANDAM	AECC	100	50	50				1		4
Specialization in Neuro Physiotherapy											
MPT 202A	Assessment & evaluation in neurological conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT 203A	Physiotherapy & rehabilitation in neurological conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT 204A	Current Concept in Neuro-Physiotherapy	CORE	100	30	70	100	30	70	4	3	7 X2
Specialization in Ortho Physiotherapy											
MPT 202B	Assessment & evaluation in orthopedic conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT 203B	Physiotherapy & rehabilitation in orthopedic Conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT 204B	Current Concepts in Ortho Physiotherapy	CORE	100	30	70	100	30	70	4	3	7 X2

Specialization in Sports Physiotherapy											
MPT 202C	Assessment & evaluation in sports physiotherapy	CORE	100	30	70	100	30	70	4	3	7 X2
MPT 203C	Sports Psychology	CORE	100	30	70	100	30	70	4	3	7 X2
MPT 204C	Physiotherapy & rehabilitation in sports	CORE	100	30	70	100	30	70	4	3	7 X2
Specialization in cardio pulmonary physiotherapy											
MPT 202D	Assessment & Evaluation In Cardiopulmonary Conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT 203D	Physiotherapy & Rehabilitation In Cardio Pulmonary conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT 204D	Physiotherapy Techniques & ICU Management	CORE	100	30	70	100	30	70	4	3	7 X2
Specialization in women's health											
MPT 202E	Assessment & Evaluation In Obs & Gynecological Conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT 203E	Physiotherapy & Rehabilitation In Obs & Gynecological Conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT 204E	Current Concepts In Obs &Gynecological Physiotherapy	CORE	100	30	70	100	30	70	4	3	7 X2
Specialization in pediatrics physiotherapy											
MPT 202F	Assessment & Evaluation In pediatric Conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT 203F	Physiotherapy & Rehabilitation In pediatric Conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT 204F	Current Concepts In pediatric Physiotherapy	CORE	100	30	70	100	30	70	4	3	7 X2
										Total	**68**

DUAL SPECIALIZATION IN MPT

SPECIALIZATION IN MUSCULOSKELETAL-SPORTS											
MPT 202 G	Assessment & evaluation in orthopedic and sports physiotherapy	CORE	100	30	70	100	30	70	4	3	7 X2
MPT203G	Physiotherapy & rehabilitation in orthopedic conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT204G	Current Concepts in Ortho & sports Physiotherapy	CORE	100	30	70	100	30	70	4	3	7 X2
MPT205 G	Physiotherapy & rehabilitation in sports	CORE	100	30	70	100	30	70	4	3	7 X2
SPECIALIZATION IN NEUROLOGY-PEDIATRICS											
MPT202H	Assessment & evaluation in neurological & Pediatric conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT203H	Physiotherapy & rehabilitation in neurological conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT204H	Current Concept in Neuro-pediatric Physiotherapy	CORE	100	30	70	100	30	70	4	3	7 X2
MPT205H	Physiotherapy & rehabilitation in pediatric conditions	CORE	100	30	70	100	30	70	4	3	7 X2
											Total -82

Note: **Yearly credits have been calculated by multiplying the semester-wise credits by two.**

Note:

- A student is required to obtain min. 50% marks in individual paper to pass.
- The total credit of MPT Programme is 148. However, the minimum credit required for award of degree shall be 144.
- The credit relaxation will be applicable only on the elective course (i.e. the student can opt out only elective subject).
- Out of the total credits, 20% of the credits may be earned by the student through MOOCs (SWAYAM, NPTEL, Coursera etc.). However, the choice of online courses to be approved in advance by Dean/ HoD and Coordinator SWAYAM keeping in view the latest guidelines of the UGC/ respective regulatory body guidelines.

10. COURSE-WISE LEARNING OBJECTIVES, STRUCTURES AND OUTCOMES (CLOSOs)

Course learning outcomes of each course in MPT have been enshrined in the end of course contents of each course with their objectives those are in the beginning of the every course.

FIRST YEAR

Compulsory Papers

			THEORY			PRACTICAL					
Code No.	**Paper**	**Type**	**Total Marks**	**Internal Marks**	**External Marks**	**Total Marks**	**Internal Marks**	**External Marks**	**L**	**T/P**	**Credits**
MPT101	Applied Basic Medical Sciences	**CORE**	**100**	**30**	**70**				**3**	**1**	4x2
MPT102	Applied Biomechanics	**ELECTIVE**	**100**	**30**	**70**				**3**	**1**	4x2
MPT 102 (B)	Laser	**ELECTIVE**	**100**	**30**	**70**				**3**	**1**	4x2
MPT 103	Applied Physiotherapy Methods	**CORE**	**100**	**30**	**70**				**3**	**1**	4x2
MPT 104	Research Methodology & Biostatics	**CORE**	**100**	**30**	**70**				**3**	**1**	4x2
MPT 105	Basics and applied Exercise Physiology	**CORE**	**100**	**30**	**70**				**3**	**1**	4x2
MPT 106	Physical and functional evaluation	**CORE**	**100**	**30**	**70**	**100**	**30**	**70**	**2**	**10**	**7x2**
MPT107	ANANDAM	**AECC**	**100**	**50**	**50**				**1**		**4**
	TOTAL		**700**	**230**	**470**	**100**	**30**	**70**			**66**

MPT101: Applied Basic Medical Sciences

Course Objectives-

- Understanding of gross anatomy of various body parts with their respective physiology.
- Application of knowledge of anatomy to learn evaluation and application of physical therapy.
- Major emphasis of learning is towards Musculoskeletal, cardio-respiratory and Nervous system.

Course Content:

Unit-I: A reviews of organization and regulation of motor system.

Types of movement and factors affecting contact and range of motion at synovial joints

Skeletal muscle tissue

Muscle metabolism

Contraction and relaxation of muscle

Control of muscle tension

Unit-II: A review of control system of body (Motor and sensory).

Structure function and organization of nervous tissue

Electrical signals in neurons and its transmission

Regeneration and repair of nervous tissue

Functional organization of cerebral cortex

Sensory motor and integrative system (Sensation, somatic sensation, Sensory pathways, motor pathways).

Reflexes and reflex arcs

Unit-III: Structure and function of cardio vascular system & respiratory system along with their disorders.

Unit-IV: Structure and function of endocrinal system & disorders.

Unit-V: Structure and function of Musculoskeletal System & disorders

Books Suggested :

1. Gray's Anatomy - Williams & Warwick - Churchill Livingstone.
2. Grants – Methods of Anatomy - Basmajian & Sloncker - Williams & Wilkins.
3. Clinical Anatomy for Medical Students - Snells – Lippincott.
4. Textbook of Medical Physiology - Guyton - Mosby.
5. Pathologic Basis of Diseases - Robbins, Kotran and Kumar – W.B. Saunders.

Course Outcomes:

After the end of the course, the students will be able to

CO1- Appreciate the team approach to learning incomplex areas (Bloom's level L-2)

CO2- Critically evaluate research literature in the area of anatomy and physiology and apply this information towards understanding the mechanisms operating in musculoskeletal conditions resulting from injury or disease(Bloom's level -L5)

CO3- Appreciate the the importance and development of good written and presentation skills to aid group learning.(Bloom's level-L2)

CO4- Relate pathological findings or changes in various conditions.(Bloom's level-L4)

CO5- Use critical thinking and scientific problem-solving skills, to make decisions.(Bloom's Level-L5)

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & assignment.
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Learning Outcomes

Course Outcome	**Bloom's Level**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
CO1	L2	L	H	M	M	H	M	L	L
CO2	L5	H	M	H	H	M	H	L	H
CO3	L2	M	H	L	H	H	H	L	M
CO4	L4	M	L	-	L	H	M	-	M
CO5	L5	H	H	H	H	H	M	L	L

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	**Course Delivery methods**	**Course Outcomes**
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3
CD2	Tutorials/Assignments	CO1
CD3	Hospital & OPD	CO2,CO4,CO5
CD4	Self- learning advice using internets	CO1,CO3

MPT102A: Applied Biomechanics

Course Objectives:

- To understand the basic principles of biomechanics related to human body and applying it with exercise therapy.
- To understand the structure and function of joints.
- To understand the normal gait and posture.

Course Content:

Unit-I: Concepts of Biomechanics:
Introduction to Kinesiology and Biomechanics.
Principle of Biomechanics
Nature and importance of Biomechanics in Physiotherapy.
Advanced Biomechanics and kinesiology
Introduction to biomechanical analysis of humane motion.
Analytical tools and techniques –
Isokinetic Dynamometer,
Kinesiological EMG,
Electronic Goniometer,
Force Platform,
Videography.
Ergonomic approach to lifting and handling, workspace and environment.
Patient positioning, body mechanics and Transfer techniques.

Unit-II: Upper Extremity: Shoulder and Shoulder girdle, Elbow joint, Wrist joint and Hand.

Unit-III: Lower Extremity: Pelvic Girdle, Hip joint, Knee joint, Ankle & Foot.

Unit-IV: Spine

Unit-V: Gait-Gait Analysis: Kinetic & Kinematic Analysis.
Pathological Gait: Kinetic & Kinematic Analysis

Books Suggested:

1. James G. Hay – The Biomechanics of Sports Techniques, Prentice Hall.
2. Brunnstrom - Clinical Kinesiology, F.A. Davis.
3. Luttgens K., Hamilton N.: Kinesiology – Scientific Basis of Human Motion 9th Edi, 1997 Brown & Benchmark.
4. Kreighbaum E., Barthels K.: Biomechanics – A Qualitative approach for studying Human Motion, 2nd edi. 1985, MacMillan.
5. Rasch and Burk: Kinesiology and Applied Anatomy, Lee and Fabiger.
6. White and Punjabi - Biomechanics of Spine - Lippincott.
7. Norkin & Levangie: Joint Structure and Function - A Comprehensive Analysis - F.A. Davis.
8. Kapandji: Physiology of Joints Vol. I, II & III, W.B. Saunders.
9. Northrip et al: Analysis of Sports Motion: Anatomic and Biomechanics perspectives, W.C. Brown Co., IOWA.
10. Leveac B.F.: Basic Biomechanics in Sports and Orthopedic Therapy, C.V. Mosby.
11. De Boer & Groot: Biomechanics of Sports, CRL Press, Florida.
12. Basmajian - Muscle alive - Williams & Wilkins.
13. Nordin & Frankel - Basic Biomechanics of Muscular Skeletal System - Williams & Wilkins.
14. Bartlet - Introduction to Sports biomechanics - F & FN Spon Madras.

Course Outcomes:

After the end of the course, the students will be able to

CO1: Understand the relationship between structure and function of the musculoskeletal system of the healthy and diseased subjects.(Bloom's Level -L2)

CO2: Develop ability to analyze mechanisms underlying selected musculoskeletal conditions resulting from injury or disease processes.(Bloom's Level- L3)

CO3: Understand the anatomy / applied anatomy basis for clinical testing of musculoskeletal structures. (Bloom's Level- L2)

CO4: Demonstrate clinical decision making ability and provide appropriate patient care. (Bloom's level-L5)

CO5: Understand the kinetic concepts including inertia, force, torque, impulse and identify the major factors involved in the angular kinematics of human movement.(Bloom's Level-L2)

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & OPD
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Learning Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	**L2**	**M**	**H**	**H**	**H**	**H**	**H**	**L**	**M**
CO2	**L3**	**H**	**H**	**M**	**M**	**M**	**H**	**L**	**L**
CO3	**L2**	**L**	**H**	**L**	**H**	**H**	**H**	**L**	**M**
CO4	**L5**	**M**	**M**	**H**	**H**	**L**	**L**	**L**	**-**
CO5	**L2**	**H**	**M**	**L**	**-**	**-**	**-**	**M**	**L**

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	**Course Delivery methods**	**Course Outcomes**
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3
CD2	Tutorials/Assignments	CO1,CO2
CD3	Hospital & OPD	CO1, CO2,CO4
CD4	Self- learning advice using internets	CO1,CO3,CO5

MPT102B: LASER

Course Objective:-

- To train students on basics of application of lasers
- To understand basic laser physics

Course Content:

Unit-I: Interference of Light

- Review of basic ideas of interference
- Interference due to transmitted light
- Principle of Interference
- Theory of interference-intensity distribution
- Conditions for interference

Unit- II: Coherence

- Principles of coherence, types of coherence
- Coherent wave- optical path and phase change
- Scope of coherence
- Spatial coherence in laser
- Difference between collimated and coherent light

Unit-III: Diffraction

- Properties of diffraction
- Effects of diffraction
- Fresnel Diffraction
- Huygens- Fresnel theory, zone plate
- Difference between zone plate and convex lens, comparison between interference and diffraction
- Diffraction pattern due to a straight edge
- Diffraction pattern due to a single silt

Unit- IV:

- explain the function of techniques for characterising ultra-short laser pulses, e.g. autocorrelation, SPIDER, and FROG
- systematically describe the construction of, and principles for modern high-power lasers
- demonstrate in-depth understanding of high-harmonic generation and attosecond pulses describe in detail the properties of synchrotrons, and free electron lasers

Unit-V: Laser and Fibre Optics

- Absorption and emission of light
- Absorption-spontaneous emission and stimulated emission
- Einstein relations
- Population inversion, Active medium
- Three level and Four level Laser systems
- Semiconductor Laser, Laser beam Characteristics
- Applications of Laser, Holography (qualitative study only)

Books for Reference

1. Optics by N.Subramanayam, Brijlal, M.N.Avadhanulu-Chapter 14, 15, 17,18, , and 19
2. Optics by N.Subramanayam, Brijlal, M.N.Avadhanulu-Chapter 20, 22 and 23. 30

Course Outcomes:

After the end of the course, the students will be able to

CO1 : Identify the best possible modality for given condition.(Bloom's Level -L2)

CO2 : Use the optimum method ,dosage for the modality.(Bloom's Level- L3)

CO3 : Understand the basic laser physics (Bloom's Level- L2)

CO4 : Demonstrate clinical decision making ability and provide appropriate patient care (Bloom's level-L5)

CO5 : Understanding the concepts including Application of laser and identify the major factors involved.(Bloom's Level-L2)

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & OPD
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Learning Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	**L2**	**M**	**H**	**H**	**H**	**H**	**H**	**L**	**M**
CO2	**L3**	**H**	**H**	**M**	**M**	**M**	**H**	**L**	**L**
CO3	**L2**	**L**	**H**	**L**	**H**	**H**	**H**	**L**	**M**
CO4	**L5**	**M**	**M**	**H**	**H**	**L**	**L**	**L**	**-**
CO5	**L2**	**H**	**M**	**L**	**-**	**-**	**-**	**M**	**L**

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	**Course Delivery methods**	**Course Outcomes**
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3
CD2	Tutorials/Assignments	CO1,CO2
CD3	Hospital & OPD	CO1, CO2,CO4
CD4	Self- learning advice using internets	CO1,CO3,CO5

MPT 103:Applied Physiotherapy Methods

Course Objectives-

- Acquire the knowledge and skill of various therapeutic exercise .
- Acquire the knowledge and skill of various approaches of Manual therapy for joints of the limbs/spine.
- Able to integrate the manual therapies to rehabilitate the Mechanical Neuro- Muscular problems.
- Able to interpret the E.M.G. and nerve conduction studies with appropriate clinical reasoning.
- Expertise in the skill of using various electrical currents for the purpose of Electro-diagnosis able to interpret the same with appropriate clinical reasoning.
- Able to integrate theoretical knowledge with clinical practice **.**

Course Content:

Unit-I: I. Principle of therapeutic exercises

II. Definition, details of effects and uses of following exercises.

a. Dynamic Exercises

b. Plyometric Exercises

c. Isokinetic Exercises

d. Kinetic chain exercises

e. PRE

III. Stretching

IV. Balance and coordination exercises

V. Factors affecting the joint range of motion prevention of stiffness, methods of Joint mobilization.

Unit-II: I. Principles and application of neuromuscular facilitation techniques including PNF

II. Principles of different soft tissue mobilizations like Myofacial Techniques,

III. Neural Tissue Mobilization

IV. Muscle Energy Technique

V. Aquatic therapy

Unit-III: Massage

I. Historical development.

II. Definition and classification of massage techniques

III. Physiological effects of massage.

IV. Description of the techniques of the classical massage.

V. Physiological basis of massage, underwater massage, mechanical devices of massage

VI. Therapeutic applications and contraindications of massage.

Unit-IV: I. Electro diagnosis: introduction to methods of electro diagnosis SD CURVE

II. Electro myography : technique of EMG, interpretation of normal and abnormal responses

III. Nerve conduction studies: MNCV, SNCV, variables affecting nerve conduction, measurement of NCV of nerves of upper limb and lower limb, interpretations of normal and abnormal responses.

IV. Evoked potentials, H-reflex, P wave, repetitive nerve stimulation, VEP, BAEP, SSEP.

V. Review of Principles underlying the application of following modalities with reference to their Production, biophysical and therapeutic effects, indications and contraindications and the specific uses of:

i. Superficial heating modalities

ii. Deep heating modalities

iii. Ultrasound

iv. Cryotherapy

Unit-V: I. Review of Principles underlying the application of following modalities with reference to their Production, biophysical and therapeutic effects, indications and contraindications and the specific uses of Physiotherapy

II. TENS, IFT, Russian Currents. LASER

III. Advanced Electro Therapeutics in Tissue healing, Wound care, Management of Scars keloids, Muscle Plasticity & Integumentary Conditions.

IV. BIO-FEED BACK

V. Clinical reasoning and differential clinical diagnosis based on various approaches such as Maitland, Kaltenborne, Cyriax, Mulligan, Meckenzie etc

Books suggested:

1. Werner Kuprian: Physical Therapy for Sports, W.B. Saunders.
2. William E. Prentice: Therapeutic Modalities in Sports Medicine - Mosby.
3. William E. Prentice: Rehabilitation Techniques - Mosby.
4. O' Sullivan, Schmitz: Physical Rehabilitation – Assessment and Treatment - F.A. Davis.
5. John Low & Reed: Electrotherapy Explained, Butterworth.
6. Meryl Roth Gersh: Electrotherapy in Rehabilitation, FA Davis.
7. Joseph Kahn: Principles and Practice of Electrotherapy, Churchill Livingstone.
8. Claytons Electrotherapy 10th Ed. - Sarah & Bazin - W.B. Saunders.
9. Harrelson and Andrews: Physical Rehabilitation of Injured Athlete.
10. Nelson and Currier: Clinical Electrotherapy, Prentice Hall.
11. Greenman: Principles of Manual medicine, William and Wilkins.
12. Kuprian: Physical Therapy for Sports, W.B. Saunders.
13. Bates: Aquatic Exercise Therapy, W.B. Saunders.
14. Michlovitz - Thermal agents in Rehabilitation - F.A. Davis.
15. Lehmann - Therapeutic Heat and Cold - Williams & Wilkins.
16. Sinha A.G.: Principle and Practices of Therapeutic Massage – Jaypee Brothers, New Delhi
17. Kisner and Colby: Therapeutic Exercises – Foundations and Techniques, F.A. Davis.
18. Basmajian John V.: Therapeutic Exercise, Williams & Wilkins.
19. Thomson et al - Tidy's Physiotherapy: Butterworth – Heinmann.
20. Wood & Baker: Beard's Massage, W.B. Saunders.
21. Kendall: Muscles – Testing and Function - Williams & Wilkins
22. Daniels and Worthinghams: Muscle Testing – Techniques of Manual Examination, W.B. Saunders.
23. William E. Prentice: Rehabilitation TechniquesUNIT -1 Physiotherapy methods

Course Outcomes:

After the completion of course, students will be able to

CO1: Appreciate the team approach to learning in complex areas and the need for intercultural sensitivity and understanding particularly of different learning styles.(Bloom's Level-L2)

CO2: Appreciate the importance of and development of good written and verbal communication skills to articulate knowledge in exercise and electro physiology.(Bloom's level-L2)

CO3: Able to evaluate and synthesize research and professional literature and apply this information to novel situations.(Bloom's Level-L5)

CO4: Describe the concepts and knowledge of the general Principle of therapeutic exercises, Massage and mobilization.(Bloom's Level- L1)

CO5: Explain the technique and concept of electric modality use in physiotherapy practice.(Bloom's Level-L2)

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & OPD
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Learning Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	**L2**	**L**	**H**	**H**	**M**	**L**	**M**	**L**	**L**
CO2	**L2**	**H**	**M**	**H**	**H**	**M**	**M**	**L**	**M**
CO3	**L5**	**H**	**H**	**L**	**H**	**H**	**M**	**H**	**H**
CO4	**L1**	**H**	**L**	**M**	**L**	**-**	**L**	**H**	**L**
CO5	**L2**	**H**	**M**	**L**	**L**	**-**	**L**	**H**	**L**

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	**Course Delivery methods**	**Course Outcomes**
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO3,CO4
CD2	Tutorials/Assignments	CO1
CD3	Hospital & OPD	CO2,CO5
CD4	Self- learning advice using internets	CO1

MPT 104: Research Methodology and Biostatistics

Course Objective –

- Understand some basic concepts of research and its methodologies.
- Identify appropriate research topics.
- Select and define appropriate research problem and parameters.
- Understand some basic concepts of biostatics,research tools and data analysis.
- Write a research report and thesis.

Course Content:

Unit-I:
I. Research –Introduction, scope, characteristics, types, clinical trials and ethics.
II. Research methods—various methods.
III. Census and survey methods of investigation.
IV. Hypothesis—Advantages and types.
V. Sample - Introduction and types of sampling.
VI. Sample size determination (according to study design)

Unit-II: Methods of Data Collection
I. Schedule –Introduction, types, procedure of forming schedule and limitations.
II. Questionnaire – Introduction, types, reliability and limitations.
III. Interview -- Introduction, types, technique and limitations.
IV. Observation – Introduction, organization of field observations and limitations.
V. Preparation of report – Introduction, developing outline, writing, references and bibliography.

Unit-III:
I. Biostatistics –Introduction, origin &development, scope, functions and limitations
II. Presentation of data—Classification, tabulation, diagrammatic and graphical presentation of data.
III. Central tendencies – Mean, Mode and Median

IV. Measures of dispersion – Standard deviation and standard errors.

V. Skewness and kurtosis.

VI. Odd Ratios, Receiver Operating Curve (ROC)

VII. Probability

Unit-IV: Statistical Tools-

I. Correlation and regression

II. Parametric tests

III. Non-parametric tests

Unit-V: Writing Research Reports and Thesis

Books Suggested:

1. Bailey, N.T.J. -Statistical methods in Biology. The English universities press, London
2. Bajpai, S.R.- Methods of Social Survey and Research, Kitab Ghar, Kanpur.
3. Colton - Statistics in medicine, Little Brown Company, Boston
4. Gupta, S.P -Statistical methods. Sultan Chand and Sons Publishers, New Delhi.
5. Goulden C.H.- Methods of Statistical Analysis. Asia Publishing House, New Delhi.
6. Mohsin S.M.- Research Methods in Behavioral Sciences: Orient Publications. New Delhi.
7. Mahajan - Methods in Biostatistics, Jay Pee Brothers.Medical Publishers (P) Ltd. New Delhi.
8. Hicks- Research for Physiotherapists, Churchill Livingstone, London.
9. Meenakshi. - First Course in Methodology of Research. Kalia Prakashan, Patiala.
10. Kumar, R.- Research Methodology. Pearson Education, Australia.
11. Snedecor,G.W -Statistical Methods, Allied Pacific Pvt. Ltd., London
12. Singh, I.- Elementary Statistics for Medical Workers. Jaypee Brothers Medical Publishers (P) Ltd. New Delhi.

Course Outcomes-

After the completion of course, students will be able to

CO1: Apply the principles of research and biostatistics to health practice including the design and implementation of health related research studies.(Bloom's Level -L3)

CO2: Plan and execute a research study, including clinical trials.(Bloom's Level-L4)

CO3: Use or organize bio-statistical analysis using computers and software and prepare reports or papers and critically evaluate research activities. (Bloom's Level- L4)

CO4: Understand the method of data collection.(Bloom's Level-L2)

CO5: Evaluate and Formulate Research questions.(Bloom's Level-L5)

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & OPD
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Learning Outcomes

Course Outcome	Bloom's level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	**L3**	**H**	**H**	**H**	**M**	**H**	**M**	**L**	**H**
CO2	**L4**	**M**	**H**	**H**	**M**	**H**	**M**	**H**	**M**
CO3	**L4**	**M**	**H**	**M**	**H**	**M**	**L**	**L**	**M**
CO4	**L2**	**H**	**L**	**L**	**L**	**-**	**H**	**-**	**L**
CO5	**L5**	**M**	**M**	**H**	**H**	**L**	**M**	**L**	**M**

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	**Course Delivery methods**	**Course Outcomes**
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3,CO4
CD2	Tutorials/Assignments	CO1,CO2
CD3	Hospital & OPD	CO1, CO2,CO5
CD4	Self- learning advice using internets	CO1,CO4

MPT 105: Basics & applied exercise physiology

Course Objectives:

- Understand the physiology of exercise.
- Understand the role of nutrition in exercises.
- Understand the various energy systems in body.

Course Content:

Unit-I: **Bioenergetics of exercise :** High energy phosphates, Anaerobic and aerobic ATP synthesis, Bioenergetics Control, exercise intensity & substrate utilization, protecting CHO stores, muscle adaptation to endurance training, processes that potentially limit the rate of fat oxidation, regulation of substrate utilization, training - induced increase in FFA oxidization, Basal metabolic and resting metabolic rates and factors affecting them, Classification of Physical Activities by energy expenditure,. Concept of MET, measurement of energy cost of exercise

Unit-II: **Nutrition**: metabolism of Carbohydrate, fats and proteins, vitamin, mineral and water optimum nutrition for exercise, nutrition for physical performance, pre game meal carbohydrate loading, food for various athletic events, fluid and energy replacement in prolonged exercise

Unit- III: **(i) Respiratory responses to exercise:** Ventilation at Rest and during Exercise., Ventilation and the Anaerobic Threshold, static and dynamic lung volume . Gas diffusion, Oxygen and carbon dioxide transport second wind, stich by side control of pulmonary ventilation during exercise adaptive changes in the respiratory systems due to regular physical activities .

ii) Cardiovascular responses to exercise- Cardiovascular system and exercise, acute vascular effects of exercise, Circulatory responses to various types of exercise regulation of cardiovascular system during exercise, Pattern of redistribution of blood flow during exercise, adaptive responses of cardiovascular system to aerobic and anaerobic training. Athlete heart

Unit-IV: **Exercise and Acid Base Balance:** Acid and Bases, Buffers, pH, Respiratory Regulation of pH, Alkali Reserve, The kidneys and Acid base balance, Alkalosis and Acidosis, Acid base balance following heavy exercise.

Unit-V: **Hormonal responses to exercise with respect to:** Growth Hormone (GH), Thyroid and Parathroid Hormones. Anti diuretic Hormone (ADH) and Aldosterone, Insulin and Glucagons, The catecholamine; epinephrine and nor epinephrine. The sex hormones. The glucocorticoids (Cortisol) and Adreno Corticotrophic Hormones (ACTH). Prostaglandins and Endorphins.

Books suggested:

1. Essentials of Exercise Physiology: McArdle, WD, Katch, FI, and Katch, VL. 2nd edn, Lippincott Williams and Wilkins (2000)·
2. Fundamentals of Exercise Physiology: For Fitness Performance and Health, Robergs RA, and Roberts, S.O. McGraw Hill (2000)
3. Exercise Physiology: Powers, SK and Howley ET. 4th edn; Mc Graw Hill (2001)
4. Physiology of Sport and Exercise: Wilmore, JH and Costil, DL. Human Kinetics (1994)
5. Exercise Physiology- Human Bioenergetics and its Application: Brooks, GA, Fahey, TD, White, TP. Mayfield Publishing Company (1996)
6. Komi, P. (Ed.) (1992) Strength and power in sport. Blackwell Scientific Publications.
7. Levick, J.R. (1998) An introduction to Cardiovascular Physiology. 2nd ed. Butterworth Heinemann
8. McArdle, WD, Katch, FI & Katch, VL (2001) Exercise Physiology. 5th ed. Lippincott, Williams & Wilkins.
9. Shephard and Astrand (1996) Endurance in sport. Blackwell Scientific Publications.

Course Outcomes:

After the end of the course, the students will be able to

CO1- Acquire sound theoretical knowledge of muscle physiology including muscle structure, mechanical properties, fiber types, neural activation, soreness, damage and adaptation, and the effects of aging, immobile/disuse, training, fatigue and spasticity on muscle.(Bloom's Level-L1)

CO2- Acquire theoretical knowledge of exercise physiology including exercise metabolism, cardio-respiratory response to exercise, energy, nutrition and environmental factors in exercise.(Bloom's Level -L2)

CO3- Critically evaluate and synthesis research and professional literature relating to a chosen topic in the muscle/exercise physiology to analyze and interpret electro diagnostic procedures.(Bloom's Level-L5)

CO4: Understand acid base balance in the body.(Bloom's Level- L2)

CO5: Know the various hormonal responses of the body during exercise.(Bloom's Level-L1)

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & OPD
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	**L1**	**M**	**H**	**H**	**M**	**L**	**M**	**L**	**L**
CO2	**L2**	**H**	**M**	**H**	**H**	**M**	**M**	**L**	**M**
CO3	**L5**	**H**	**H**	**L**	**H**	**H**	**M**	**H**	**H**
CO4	**L2**	**H**	**M**	**L**	**-**	**L**	**H**	**L**	**-**
CO5	**L1**	**H**	**L**	**L**	**-**	**-**	**H**	**L**	**-**

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3,CO4, CO5
CD2	Tutorials/Assignments	CO1,CO4,CO5
CD3	Hospital & OPD	CO1, CO2,CO3
CD4	Self- learning advice using internets	CO1,CO4,CO5

MPT 106: Physical and functional evaluation

Course Objective:

- To understand the assessment and evaluation
- To understand human skeletal system and its anatomy
- To understand assessment of various conditions.

Course Content:

Unit-I: Physical Therapy Assessment Procedures

Neurological assessment, evaluation and correlation of findings with neurological dysfunction
Cranial nerves examination
Motor System Assessment - Tone, voluntary movement control & abnormal involuntary movement,
Assessment of reflex integrity
Assessment of gait (kinetic & kinematic)
Sensory system assessment and examination.
Vestibular Examination

Unit-II: Introduction of Assessment Techniques

Introduction to various concepts of physical assessment
Maitland
James
Cyriax
Examination and assessment of geriatric patient
Functional Assessment
Development disorders. (cartilaginous dysplasis, bony dysplasis & chromosomal abnormalities etc.)
Infections in bones and joints:- Acute, Chronic

Unit-III: Importance of assessment & evaluation
Outlines of principles and Methods of evaluation
Clinical Examination, Investigative Procedures and documentation
Evaluation of Physical Fitness
Assessment of components of physical fitness including functional tests: muscle strength, flexibility, agility, balance, co-ordination, sensory deficits, cardio-pulmonary endurance.

Unit-IV: Exercise tolerance test
Treadmill test
Echocardiography
ECG
Subjective assessment

History taking and objective assessment

Unit-V: Lower Limb & Upper limb Examination

Common acute and overuse injuries of lower Extremity(with respect to causation, prevention and management) of:

Pelvis ,Hip, Thigh, Knee, Leg ,Ankle and Foot

Common acute and overuse injuries of upper extremities (with respect to causation, prevention and management) of:

Shoulder girdle ,Shoulder, Arm, Elbow & Forearm, Wrist and hand.

Assessment of abdominal injuries

Assessment of vertebral column

Books suggested :

1. Neurological Physiotherapy - A problem solving approach - Susan Edwards - Churchill Livingstone.
2. Neurological Rehabilitation - Umpherd - Mosby.
3. Motor Assessment of Developing Infant - Piper & Darrah - W.E. Saunders.
4. Paediatric Physical Therapy - Teckling – Lippmcott
5. Physical Medicine & Rehabilitation-Susan Sullivan
6. Neurological Rehabilitation-Illus
7. Physical Medicine & Rehabilitation-Delsore
8. Assessment in Neurology-Dejong.
9. Differential Diagnosis-John PatternNeurology in Clinical Practice – Bradley&Daroff
10. Neurological Assessment-Blicker staff
11. Davidson's principles and Practices of Medicine - Edward Churchill Livingstone
12. Hutchinson's Clinical Methods – Swash – Bailliere Tindall
13. Neurological Physiotherapy - A problem solving approach - Susan Edwards - Churchill Livingstone.
14. Brukner and Khan: Clinical Sports Medicine, McGraw Hill.
15. Reed: Sports Injuries – Assessment and Rehabilitation, W.B. Saunders.
16. Gould: Orthopaedic Sports Physical Therapy, Mosby.
17. C. Norris: Sports Injuries – Diagnosis and Management for Physiotherapists,Heinmann.
18. D. Kulund: The Injured Athlete, Lippincott.
19. Turek's Orthopaedics: Principles and their Application, Weinstein SL and Buckwalter JA, Lippincott
20. Apley's System of Orthopaedics and Fractures, Louis Solomon , Arnold publishers.
21. Textbook of Orthopaedics, Adams: Churchill Livingstone
22. Clinical Orthopaedic Rehabilitation, Brent Brotzman.
23. Orthopaedic Physiotherapy, Robert A Donatelli, Churchill Livingstone.
24. Tidy's Physiotherapy, Ann Thomasons,Varghese publishing House.
25. Physical Rehabilitation Assessment and Treatment, Susan Sullivan, Japee brothers
26. Textbook of Orthopaedics, John Ebnezar, Japee Brothers.
27. Essential Orthopaedics, J Maheshwari, Mehta Publishers.

Course Outcome:

After the end of the course, students will be able to:

CO1: Understand the basic conditions which commonly cause disability and their management.(Bloom's level-L2)

CO2: Apply assessment scale.(Bloom's level-L3)

CO3: Assess and evaluate the conditions.(Bloom's level -L4).

CO4: Know the etiology, Classification, Pathology, Clinical Features, Complications, Surgical & Non Surgical Management of various Conditions.(Bloom's Level-L1)

CO5: Understand the development of a normal child.(Bloom's level-L2)

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & assignment.
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	**Bloom's Level**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
CO1	**L2**	**H**	**M**	**M**	**M**	**H**	**M**	**L**	**M**
CO2	**L3**	**M**	**H**	**H**	**M**	**M**	**L**	**-**	**L**
CO3	**L4**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**
CO4	**L1**	**H**	**H**	**H**	**M**	**H**	**H**	**L**	**M**
CO5	**L2**	**H**	**M**	**L**	**L**	**L**	**H**	**-**	**L**

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	**Course Delivery methods**	**Course Outcomes**
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3,CO4,CO5
CD2	Tutorials/Assignments	CO1,CO2,CO4,CO5
CD3	Hospital & OPD	CO3
CD4	Self- learning advice using internets	CO1,CO2,CO3

MPT 107: ANANDAM

Course Objectives:

- To instil the joy of giving in young people, turning them into responsible citizens to build up a better society.
- To inculcate the habit of service in students across the University.
- A compulsory course of 2 credits per semester to be included in each program of University.
- Students to be expected to engage in individual and group acts of service and goodness.

Action Plan:

Students will be expected to

- Do at least one act of individual service each day
- Record this act of service in a dedicated Register / Personal Diary
- Share this Register / Personal Diary day in the Anandam Class scheduled per week. The class interaction will include Personal Diary check, Showing of Community based motivation videos, Community based presentations by students, Role playing etc.
- Undertake one group service project for 64 hours every semester (outside college hours)
- Upload the report on the group project on the Anandam platform
- Participate in a sharing and presentation on the group service in the discussion sessions held once in week
- There will be some suggested projects and organizations that students can work with. Students can also suggest their own projects which others can join

Each student will finish the year with a portfolio of giving. This will include their Register / Personal Diaries and their reports on group service projects.

SECOND YEAR

Compulsory Papers

S.NO.	SPECIALIZATIONS
A	**Specialization in Neuro Physiotherapy**
B	**Specialization in Orthopedic Physiotherapy**
C	**Specialization in Sports Physiotherapy**
D	**Specialization in Cardio-Pulmonary Physiotherapy**
E	**Specialization in Women Health Physiotherapy**
F	**Specialization in Pediatrics Physiotherapy**
G	**Specialization in Musculoskeletal & Sports Physiotherapy**
H	**Specialization in Neurology-Pediatrics Physiotherapy**

			THEORY			PRACTICAL					
Code No.	**Paper**	**Type**	**Total Marks**	**Internal Marks**	**External Marks**	**Total Marks**	**Internal Marks**	**External Marks**	**L**	**T/P**	**Credits**
MPT 201	Bio-Engineering and Rehabilitation Principles	CORE	100	30	70	-	-	-	3	1	4x2
MPT 205	Major Project Cum Dissertation	CORE	-	-	-	100	30	70	-	14	14
MPT 206	ANANDAM	AECC	100	50	50				1		4
Specialization in Neuro Physiotherapy											
MPT 202A	Assessment & evaluation in neurological conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT 203A	Physiotherapy & rehabilitation in neurological conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT 204A	Current Concept in Neuro-Physiotherapy	CORE	100	30	70	100	30	70	4	3	7 X2
Specialization in Ortho Physiotherapy											
MPT 202B	Assessment & evaluation in orthopedic conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT 203B	Physiotherapy & rehabilitation in orthopedic Conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT 204B	Current Concepts in Ortho Physiotherapy	CORE	100	30	70	100	30	70	4	3	7 X2

Specialization in Sports Physiotherapy											
MPT 202C	Assessment & evaluation in sports physiotherapy	CORE	100	30	70	100	30	70	4	3	7 X2
MPT 203C	Sports Psychology	CORE	100	30	70	100	30	70	4	3	7 X2
MPT 204C	Physiotherapy & rehabilitation in sports	CORE	100	30	70	100	30	70	4	3	7 X2
Specialization in cardio pulmonary physiotherapy											
MPT 202D	Assessment & Evaluation In Cardiopulmonary Conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT 203D	Physiotherapy & Rehabilitation In Cardio Pulmonary conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT 204D	Physiotherapy Techniques & ICU Management	CORE	100	30	70	100	30	70	4	3	7 X2
Specialization in women's health											
MPT 202E	Assessment & Evaluation In Obs & Gynecological Conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT 203E	Physiotherapy & Rehabilitation In Obs & Gynecological Conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT 204E	Current Concepts In Obs &Gynecological Physiotherapy	CORE	100	30	70	100	30	70	4	3	7 X2
Specialization in pediatrics physiotherapy											
MPT 202F	Assessment & Evaluation In pediatric Conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT 203F	Physiotherapy & Rehabilitation In pediatric Conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT 204F	Current Concepts In pediatric Physiotherapy	CORE	100	30	70	100	30	70	4	3	7 X2
										Total	**68**

MPT 201: Bioengineering and Rehabilitation Principles

Course Objective:

- To identify the role of different professional in the field of rehab.
- To understand the major services provided in rehabilitation.
- To acquire knowledge of orthotic and prosthesis.

Course Content:

Unit-I: Conceptual framework of rehabilitation, roles of rehabilitation team members, definitions and various models of rehabilitation. International classification of functioning, Epidemiology of disability with emphasis on locomotors disability, impact of disability on individual, family, and society. Preventive aspects of disability and organizational skills to run disability services.

Unit-II: Model of service delivery : feature, merits and demerits of institutional based rehabilitation, outreach programmes, Community based rehabilitation, Legal Aspect in Disabilities: PWD act, national trust act, RCI act, Statutory provisions Schemes of assistance to persons with disabilities Govt and NGO participation in disability RCI.

Unit-III: Principles of Orthotics- types, indications, contra indications, assessment (check out), uses and fitting –region wise.

Orthotics for the Upper Limb

Orthotics for the Lower Limb

Orthotics for the Spine

Principles of prostheses- types, indications, contra indications, assessment (check out), uses and fitting –region wise.

Unit-IV: An outline of principles and methods of rehabilitation of speech and hearing disability

An outline of principles and methods of vocational and social rehabilitation

An outline of principles and methods of rehabilitation of mentally handicapped.

Unit-V: An outline of principles, methods and scope occupational therapy

Architectural Barriers: Describe architectural barriers and possible modifications with reference to Rheumatoid Arthritis, CVA, Spinal Cord Injury and other disabling conditions.

An outline of the principles and process of disability evaluation

Course Outcomes :

After the end of the course, the student will be able to

CO1: Understand their role in the management of the disability within the rehabilitation team and understand the concept of team approach in rehabilitation.(Bloom's Level-L2)

CO2: Identify the residual potentials in patients with partial or total disability (temporary or permanent) and understand the use of various orthotics and prosthetics devices.(Bloom's Level-L2,L3)

CO3: Formulate appropriate goals (long & short term) in treatment & rehabilitation and prescribe, check - out and train the uses of various rehabilitation aids.(Bloom's Level-L5).

CO4: Understand all services provided by various govt. agencies. (Bloom's level-L2)

CO5: Assess and evaluate Disability.(Bloom's level-L4)

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & OPD
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Learning Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	L2	M	H	H	M	M	M	L	L
CO2	L2	H	M	H	H	M	M	L	M
CO3	L5	M	H	M	H	H	M	M	H
CO4	L2	H	L	-	-	L	H	-	L
CO5	L4	M	M	L	L	L	H	L	L

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3,CO4
CD2	Tutorials/Assignments	CO1
CD3	Hospital & OPD	CO3,CO5
CD4	Self- learning advice using internets	CO1,CO2,CO4

SPECILIZATION IN NEURO PHYSIOTHERAPY

MPT 202A: Assessment & evaluation in Neurological Conditions

Course Objective:

- To understand sign and symptoms of neurological disorders.
- To understand the infections of brain.
- To understand movement and vascular disorders of brain.

Course Content:

Unit-I: Cerebral Trauma (Head and Brain Injury)

Epidemiology, Pathophysiology, Symptoms, Signs, Investigation, Management, Pre and Post Operative Physiotherapy, Complications.
Closed skull Fractures.
Hematomas: Epidural, Sub Dural, Intracerebral
Open cranio-cerebral injuries
Reconstruction operation in head injuries
Stupor and Coma
The Neural basis of consciousness.
Lesions responsible for Stupor and Coma
The assessment and Investigation of the unconscious patient.
The Management of the Unconscious patient.

Unit-II: Disorders of the Cerebral Circulation - Stroke

Epidemiology of the stroke and TIA
Causes, types and pathophysiology
Clinical features & investigations
Treatment of different type of stroke
Recovery & rehabilitation
Stroke prevention
Neoplastic lesion -
Intracranial Tumors
Cerebral Hemisphere
Tumors from related structures, Meninges, Cranial Nerves.
cerebellar
8. Cerebrovascular Diseases
Intracranial Aneurysm
Spontaneous Subdural
Extradural Hemorrhage
Intracerebral Hemorrhage
Subarachnoid hemorrhage
AV Malformations

Unit-III: Infections

Meningitis
Encephalitis
Brain abscess

Neuro Syphilis(Tabes dorsalis)
Herpes Simplex
Chorea
Tuberculosis
Chronic fatigue syndrome
AIDS

Unit-IV: Demyelinating Diseases of the Nervous system

Classification of Demyelinating Diseases
Multiple Sclerosis.
Diffuse Sclerosis

Unit-V: Movement disorders

Akinetic-rigidity Syndromes disorder and other extra Pyramidal Syndromes
Dyskinetic disorders.

Books suggested:

1. Cash's textbook of neurology for physiotherapists - Downi - J.P.Brothers.
2. Adult Hemiplegia - Evaluation & treatment - Bobath - Oxford Butterworth Heinmann.
3. Neurological Rehabilitation - Carr & Shephered -Butter worth Heinmann.
4. Tetraplegia & Paraplegeia - A guide for physiotherapist - Bromley - Churchill Livingstone.
5. Neurological Physiotherapy - A problem solving approach - Susan Edwards - Churchill Livingstone.
6. Neurological Rehabilitation - Umpherd - Mosby.
7. Geriatric Physical Therapy - Gucciona - Mosby.
8. Brunnstrom's Movement Therapy in Hemiplegia-Sawner&La Vigne-Lippincott
9. Treatment of Cerebral Palsy and Motor Delay-Sophie Levitt
10. Motor Relearning Programme for stroke-carr&Shepherd
11. Right in the Middle-Patricia M.Davies-Springer
12. Brain's Disease of the Nervous System - Nalton - ELBS.
13. Guided to clinical Neurology - Mohn & Gaectier - Churchill Livingstone.
14. Principles of Neurology - Victor - McGraw Hill lnternational edition.
15. Davidson's Principles and practices of medicine - Edward – Churchill Livingstone.
16. Physical Medicine & Rehabilitation-Susan Sullivan
17. Neurological Rehabilitation-Illus
18. Physical Medicine & Rehabilitation-Delsore
19. Assessment in Neurology-Dejong.
20. Differential Diagnosis-John PatternNeurology in Clinical Practice – Bradley&Daroff
21. Neurological Assessment-Blicker staff.
22. Steps to follow-PATRICIA M.DAVIES-Springer.
23. Muscle Energy Techniques-Chaitow-Churchill Living Stone.
24. Clinical Evaluation of Muscle Function-Lacote- Churchill Living Stone.
25. Davidson's principles and Practices of Medicine - Edward Churchill Livingstone.
26. Hutchinson's Clinical Methods – Swash – Bailliere Tindall..
27. A Short Textbook of Medicine - Krishna Rao - Jaypee Brothers.
28. A Short textbook ofPsychiatry_ Ahuja Niraj - Jaypee Brothers.

Course Outcomes:

After the end of the course, the student will be able to

CO1: Identify the diseases of brain.(Bloom's Level-3)

CO2: Differentiate the diagnose of the disease for brain.(Bloom's Level-L4)

CO3: Evaluate conditions and prescribe appropriate physiotherapy treatment.(Bloom's Level-L5)

CO4: Differentiate the various brain infections.(Bloom's level-L4)

CO5: Assess and manage movement disorders.(Bloom's Level-L5)

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & assignment.
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	**Bloom's Level**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
CO1	L3	H	H	H	M	M	M	L	L
CO2	L4	M	M	H	H	H	M	L	M
CO3	L5	M	H	L	H	H	M	H	H
CO4	L4	M	L	H	L	L	M	-	L
CO5	L5	M	H	H	M	H	M	L	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	**Course Delivery methods**	**Course Outcomes**
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3
CD2	Tutorials/Assignments	CO1
CD3	Hospital & OPD	CO1, CO2,CO3,CO4,CO5
CD4	Self- learning advice using internets	CO1,CO2

MPT 203A: Physiotherapy and Rehabilitation in Neurological Conditions

Course Objectives:

- To learn different physiotherapeutic strategies that can assist recovery of normal function from neurological dysfunction.
- To understand the conservative and surgical management of neurological condition as relevant to physiotherapy.
- To correlate the knowledge gained in understanding the neurological dysfunction.

Course Content:

Unit-I: Degenerative Diseases of the Spinal cord and Cauda Equina

Ataxia (sensory)
Motor Neuron Disease
Spinal Muscular Atrophy
Spino-cerebellar Degeneration (Friedreich's Ataxia)
Transverse Myelitis

Unit-II: Disorders / rehabilitation of the spinal cord & cauda equina

Acute Traumatic injuries of the spinal cord
Slow progressive compression of the spinal cord
Syringomyelia
Ischemia and infection of the Spinal Cord (Transverse myelitis) and Cauda Equina
Tumors of Spinal Cord
Surges surgical management in Spinal Cord

Unit-III: Disorders of peripheral nerves:

Peripheral neuropathies and peripheral nerve lesions
Clinical diagnosis of peripheral neuropathy
All types of levels of peripheral neuropathies and brachial plexus lesions
Causalgia
Reflex sympathetic dystrophy
Traumatic, Compressive and Ischemic neuropathy
Spinal Radiculitis and Radiculopathy
Hereditary motor and sensory neuropathy
Acute idiopathic polyneuritis
Neuropathy due to infections
Vasculomotor neuropathy
Neuropathy due to Systemic Medical Disorders
Drug induced neuropathy
Metal poisoning, Chemical neuropathies
Polyneuropathies:Acute,Subacute and Chronic level polyneuropathy
Surgeries on peripheral Nerves

Unit-IV: Disorders of muscles:

Muscular dystrophies of adulthood
The Myotonic disorders
Inflammatory disorders of muscle
Myasthenia gravis
Endocrine and metabolic myopathies
Duchene muscular dystrophy
Progressive muscular dystrophy.

Unit-V:

a) Deficiency & Nutritional Disorders, Deficiency of vitamins & related disorders, Other nutritional neuropathies
b) Disorders of Autonomic nervous system: Bladder and Bowel dysfunction,, Orthostatic hypotension, Autonomic dysreflexia, Autonomic Neuropathy.
c) Nervous system aging effects and Geriatric neurological disorders

Books suggested:

1. Cash's textbook of neurology for physiotherapists - Downi - J.P.Brothers.
2. Adult Hemiplegia - Evaluation & treatment - Bobath - Oxford Butterworth Heinmann.
3. Neurological Rehabilitation - Carr & Shephered -Butter worth Heinmann.
4. Tetraplegia & Paraplegeia - A guide for physiotherapist - Bromley – Churchill Livingston
5. Neurological Physiotherapy - A problem solving approach - Susan Edwards - Churchill Livingstone.
6. Neurological Rehabilitation - Umpherd - Mosby.
7. Geriatric Physical Therapy - Gucciona - Mosby.
8. Brunnstrom's Movement Therapy in Hemiplegia-Sawner&La Vigne-Lippincott
9. Treatment of Cerebral Palsy and Motor Delay-Sophie Levitt
10. Motor Relearning Programme for stroke-carr&Shepherd
11. Right in the Middle-Patricia M.Davies-Springer
12. Brain's Disease of the Nervous System - Nalton - ELBS.
13. Guided to clinical Neurology - Mohn & Gaectier - Churchill Livingstone.
14. Principles of Neurology - Victor - McGraw Hill lnternational edition.
15. Davidson's Principles and practices of medicine - Edward – Churchill Livingstone.
16. Physical Medicine & Rehabilitation-Susan Sullivan
17. Neurological Rehabilitation-Illus
18. Physical Medicine & Rehabilitation-Delsore
19. Assessment in Neurology-Dejong.
20. Differential Diagnosis-John PatternNeurology in Clinical Practice – Bradley&Daroff
21. Neurological Assessment-Blicker staff.
22. Steps to follow-PATRICIA M.DAVIES-Springer

Course Outcomes:

After the end of the course, the student will be able to

CO1: Formulate a rationalized physiotherapy plan for the patient.(Bloom's Level-L5)

CO2: Compare & contrast the outcome of various physiotherapy treatment approaches to rehabilitate patient.(Bloom's level-L5)

CO3: Implement necessary physiotherapy treatment, document the status of the patients as written records (Bloom's Level-L4).

CO4: Assess and manage peripheral nerve disorders.(Bloom's level-L5)

CO5: Differentiate nutritional deficiency disorders.(Bloom's level-L4)

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & assignment.
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	**Bloom's Level**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
CO1	L5	H	H	H	M	M	H	M	H
CO2	L5	H	H	M	H	M	M	M	M
CO3	L4	M	H	H	H	M	M	H	L
CO4	L5	M	H	H	M	H	M	L	M
CO5	L4	M	L	H	L	L	M	-	L

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	**Course Delivery methods**	**Course Outcomes**
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO3,CO5
CD2	Tutorials/Assignments	CO1
CD3	Hospital & OPD	CO1, CO2,CO3,CO4,CO5
CD4	Self- learning advice using internets	CO2,CO3

MPT 204A: Current Concepts in Neuro Physiotherapy

Course Objectives:

- To understand the recent concepts in treatment of neurological conditions.

Course Content:

Unit-I: Treatment planning process:
Classification of treatment techniques based on current concepts & approaches.
All types of strengthening techniques.
Overview of Neurological Impairments and their treatment, with emphasis on recording and documentation.
Therapeutic exercises used in neurological disorders.

Unit-II: Neuromuscular Training
Methods For Optimizing Neuromuscular & Postural Control : Proprioception Training And Kinesthetic Training (Sensory Integration),
Problem Solving Approach,
Motor Control,
Clinical Decision Making And Clinical Reasoning,
Evidence Based Practice.

Unit-III: Advanced Neuro-therapeutic techniques:
Muscle Energy Techniques (MET) Reflexology,
Cranio-sacral therapy,
Motor learning Theories – Concept, Therapeutic, Positional.
Myofacial release techniques
Biofeedback,

Unit-IV: Nerve mobilization (Concept): Butler concept.
Management of pain and Spasticity and paralysis in neurological disorders.

Unit-V: Special Neurological Approaches and Their Concept:
Neurodevelopment Approach,
Brunnstrom's Approach,
PNF Approach,
MRP and Inhibition & facilitation techniques.
Modified CIMT.
Electrotherapy in Neurological disorders.

Books suggested:

1. Adult Hemiplegia - Evaluation & treatment - Bobath - Oxford Butterworth Heinmann.
2. Neurological Rehabilitation - Carr & Shephered -Butter worth Heinmann.
3. Tetraplegia & Paraplegeia - A guide for physiotherapist - Bromley - Churchill Livingstone.
4. Neurological Physiotherapy - A problem solving approach - Susan Edwards - Churchill Livingstone.
5. Neurological Rehabilitation - Umpherd - Mosby.
6. Geriatric Physical Therapy - Gucciona - Mosby.
7. Motor Assessment of Developing Infant - Piper & Darrah - W.E. Saunders.
8. Paediatric Physical Therapy - Teckling - Lippmcott
9. Treatmentof Cerebral Palsy and Motor Delay - Levins - Blackwell Scientific Publications London.
10. Physiotherapy in Paediatrics – Shephered – Butterworth Heinrnann
11. Brunnstrom's Movement Therapy in Hemiplegia-Sawner&La Vigne-Lippincott
12. Treatment of Cerebral Palsy and Motor Delay-Sophie Levitt
13. Motor Relearning Programme for stroke-carr&Shepherd
14. Right in the Middle-Patricia M.Davies-Springer
15. Physical Medicine & Rehabilitation-Susan Sullivan
16. Neurological Rehabilitation-Illus
17. Physical Medicine & Rehabilitation-Delsore
18. Differential Diagnosis-John PatternNeurology in Clinical Practice – Bradley&Daroff
19. Steps to follow-PATRICIA M.DAVIES-Springer
20. Muscle Energy Techniques-Chaitow-Churchill Living Stone
21. Clinical Evaluation of Muscle Function-Lacote- Churchill Living Stone

Course Outcomes:

After the end of the course, the student will be able to

CO1: Understand the changing knowledge base in neurology and the international context and sensitivities of the area.(Bloom's Level-L2)

CO2: Evaluate and synthesize research and professional literature and apply this information to clinical situation.(Bloom's Level -L5)

CO3: Articulate their knowledge, understanding and managing neurological patients.(Bloom's Level -L4)

CO4: Apply neurological approaches while treating a patient.(Bloom's Level-L3)

CO5: Understand the basic principles of various treatment techniques.(Bloom's Level-L2)

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & OPD
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	**Bloom's Level**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
CO1	L2	M	H	H	H	L	M	L	L
CO2	L5	M	M	H	H	M	M	M	M
CO3	L4	H	H	L	H	H	M	M	H
CO4	L3	M	H	M	L	L	L	-	-
CO5	L2	H	L	L	M	-	M	-	L

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	**Course Delivery methods**	**Course Outcomes**
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3,CO5
CD2	Tutorials/Assignments	CO1
CD3	Hospital & OPD	CO1, CO2,CO3,CO4
CD4	Self- learning advice using internets	CO1,CO2

SPECILIZATION IN ORTHO PHYSIOTHERAPY
MPT 202B: Assessment & evaluation in Orthopedic Conditions

Course Objective:

- To understand human anatomy and physiology of skeletal system
- To evaluate, assess and examine the musculoskeletal conditions
- To understand different surgeries for musculoskeletal system in different conditions.

Course Content:

Unit-I: Fracture and soft tissue injuries of upper limb

i. Shoulder and arm
ii. Elbow and forearm
iii. Wrist and hand

Unit-II: Fracture and soft tissue injuries of lower limb

iv. Pelvis
v. Hip and thigh
vi. Knee and leg
vii. Ankle and foot

Unit-III: Method of different types of some common surgeries and its rehabilitation.

viii. Menisectomy
ix. Patellectomy
x. Arthroplasty :-Shoulder, Elbow, Hip, Knee Arthroplasty.
xi. Arthrodesis :- triple arthrodesis, Hip, Knee, Shoulder Elbow arthrodesis, Spinal Fusion
xii. Osteotomy
xiii. Bone grafting, Bone Lengthening
xiv. Tendon transfers
xv. Soft Tissue release
xvi. Nerve Repair and grafting etc.

Unit-IV: Burns

Unit-V: Amputation

xvii. Types, Levels & procedures
xviii. Pre and post operative rehabilitation.
xix. Prosthesis and stump care.
xx. Limb transplantation Surgery

Books suggested:

1. Turek's Orthopedics: Principles and their Application, Weinstein SL and Buckwalter JA, Lippincott
2. Apley's System of Orthopedics and Fractures, Louis Solomon , Arnold publishers.
3. Textbook of Orthopedics for Fractures, Adams: Churchill Livingstone
4. Clinical Orthopedic Rehabilitation, Brent Brotzman.
5. Orthopedic Physiotherapy, Robert A Donatelli, Churchill Livingstone.
6. Tidy's Physiotherapy, Ann Thomasons,Varghese publishing House.
7. Physical Rehabilitation Assessment and Treatment, Susan Sullivan, Japee brothers
8. Textbook of Orthopedics, John Ebnezar, Japee Brothers.
9. Treatment and Rehabilitation of fractures,S Hoppenfield, Vasantha LM;Lippincott William and Wilkins.
10. Hand practice, Principle and Practice, Mauren Salter, Butterworth Heinemann.
11. Essentials of Orthopaedics and Applied Physiotherapy, Jayant Joshi,prakash Kotwal; Churchill Livingstone
12. Essential Orthopaedics, J Maheshwari, Mehta Publishers.
13. Principle and Practice of Orthopaedics Sports Medicine, William E Garrett, Lippincott William and Wilkins.

Course Outcomes:

After the end of the course, the student will be able to

CO1: Understand the basic sciences and their integration with musculoskeletal physiotherapy clinical practice.(Bloom's Level-L2)

CO2: Apply sound theoretical and practical knowledge and understanding of musculoskeletal system.(Bloom's Level-L3)

CO3: Perform an appropriate subjective and physical examination.(Bloom's Level-L3)

CO4: Use suitable analytical skills to evaluate data obtained.(Bloom's level-L3)

CO5: Plan and execute physiotherapy treatment in musculoskeletal system.(Bloom's Level-L5)

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & assignment.
CD4	Self- learning advice using internets

Mapping Of Course Outcomes Onto Program Outcomes

Course Outcome	**Bloom's Level**	**Po1**	**Po2**	**Po3**	**Po4**	**Po5**	**Po6**	**Po7**	**Po8**
Co1	L2	H	H	H	M	L	M	L	L
Co2	L3	H	M	H	H	M	M	L	M
Co3	L3	M	H	L	H	H	M	L	M
Co4	L3	M	M	H	H	L	L	-	L
Co5	L5	M	H	H	M	H	L	-	M

H- High, M- Moderate, L- Low, '-' For No Correlation

Mapping Between Co And Cd

Cd	**Course Delivery Methods**	**Course Outcomes**
Cd1	Lecture By Use Of Boards/Lcd Projectors/Ohp Projectors	Co1, Co2, Co3,Co4
Cd2	Tutorials/Assignments	Co1
Cd3	Hospital & Opd	Co1, Co2,Co5
Cd4	Self- Learning Advice Using Internets	Co1

MPT 203B: Physiotherapy & rehabilitation in orthopedic Conditions

Course Objective:

- To understand human anatomy and physiology of vertebrae
- To evaluate, assess and examine the spinal conditions
- To understand different surgeries for spine.

Course Content:

Unit-I:

I. Review of anatomy and pathomechanics of vertebral column
II. Application of advance techniques like Maitland, McKenzie, Mulligan
III. Principles of management
IV. Congenital disorders of vertebral column.
V. Congenital and Acquired deformities
VI. Ergonomics

Unit-II: Non traumatic disorders of vertebral column

I. Degenerative
II. Infections
III. Inflammatory
IV. Spinal instabilities

Unit-III: Traumatic injuries of vertebral column: General & regional injuries, Soft tissue injuries, tightness, structural changes, Bone injuries (fractures & dislocations of spine)**,**pre and post operative management of spinal surgeries.

Unit-IV: Spinal cord injuries

Types, Classifications
Pathology
Level
Examination
Management & rehabilitation
Orthopedic surgeries
Pre & post operative rehabilitation

Unit-V: Bio engineering appliances & support devices

Books suggested:

1. Turek's Orthopaedics: Principles and their Application, Weinstein SL and Buckwalter JA, Lippincott
2. Apley's System of Orthopaedics and Fractures, Louis Solomon , Arnold publishers.
3. Textbook of Orthopaedics, Adams: Churchill Livingstone
4. Clinical Orthopaedic Rehabilitation, Brent Brotzman.
5. Orthopaedic Physiotherapy, Robert A Donatelli, Churchill Livingstone.
6. Tidy's Physiotherapy, Ann Thomasons,Varghese publishing House.
7. Physical Rehabilitation Assessment and Treatment, Susan Sullivan, Japee brothers
8. Textbook of Orthopaedics, John Ebnezar, Japee Brothers.
9. Pain Series Rene Calliet., Japee Brothers.
10. Essentials of Orthopaedics and Applied Physiotherapy, Jayant Joshi,prakash Kotwal; Churchill Livingstone
11. Essential Orthopaedics, J Maheshwari, Mehta Publishers.
12. Practical Orthopaedic Medicine, Brain Corrigan, Butterworth.
13. Principle and Practice of Orthopaedics Sports Medicine, William E Garrett, Lippincott William and Wilkins.
14. Orthopaedic Physical Assessment David J Magee, Saunders
15. Manual Examination and Treatment of the Spine and Extrimities, Carolyn Wadsworth, Williams and Wilkins.
16. Physical Examination of the Spine and Extrimities, Stenley, Lipenfield.
17. Clinical Orthopaedic Examination, Mc Rae, Churchill Livingstone.
18. Muscle Energy Technique, Leon chaitow,Churchill Livingstone.
19. Maitland's vertebral Manipulation, GD Maitland, Butterworth Heinemann.
20. Textbook of Orthopaedic Medicine James Cyriax, AITBS Publishers.
21. Cyriax's Illustrated Manual of Orthopaedic Medicine, JH Cyriax, Butterworth
22. Position Release Technique, Leon chaitow,Churchill Livingstone.
23. Manual Therapy, Brain Mulligan.
24. Butler Neural mobilization, Butler.

Course Outcomes:

After the end of the course, the student will be able to

CO1: Understand of the basic sciences and their integration with spinal conditions. (Bloom's Level-L2)

CO2: Apply theoretical and practical knowledge and understanding vertebral system. (Bloom's Level-L2)

CO3: Perform an appropriate subjective and physical examination of spinal conditions. (Bloom's Level-L3)

CO4: Use suitable analytical skills to evaluate data obtained. (Bloom's level-L3)

CO5: Plan and execute physiotherapy treatment in spinal disorders. (Bloom's Level-L5)

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & assignment.
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	**Bloom's Level**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
CO1	L2	L	H	H	M	L	M	L	L
CO2	L2	H	M	H	H	M	M	L	M
CO3	L3	M	H	L	H	H	M	L	M
CO4	L3	M	M	H	H	L	L	-	L
CO5	L5	M	H	H	M	H	L	-	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	**Course Delivery methods**	**Course Outcomes**
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3
CD2	Tutorials/Assignments	CO1
CD3	Hospital & OPD	CO3,CO4,CO5
CD4	Self- learning advice using internets	CO1

MPT 204B: Current Concepts in Ortho Physiotherapy

Course Objectives

- To understand skeletal system and biomechanics
- To diagnose, evaluate and assess musculoskeletal system through different techniques
- To understand different techniques used in management of physiotherapy treatment

Course Content:

Unit-I:

I. Pain management
II. Back School
III. Butler mobilization of nerves

Unit-II: Manual Therapy: Introduction, History, Basic Classification, Assessment for manipulation, discussion in brief about the concepts of mobilization like

I. Cyriax,
II. Maitland
III. Mulligan

Unit-III: Myofasical Release: Concept & brief discussion of its application technique.

Unit-IV: Muscle Energy Techniques **and** Positional release technique.

Unit-V: Body Composition & Weight Control:

I. Composition of human body
II. Somatotyping
III. Techniques of body composition analysis
IV. Obesity
V. Health risks of obesity
VI. Weight control

Books suggested:

1. Chest physiotherapy in the Intensive Care Unit,Colin F Meckengei, William and Wilkins.
2. Physical Rehabilitation Assessment and Treatment, Susan Sullivan, Japee brothers
3. Muscle Energy Technique, Leon chaitow,Churchill Livingstone.
4. Maitland's vertebral Manipulation, GD Maitland, Butterworth Heinemann.
5. Textbook of Orthopaedic Medicine James Cyriax, AITBS Publishers.
6. Cyriax's Illustrated Manual of Orthopaedic Medicine, JH Cyriax, Butterworth
7. Peripheral Manipulation, GD Maitland, Butterworth Heinemann.
8. Position Release Technique, Leon chaitow,Churchill Livingstone.
9. Manual Therapy, Brain Mulligan.
10. Butler Neural mobilization, Butler

Course Outcomes:

After the end of the course, the student will be able to

CO1: Understand the current concepts in musculoskeletal physiotherapy.(Bloom's Level-L2)

CO2: Understand theoretical and practical k n o w l e d g e and understanding of pain management in musculoskeletal system.(Bloom's Level-L2)

CO3: Perform an appropriate subjective and physical examination in order to apply various treatment technique.(Bloom's level-L3)

CO4: Apply soft tissue release technique to treat conditions.(Bloom's Level-L3)

CO5: Execute techniques of body composition analysis.(Bloom's level-L5)

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & OPD
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	**Bloom's Level**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
CO1	L2	H	H	H	M	M	M	L	M
CO2	L2	H	H	H	H	M	M	M	H
CO3	L3	M	H	L	M	M	M	L	M
CO4	L3	M	H	L	H	L	M	-	L
CO5	L5	M	H	H	M	H	L	-	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	**Course Delivery methods**	**Course Outcomes**
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2
CD2	Tutorials/Assignments	CO1,CO2
CD3	Hospital & OPD	CO3,CO4,CO5
CD4	Self- learning advice using internets	CO1,CO2

SPECILIZATION IN SPORTS PHYSIOTHERAPY

MPT 202C: Assessment & evaluation in sports physiotherapy

Course Objective:

- To understand medical condition related to athlete.
- To understand impact of medical conditions in athlete.
- To learn how to manage non traumatic medical condition in athlete.

Course Content:

Unit-I:

I. Illness
II. Hypertension
III. Urine abnormalities
IV. Exercise Induced Asthma
V. Anemia
VI. Delayed onset muscle soreness (DOMS)
VII. Runner's high & Exercise addiction.
VIII. G.I.T. Diseases
IX. Exercises and congestive heart failure
X. Exercise for Post coronary & bye pass patients
XI. Exercise for diabetics

Unit-II: Diagnosis and management of skin conditions of Athletes

1. Bacterial infections
2. Fungal Infections
3. Viral infections
4. Boils
5. Cellulites.

Unit-III: Female Specific problems

1. Sports Amenorrhea.
2. Injury to female reproductive tract.
3. Menstrual Synchrony.
4. Sex determination.
5. Exercise and pregnancy.
6. Eating disorders in athletes

Unit-IV: Common Infectious disease:

1. Common Cold
2. Diarrhea
3. Dysentery
4. Typhoid
5. Cholera
6. Amoebiasis
7. Food Poisoning
8. Tuberculosis
9. Malaria
10. Hepatitis
11. Venereal disease etc.

Unit-V: AIDS in sports people.

Books suggested:

1. Morris B. Mellion: Office Sports Medicine, Hanley & Belfus.
2. Richard B. Birrer: Sports Medicine for the primary care Physician, CRC Press.
3. Torg, Welsh & Shephard: Current Therapy in Sports Medicine III - Mosby.
4. Zulunga et al: Sports Physiotherapy, W.B. Saunders.
5. Brukner and Khan: Clinical Sports Medicine, McGraw Hill.
6. Reed: Sports Injuries – Assessment and Rehabilitation, W.B. Saunders.
7. Gould: Orthopedic Sports Physical Therapy, Mosby.
8. C. Norris: Sports Injuries – Diagnosis and Management for Physiotherapists, Heinmann.
9. D. Kulund: The Injured Athlete, Lippincott.
10. Nicholas Hershman:
    Vol. I The Upper Extremity in Sports Medicine.
    Vol. II The Lower Extremity and Spine in Sports Medicine.
    Vol. III The Lower Extremity and Spine in Sports Medicine Mosby.
11. Lee & Dress: Orthopedic Sports Medicine - W.B Saunders.
12. K. Park: Preventive and Social Medicine - Banarsi Dass Bhanot - Jabalpur..
13. Fu and Stone: Sports Injuries: Mechanism, Prevention and Treatment, Williams and Wilkins.
14. Scuderi, McCann, Bruno: Sports Medicine – Principles of Primary Care, Mosby.
15. Lars Peterson and Per Renstron: Sports Injuries – Their prevention and treatment, Dunitz.;

Course outcome

CO	STATEMENT (After completion of this course, student will be able to)	BLOOM'S LEVEL
CO1	Identify the biomechanics of specific sports and the medical conditions associated in a particular sport.	L3
CO2	Select strategies and techniques to prevent exercise induced non traumatic medical conditions	L3
CO3	Evaluate sport specific conditions and evidence based treatment protocols to return to sports	L5
CO4	Formulate and publish research articles	L6

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & assignment.
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	L3	M	M	L	L	L	M	M	L
CO2	L3	M	H	H	M	M	M	H	M
CO3	L5	H	H	H	H	H	H	H	H
CO4	L6	H	H	H	H	H	H	H	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3
CD2	Tutorials/Assignments	CO1,CO2
CD3	Hospital & OPD	CO1, CO2
CD4	Self- learning advice using internets	CO1,CO2, CO3

MPT 203C: Sports Psychology

Course Objective:

- To understand Sports Psychology of a athlete.
- To understand the psychological requirement of an athlete in competition.
- To learn the psychological measure to developed effectiveness of the performance

Course Content:

Unit-I:

I. History and current status of Sports Psychology.
II. Personality Assessment and sports personality.
    1. Theories of personality
    2. Personality assessment
III. Attention and perception in sports.
    3. Attention
    4. Perception
IV. Concentration training in sports.
    1. Basic principles of concentration
    2. Concentration training
    3. Concentration awareness exercises
V. Motivational orientation in sports.
    1. Athlete's needs of motivation
    2. Motivational inhibitors
    3. Motivational techniques

Unit-II: Pre-competitive anxiety.

1. Source of PCA
2. Effect of PCA on performance

Relaxation Training.

1. Definition
2. Types of relaxation trainings
    i) Progressive muscle relaxation
    ii) Breathing exercises
    iii) Yog-nidra
    iv) Transcendental meditation

Unit-III: Aggression in sports.

1. Theories of aggression
2. Management of aggression

IX. Role of Psychology in Dealing with injuries.

X. Eating disorders.

a. Etiology of eating disorders

b. Types of eating disorders

c. Complications of eating disorders

XI. Goal setting

Unit-IV:

I. Psychological aspect of doping

II. Psychological preparation of elite athletes

1. Concept of psychological preparation

III. Biofeedback training

IV. Mental imagery

V. Stress management

1. Principles of Stress Management

2. Stress Management technique.

Unit-V: Group Behavior and leadership

1. Nature of group behavior and group.
2. Types of group.
3. Educational implication of group behavior.
4. Meaning of leadership, types of leadership quality of leadership, training and functioning of leadership.

Emotion

1. Meaning of emotion.
2. Characteristics of emotion.
3. Meaning of controlling and training of emotions and its importance.
4. Contribution of sports to emotional health.
5. Meaning of sentiment, its type, importance and formation.

Books suggested:

1. Morgan and King: Introduction to Psychology - Tata McGraw Hill.
2. Suinn: Psychology in Sports: Methods and applications, Surjeet Publications.
3. Grafiti: Psychology in contemporary sports, Prentice Hall.
4. Basmajian: Biofeedback
5. Sanjiv P. Sahni: Handbook of Sports Psychology – A comprehensive manual of Mental Training

Course Outcome:

CO	STATEMENT (After completion of this course, student will be able to)	Bloom's Level
CO1	Understand psychological aspects of optimal athletic performance,psychological care and wellbeing of athletes	L2
CO2	Identify techniques to motivate the athletes which will help to improve their performance	L3
CO3	Evaluate which technique (counseling, instructing, mental conditioning etc.) will help an athlete with anxiety and aggression in order to deal with sports injuries.	L5
CO4	Utilize communication skills while working in the sports medicine team.	L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & assignment.
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	L2	L	M	M	M	M	M	M	M
CO2	L3	M	M	M	H	M	M	M	M
CO3	L5	M	M	H	H	M	H	M	M
CO4	L2	M	M	M	M	M	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3
CD2	Tutorials/Assignments	CO1,CO2,CO3
CD3	Hospital & OPD	CO1,
CD4	Self- learning advice using internets	CO1CO2,CO3

MPT 204C: Physiotherapy & rehabilitation in sports

Corse outcome:

- To understand new concept in sports physiotherapy.
- To understand exercise for special categories of athlete.
- To identify the proper equipment and assistive device for the athlete.

Course Content:

Unit-I: Exercise and Common Pulmonary Conditions
Exercise induced bronchial obstruction
Exercise in chronic airway obstruction
Air pollution and exercise
Exercise and Cardiac Conditions
Exercise prescription for heart disease
Exercise in primary prevention in ischemic heart disease
Exercise for secondary prevention of ischemic heart disease
Diabetes and Exercise
Exercise in diabetic patients
Exercise as a method of control of diabetes.

Unit-II: Protective equipments design of shoe safety factors in equipment.
Special concerns for handicapped athletes
Disability sports, Paralympics

Unit-III: Exercises for special categories
Child and adolescent athlete's problems
Special problems of older athletes
Sports and exercise programme for geriatrics and rheumatic population

Unit-IV: Doping in Sports
IOC prohibited drugs- groups and classifications
IOC rules and regulations on doping in sports hazards of prohibited substances.

Unit-V: Identification of talent for sports –
Meaning and its importance
Detailed procedure for screening and identification of sports talent
Prediction of adult potentials at the young age.

Books suggested :

1. Morris B. Mellion: Office Sports Medicine, Hanley & Belfus.
2. Richard B. Birrer: Sports Medicine for the primary care Physician, CRC Press.
3. Torg, Welsh & Shephard: Current Therapy in Sports Medicine III - Mosby.
4. Zulunga et al: Sports Physiotherapy, W.B. Saunders.
5. Brukner and Khan: Clinical Sports Medicine, McGraw Hill.
6. Reed: Sports Injuries – Assessment and Rehabilitation, W.B. Saunders.
7. Gould: Orthopaedic Sports Physical Therapy, Mosby.
8. C. Norris: Sports Injuries – Diagnosis and Management for Physiotherapists, Heinmann.
9. D. Kulund: The Injured Athlete, Lippincott.
10. Nicholas Hershman:
    Vol. I The Upper Extremity in Sports Medicine.
    Vol. II The Lower Extremity and Spine in Sports Medicine.
    Vol. III The Lower Extremity and Spine in Sports Medicine Mosby.
11. Lee & Dress: Orthopaedic Sports Medicine - W.B Saunders.
12. K. Park: Preventive and Social Medicine - Banarsi Dass Bhanot - Jabalpur..

Course Outcomes:

CO	STATEMENT (After completion of this course, student will be able to)	Bloom's Level
CO1	Understand the current concept of biomechanical assessment of sports and motor control in sports activities	L2
CO2	Understand the role of sports physiotherapist in the sports team training and competition setting and the value of communication in the Sports Medicine Team approach.	L2
CO3	Select specific screening and preventive conditioning programs for common sports and injuries	L3
CO4	Develop independent research publications and critically analyze already published articles.	L6
CO5	Evaluate evidence based treatment protocols and other relevant current concepts of treatment in the field of sports physiotherapy	L5

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & OPD
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	L2	M	M	M	M	L	M	M	L
CO2	L2	M	M	M	L	L	M	M	M
CO3	L3	M	M	M	M	M	M	H	H
CO4	L6	H	H	H	H	H	H	H	H
CO5	L5	H	H	H	H	H	H	H	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3
CD2	Tutorials/Assignments	CO1,CO2,CO3,CO4
CD3	Hospital & OPD	CO1, CO4,CO5
CD4	Self- learning advice using internets	CO1,CO2,CO3,CO5

SPECIALIZATION IN CARDIOPULMONARY PHYSIOTHERAPY

Assessment & Evaluation in Cardiopulmonary Conditions
MPT 202 D

Course Objective:

- To understand new concept in cardio-pulmonary physiotherapy.
- To assess and evaluate common and major diseases of the cardiovascular organ system.
- To identify the proper equipment and assistive device

Course Content:

Unit-1:

1. Importance of assessment & evaluation,
2. Method of evaluation and documentation
3. Clinical Examination, Reliability & Validity of the tests, Investigative Procedures
4. General principal of assessment. Evaluation and documentation

Unit-II:

1. History taking objective assessment
2. Subjective assessment investigation, documentation
3. Examination of heart: clinical examinations
4. Heart rate monitoring, ECG, echo cardiography
5. Exercise Tolerance Tests, Treadmill Testing.

Unit-III

1. Examination of respiratory system:
   - Clinical examination,
   - Pulmonary function testes,
   - A.B.G. analysis
   - Bronchography
2. Examination of vascular system,
3. Clinical examination of vascular system: Lipid profile, Angiography, Color Doppler

Unit-IV:

1. Defination, Causes, pathophysiology, sign & symptoms, management of the following Medical Respiratory Conditions:
   - Asthma
   - Chronic bronchitis
   - Emphysema
   - Pneumonia
   - T.B.
   - Empyema
   - Pleural effusion

2. Definition, Causes, pathophysiology, sign & symptoms, management of the following Medical cardiac condition:
   - Congestive Cardiac Failure
   - Valvular Disease
   - Ischemic Heart Disease
   - MI And Coronary Care
   - Rheumatic Fever/Rheumatic heart disease
   - Congenital heart diseases
   - Pulmonary and Systemic hypertension
   - Phlebothrombosis
   - Raynaud's disease
   - Buerger's disease
   - Varicose veins and ulcers
   - Venous thrombosis/Deep vein thrombosis

Unit-V:

1. Preoperative-post operative testing/assessment, Surgical Management of the following pulmonary surgeries:
   - Thoracoscopy
   - Lobectomy
   - Pneumonectomy
   - Thoracotomy
   - Pleurodesis
   - Pleurectomy
   - Bulbectomy
   - Lung resection
   - Segmental reaction

2. Preopreative-post operative assessment, physiotherapy | Management of the following Cardiac Surgeries
   - Coronary artery bypass Grafting
   - Aneurysectomy
   - Pericardiectomy
   - Repair of septal Defect

Books suggested

1. Manual of Cardiac Rehabilitation: Dr. Peeyush Jain & Dr. R. Panda
2. The step to a healthy heart: Kowalski R.E
3. Cardiopulmonary Physical Therapy – Irwin & Tecklin (Mosby)
4. Cardiopulmonary Rehabilitation – Barbara
5. Cardiopulmonary Rehabilitation – Frownfelter & Dean

Course Outcomes:

CO	STATEMENT (After completion of this course, student will be able to)	Bloom's Level
CO1	Integrate the knowledge gained by the students in clinical cardio respiratory conditions with skills gained in exercise therapy electrotherapy and massage, thus enabling them to apply these in clinical situations of dysfunction due to cardio respiratory pathology.	L2
CO2	Use physiotherapeutic measures as preventive / restorative Rehabilitative purposes for pulmonary / cardiac patients.	L2
CO3	Identify cardio-respiratory dysfunction, set treatment goals and apply their skills in exercise therapy, electrotherapy and massage in clinical situation to restore cardio-respiratory function	L3
CO4	The ability to evaluate and synthesis research and professional literature and apply this• information.	L6
CO5	Education of patients, caregivers and health professionals, consultancy and advocacy; Goal setting, self evaluation and reflective practice.	L5

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & OPD
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	L2	M	M	M	M	L	M	M	L
CO2	L2	M	M	M	L	L	M	M	M
CO3	L3	M	M	M	M	M	M	H	H
CO4	L6	H	H	H	H	H	H	H	H
CO5	L5	H	H	H	H	H	H	H	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3
CD2	Tutorials/Assignments	CO1,CO2,CO3,CO4
CD3	Hospital & OPD	CO1, CO4,CO5
CD4	Self- learning advice using internets	CO1,CO2,CO3,CO5

Physiotherapy and Rehabilitation in Cardiopulmonary Conditions
MPT 203 D

Course objective:

- To understand new concept in cardio-pulmonary physiotherapy.
- To demonstrate physiotherapy rehabilitation for common and major diseases of the cardiovascular organ system..
- The quality of patient care can be increased by improving the processes of patient care.

Course Content:

Unit-I:

1. Percussion, Vibration, Shacking, Quick Stretch
2. Postural drainage
3. Huffing & Coughing
4. Suctioning procedure
5. Active cycle of breathing
6. Autogenic Drainage
7. Glossopharyngeal, Breathing, Pursed Lip breathing, relaxed breathing, segmental breathing indication of each technique
8. Body positioning.
9. Respiratory muscle training
10. Blood pressure & pulse monitoring with a subject at rest and during activity
11. Rate of perceived exertion scale and use in the formulation of exercise prescription
12. Burgers Exercise

Unit-II:

1. Technique for Cardio pulmonary Resuscitation,
2. Shock management
3. Stretcher use-Handling and transfer
4. Intermittent compression for lymphatic disorders
5. Oxygen therapy and humidification
6. Nebulization
7. Aerosol therapy
8. Incentive spirometry

Unit-III:

1. Exercise physiology compared with abnormal exercise physiology
2. Patient evaluation, low level exercise testing, maximal exercise testing
3. Programme planning and implementation – principles.
4. Chest mobilization.

Unit -IV:

1. Various protocols for MI rehabilitation
2. Aerobic exercise for patients with coronary artery diseases
3. Detail study of various aspects of cardiac rehabilitation
4. Cardiac transplantation
5. Rehabilitation of traumatic injuries of chest

Unit -V:

1. Pediatric cardio vascular problems
2. Common pulmonary diseases, including assessment and management
3. Detail study of various conditions (obstructive, restrictive, surgical conditions)
4. Respiratory muscle training

Books Suggested:

1. Cardiopulmonary symptoms in Physiotherapy – Cohen M, Churchill, Livingstone, London.
2. Cardiopulmonary Equipments – David Eubanks & Bone

Course Outcomes:

CO	STATEMENT (After completion of this course, student will be able to)	Bloom's Level
CO1	Develops the skills to execute different Physiotherapy techniques used in treatment of Cardio-respiratory dysfunctions.	L2
CO2	To select strategies for cure, care & prevention; adopt restorative & rehabilitative measures for maximum possible functional independence of a patient at home, work place & in community	L2
CO3	Be able to execute the effective Physiotherapeutic measures with appropriate clinical reasoning to improve pulmonary function.	L3
CO4	To design & execute effective tailored cardiopulmonary rehabilitation program.	L6
CO5	To learn and execute the principle of care of patients at the Intensive care area	L5

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & OPD
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	L2	M	M	M	M	L	M	M	L
CO2	L2	M	M	M	L	L	M	M	M
CO3	L3	M	M	M	M	M	M	H	H
CO4	L6	H	H	H	H	H	H	H	H
CO5	L5	H	H	H	H	H	H	H	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3
CD2	Tutorials/Assignments	CO1,CO2,CO3,CO4
CD3	Hospital & OPD	CO1, CO4,CO5
CD4	Self- learning advice using internets	CO1,CO2,CO3,CO5

Physiotherapy Techniques and ICU Management
MPT 204 D

Course objective:

- To understand new concept in cardio-pulmonary physiotherapy.
- To demonstrate various techniques ..
- The understand quality of patient care that can be increased by improving the processes of patient care in ICU.

Course Content:

Unit-I:
1. General management of the critically ill in the Intensive care unit.
2. Equipment and monitoring devices use in the unit
3. Care of the unconscious patient
4. Care of the patients with mechanical ventilation
5. Special precaution for the following condition during physiotherapy treatment

   - Cardiac disease
   - Congestive heart failure
   - Carbondioxide retention
   - Adult respiratory distress syndrome
   - plural effusion
   - Pulmonary embolism
   - Hemoptysis
   - Increased Intra cranial pressure

Unit-II: 1. Mechanical Ventilator.
- Types of mechanical ventilator.
- Physiological effects
- Indication and contr0aindication.
- Complication
- Weaning the patients from ventilation.
- BIPAP, CPAP, PEEP,AMBU,

Unit –III: Physiotherapy management in neonatal I.C.U.
Management of endotracheal tubes, tracheal suctioning, subclavian lines & chest tubes

Unit –IV: ABG and ECG monitoring
CPR and Basic life support

Unit-V: Monitoring in ICU & rehabilitation after ICU discharge

Books suggested

1. Chest Physiotherapy in Intensive Care Unit- Mackenzie, Williams & Wilkins, Baltimore
2. A Manual of Neonatal Intensive Care – Robert NRC, Edward Arnold, London 1986

Course Outcomes:

CO	STATEMENT (After completion of this course, student will be able to)	Bloom's Level
CO1	Integrate the knowledge gained by the students in clinical cardio respiratory conditions with skills gained in exercise therapy electrotherapy and massage, thus enabling them to apply these in clinical situations of dysfunction due to cardio respiratory pathology.	L2
CO2	Use physiotherapeutic measures as preventive / restorative Rehabilitative purposes for pulmonary / cardiac patients.	L2
CO3	Identify cardio-respiratory dysfunction, set treatment goals and apply their skills in exercise therapy, electrotherapy and massage in clinical situation to restore cardio-respiratory function	L3
CO4	The ability to evaluate and synthesis research and professional literature and apply this• information.	L6
CO5	Education of patients, caregivers and health professionals, consultancy and advocacy; Goal setting, self evaluation and reflective practice.	L5

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & OPD
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	L2	M	M	M	M	L	M	M	L
CO2	L2	M	M	M	L	L	M	M	M
CO3	L3	M	M	M	M	M	M	H	H
CO4	L6	H	H	H	H	H	H	H	H
CO5	L5	H	H	H	H	H	H	H	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3
CD2	Tutorials/Assignments	CO1,CO2,CO3,CO4
CD3	Hospital & OPD	CO1, CO4,CO5
CD4	Self- learning advice using internets	CO1,CO2,CO3,CO5

Specialization in women's health
Assessment & Evaluation in OBS & Gynecological conditions
MPT 202 E

Course Objectives:

- To gain knowledge of early pregnancy complications/high risk pregnancies , advanced maternal age and chromosomal abnormalities
- To assess and evaluate various gynecological conditions

Course Content:

Unit –I: Overview of Female Anatomy

1. General female anatomy
   - The female pelvis
   - Biomechanics of the female pelvis
2. Antenatal period
   - Routine assessment
   - Evaluation of maternal musculoskeletal disorders
3. Assessment during labor
4. History and examination in Obstetrics
5. History and examination in Gynaecology
6. Evaluation of Obstetrics and Gynaecological conditions

Unit-II:

1. Intrapartum fetal monitoring
2. Fetal distress
3. Shock in Obstetrics
4. Acute renal failure in obstetrics
5. Blood coagulation disorder in obstetrics
6. High risk pregnancy
7. Medical legal aspects in obstetrics
8. Diagnostic procedure in gynaecology and obstetrics

Unit-III:

1. Postnatal period
   - Routine Assessment
   - Evaluation of postnatal problems
2. Pelvic floor assessment
   - Measurement of pelvic floor muscle function and strength and pelvic organ Prolapse

Unit-IV:

1. Assessment of pelvic pain
2. Bladder and bowel dysfunction
   a. Assessment of urinary dysfunction
   b. Assessment of urinary incontinence in neurologically impaired patients
   c. Physiotherapy assessment for fecal incontinence and bowel dysfunction

Unit-V:

1. Pre and post operative assessment for gynaecological surgery
2. Assessment of lymphodema and osteoporosis

CO	STATEMENT (After completion of this course, student will be able to)	Bloom's Level
CO1	understanding of general anatomy of females population in the Community	L2
CO2	understanding of general anatomy of females population in the Community	L2
CO3	To learn about the various medical and surgical procedures involved in child bearing age.	L3
CO4	managing the antenatal and postnatal cases and plan their physiotherapy management.	L6
CO5	various gynaecology conditions and the role of physiotherapy in these conditions.	L5

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & assignment.
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	L2	M	M	M	M	L	M	M	L
CO2	L2	M	M	M	L	L	M	M	M
CO3	L3	M	M	M	M	M	M	H	H
CO4	L6	H	H	H	H	H	H	H	H
CO5	L5	H	H	H	H	H	H	H	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3
CD2	Tutorials/Assignments	CO1,CO2,CO3,CO4
CD3	Hospital & OPD	CO1, CO4,CO5
CD4	Self- learning advice using internets	CO1,CO2,CO3,CO5

Physiotherapy & Rehabilitation in OBS & Gynecological conditions
MPT 203 E

Course objectives:

- To gain knowledge of early pregnancy complications.
- To provide antenatal and post natal physiotherapy

Course Content:

Unit-I: Antenatal Period unit

1. Antenatal care
2. Antenatal education
3. Pre conceptual care
4. Diet and weight gain
5. Planning and leading labor and parent craft classes
6. Antenatal complications
7. High risk pregnancy
8. Urinary dysfunction during pregnancy
9. Adaptation of mother following musculoskeletal changes during pregnancy.

Unit-II:

1. Antenatal classes, Aerobic and Anaerobic training,Swiss ball in Pregnancy, Weight training in Pregnancy.
2. Electrotherapy modalities in obstetrics & Gynaecological conditions, Bio feed back.
3. Physiotherapy in labour, Relaxation Techniques, Perineal massage.
4. Episiotomy and its PT management.
5. Vaginal cones, Perineometer, Bladder training.

Unit-III:

1. Role of physiotherapy in healthy pregnancy, Exercises during different trimesters of pregnancy and its significance
2. Lymphoedema and physiotherapy management.
3. Labour: Stages and mechanism of labour, Complication in labour, Types of assisted deliveries, Caesarean section, High – risk Pregnancies,Various modalities & techniques for reducing labour pain.
4. Changes after delivery & role of post natal exercises

5. Psychological and emotional changes with the demands of new born (Maternity blues, post natal depression etc.). Conditioning exercises, Breathing exercises, Maintenance of posture during pregnancy and breast feeding.
6. Management of common problem in Antenatal period: Physiotherapy management of oedema in Pregnancy & Gestational Varicosity, Gestational Diabetes Mellitus and High risk Pregnancy.

Unit-IV:

1. Assessment of pelvic floor muscles and exercises, internal evaluation of PFM (Pelvic Floor Muscles) Grading, indication and contraindication. MMT, Perinometer.
2. Adolescent and the musculoskeletal system. Diet and Exercise for the adolescent.

Unit-V:

1. Physiotherapy rehabilitation in Gynaecological infections, Pelvic inflammatory diseases, Diseases of the vulva, Diseases of the vagina.
2. Physiotherapy rehabilitation in Disorders of the ovary: Cyst and new growth in reproductive system, Endometriosis, Polycystic ovarian syndrome. (PCOS)
3. Physiotherapy rehabilitation in Chronic pelvic pain, Infertility, Menstrual abnormalities/ Disorders of menstruation, Contraception and family planning
4. Physiotherapy rehabilitation in Urogynaecology; Diseases of the urinary system – Urinary dysfunction, Bowel and anorectal function and dysfunction.
5. Physiotherapy rehabilitation in Disorders and diseases of uterus (prolapse, displacement, fibromyomas)
6. Physiotherapy rehabilitation in Gynaecological surgeries, Puerperal sterilization, Abortion and its types.

CO	STATEMENT (After completion of this course, student will be able to)	Bloom's Level
CO1	To obtain knowledge, expertise and skills towards the Physiotherapy interventions in Women's health in improvement of professionalpra ctice	L2
CO2	To understand the role of Physiotherapy for various women's healthdisorders	L2
CO3	To understand or knowledge about the various Physiotherapy interventions in child bearing age	L3
CO4	To understandthe effective strategies for clinical management of various conditions in older women's.	L6
CO5	Educate patients regarding the prevention and post-operative care after gynecological surgeries	L5

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & assignment.
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	L2	M	M	M	M	L	M	M	L
CO2	L2	M	M	M	L	L	M	M	M
CO3	L3	M	M	M	M	M	M	H	H
CO4	L6	H	H	H	H	H	H	H	H
CO5	L5	H	H	H	H	H	H	H	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3
CD2	Tutorials/Assignments	CO1,CO2,CO3,CO4
CD3	Hospital & OPD	CO1, CO4,CO5
CD4	Self- learning advice using internets	CO1,CO2,CO3,CO5

Current Concepts in OBS & Gynecological Physiotherapy
MPT 204 E

Course Objective:

- Demonstrate competence in patient assessment, assigning priorities to new problems presented and weighing the relevance of the information obtained.
- Be able to present a succinct history in verbal and/or written form.
- Be capable of developing a differential diagnosis from history and physical examination.

Content:

Unit-I:
1. Women Health & fitness: Aerobics, Pilates, Ti-Chi, Yoga-meditation, Zumba etc.
2. Active Pelvic floor muscle exercises.
3. Impairment of Pelvic floor muscles and its PT management.
4. Levator ani syndrome, coccydynia and its PT management

Unit-II:
1. Vulvodynia, vaginismus, anismus and its PT management.
2. Dyspareunia and its PT management.
3. Pre and post Physiotherapy management for Gynaecological Surgeries.

Unit-III:
1. Gastation tropoblastic disease
2. Intra uterine devices
3. Water birth
4. PIH and eclampsia
5. Puererium and its physiological changes

Unit-IV:
1. Osteoporosis: Role of Physiotherapy.
2. Electrotherapy options for the perinatal period and beyond. 40- 60 yrs olds.
3. Women in workplace: Ergonomic control of musculoskeletal injuries.
4. Operative intervention in Obstetrics (Episiotomy, perineal care, caesarian section, types of delivery, Ruptured uterus, injury to the cervix, Symphysiotomy).
5. Carcinomas of female reproduction organs & Physiotherapy management.

Unit-V:
1. Diastasis recti & PT management of diastasis recti, other hernia like femoral hernia.
2. Breast milk, its advantages, Breast feeding positions, Common problem in Breast feeding,
3. Breast engorgement and its PT management, Types of nipples and its problems.

Books

1. Physiotherapy in Obstetrics and Gynaecology: Margaret Polden Jill Mantle- Jaypee
2. Textbook of Physiotherapy for Obstetric and Gynecological Conditions: Madhuri – Jaypee
3. Role Of Physiotherapist In Obstetric And Gynecological Conditions : Changela Purvi K - Jay Pee
4. Physiotherapy in Obstetrics and Gynaecology, 2nd Edition; Jill Mantle Jeanette Haslam Sue Barton- Butterworth-Heinemann
5. Text book of Obstetrics – D.C. Dutta
6. Obstetrics by ten teachers – Stuart Campbell
7. Obstetrics and Gynaecology – Lawrence Impey
8. Shaw's text book of Gynaecology – V.G. Padubidri
9. Novak's Gynaecology – Johnathan.S.Berek
10. Women's Health: A Textbook for physiotherapists- Ruth Sapsford

CO	STATEMENT (After completion of this course, student will be able to)	Bloom's Level
CO1	An understanding of general anatomy of females population in the Community.	L2
CO2	To learn about various gynaecological conditions in obstetric populations	L2
CO3	To learn about the various medical and surgical procedures of the following associated conditions.	L3
CO4	. To learn about the various medical and surgical procedures involved in child bearing age.	L6
CO5	In the end student will learn about various gynaecology conditions and the role of physiotherapy in these conditions.	L5

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & assignment.
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	L2	M	M	M	M	L	M	M	L
CO2	L2	M	M	M	L	L	M	M	M
CO3	L3	M	M	M	M	M	M	H	H
CO4	L6	H	H	H	H	H	H	H	H
CO5	L5	H	H	H	H	H	H	H	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3
CD2	Tutorials/Assignments	CO1,CO2,CO3,CO4
CD3	Hospital & OPD	CO1, CO4,CO5
CD4	Self- learning advice using internets	CO1,CO2,CO3,CO5

SPECIALIZATION IN PEDIATRIC PHYSIOTHERAPY

Assessment & Evaluation in Pediatric Conditions
MPT 202F

Course Objective:

- To understand sign and symptoms of pediatric disorders.
- Demonstrate competence in patient assessment, assigning priorities to new problems presented and weighing the relevance of the information obtained.

Course Content:

Unit-I:

General pediatric assessment of child.
To evaluate &assessment of Delayed milestone condition.
To evaluate & assessment of cerebral palsy.
To evaluate &assessment of mental retardation.

Unit-II:

How to evaluate & assist in condition of abnormal growth & development.
How to evaluate & assist in condtion if autism.
How to evaluate & assessment of down syndrome .
How to evaluate & assessment pediatric musculo skeletal condtion.

Unit-III:

To evaluate & assessment pediatric cardio vascular & pulmonary condition
To evaluate & assessment of congenital anamolies
To evaluate & assessment of Marfans syndrome.
To evaluate & assessment of GBS.
To evaluate & assessment of epileptic disorder

Unit-IV:

To evaluate & assessment of poliomyelitis
To evaluate & assessment of encephalopathic conditions.
To evaluate & assessment of muscular atrophy .
To evaluate & assessment of movement disorder

Unit-V:

Nutritional evaluation& dietary management
Evaluation & asseement of nutritional deficinces
To evaluate the nutritional management of LOW BIRTH WEIGHT
To evaluate & assessment of NICU & PICU care condition

CO	STATEMENT (After completion of this course, student will be able to)	Bloom's Level
CO1	Asses and diagnose all possible findings on the patient to plan a Rehabilitation programme.	L2
CO2	Document patients with scale, out come measures, electro diagnostic procedures and asses the progression.	L2
CO3	Use recent Technique/ approaches to treat & train children with Neurological, Orthopaedic & Cardiorespiratory deficit .	L3
CO4	Be able to impart knowledge for training the post graduate students.	L6
CO5	In the end student will learn about various pediatric conditions and the role of physiotherapy in these conditions.	L5

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & assignment.
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	L2	M	M	M	M	L	M	M	L
CO2	L2	M	M	M	L	L	M	M	M
CO3	L3	M	M	M	M	M	M	H	H
CO4	L6	H	H	H	H	H	H	H	H
CO5	L5	H	H	H	H	H	H	H	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3
CD2	Tutorials/Assignments	CO1,CO2,CO3,CO4
CD3	Hospital & OPD	CO1, CO4,CO5
CD4	Self- learning advice using internets	CO1,CO2,CO3,CO5

Physiotherapy & Rehabilitation in Pediatric Conditions
MPT203F

Course Objective:

- To understand physiotherapy rehabilitation of pediatric disorders
- Demonstrate an understanding of behavior and child development, and its impact on health and illness.
- Demonstrate the skills necessary to perform a complete and accurate pediatric history including prenatal, birth, developmental, dietary, immunization, and psychosocial histories.

Course Content:

Unit-I:

Cerebral palsy
Autism
Delayed milestone
Mental retardation
Encephaliatis

Unit-II:

Gullians barrie syndrome
Down syndrome
Marfans syndrome
Attention deficit syndrome
Asperger syndrome

Unit-III:

CTEV
Adolescent idiopathic scoliosis and back pain
Atypical club foot
Annualar ligament

Unit-IV:

Traumatic injuries
Amputataion
Rheumatic heart diseases
Child abuse
Childhood obesity

Unit-V:

Respiratory disorders in neonates
Neonatal ICU care.
Infective conditions of musculoskeletal

CO	STATEMENT (After completion of this course, student will be able to)	Bloom's Level
CO1	Asses and diagnose all possible findings on the patient to plan a Rehabilitation programme.	L2
CO2	Document patients with scale, out come measures, electro diagnostic procedures and asses the progression.	L2
CO3	Use recent Technique/ approaches to treat & train children with Neurological, Orthopaedic &Cardiorespiratory deficit .	L3
CO4	Be able to impart knowledge for training the post graduate students.	L6
CO5	In the end student will learn about various pediatric conditions and the role of physiotherapy in these conditions.	L5

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & assignment.
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	L2	M	M	M	M	L	M	M	L
CO2	L2	M	M	M	L	L	M	M	M
CO3	L3	M	M	M	M	M	M	H	H
CO4	L6	H	H	H	H	H	H	H	H
CO5	L5	H	H	H	H	H	H	H	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3
CD2	Tutorials/Assignments	CO1,CO2,CO3,CO4
CD3	Hospital & OPD	CO1, CO4,CO5
CD4	Self- learning advice using internets	CO1,CO2,CO3,CO5

Current Concepts in Pediatric Physiotherapy
MPT 204F

Course Objective:

- To understand various techniques .
- Demonstrate an understanding of behavior and child development, and its impact on health and illness.
- Demonstrate the skills necessary to perform a complete and accurate pediatric history including prenatal, birth, developmental, dietary, immunization, and psychosocial histories.

Course Content:

Unit-I: Treatment planning process:
Classification of treatment techniques based on current concepts & approaches.
All types of strengthening techniques.
Overview and their treatment, with emphasis on recording and documentation.
Therapeutic exercises use Pediatrics disorders.

Unit-II: Special Pediatric Approaches and Their Concept:
Neurodevelopment Approach,
Brunnstrom's Approach,
PNF Approach,
MRP and Inhibition & facilitation techniques.
Modified CIMT.

Unit-III: Advanced Neuro-therapeutic techniques:
Muscle Energy Techniques (MET) Reflexology,
Cranio-sacral therapy,
Motor learning Theories – Concept, Therapeutic, Positional.
Myofacial release techniques
Biofeedback,

Unit-IV: Methods For Optimizing Neuromuscular & Postural Control : Proprioception Training And Kinesthetic Training (Sensory Integration),
Problem Solving Approach,
Motor Control,
Clinical Decision Making And Clinical Reasoning,
Evidence Based Practice.

Unit-V: Play therapy
Speech therapy

CO	STATEMENT (After completion of this course, student will be able to)	Bloom's Level
CO1	Asses and diagnose all possible findings on the patient to plan a Rehabilitation programme.	L2
CO2	Document patients with scale, out come measures, electro diagnostic procedures and asses the progression.	L2
CO3	Use recent Technique/ approaches to treat & train children with Neurological, Orthopaedic &Cardiorespiratory deficit .	L3
CO4	Be able to impart knowledge for training the post graduate students.	L6
CO5	In the end student will learn about various pediatric conditions and the role of physiotherapy in these conditions.	L5

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & assignment.
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	L2	M	M	M	M	L	M	M	L
CO2	L2	M	M	M	L	L	M	M	M
CO3	L3	M	M	M	M	M	M	H	H
CO4	L6	H	H	H	H	H	H	H	H
CO5	L5	H	H	H	H	H	H	H	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3
CD2	Tutorials/Assignments	CO1,CO2,CO3,CO4
CD3	Hospital & OPD	CO1, CO4,CO5
CD4	Self- learning advice using internets	CO1,CO2,CO3,CO5

DUAL SPECIALIZATION IN MPT

SPECIALIZATION IN MUSCULOSKELETAL-SPORTS											
MPT 202 G	Assessment & evaluation in orthopedic and sports physiotherapy	CORE	100	30	70	100	30	70	4	3	7 X2
MPT203G	Physiotherapy & rehabilitation in orthopedic conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT204G	Current Concepts in Ortho & sports Physiotherapy	CORE	100	30	70	100	30	70	4	3	7 X2
MPT205 G	Physiotherapy & rehabilitation in sports	CORE	100	30	70	100	30	70	4	3	7 X2
SPECIALIZATION IN NEUROLOGY-PEDIATRICS											
MPT202H	Assessment & evaluation in neurological & Pediatric conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT203H	Physiotherapy & rehabilitation in neurological conditions	CORE	100	30	70	100	30	70	4	3	7 X2
MPT204H	Current Concept in Neuro-pediatric Physiotherapy	CORE	100	30	70	100	30	70	4	3	7 X2
MPT205H	Physiotherapy & rehabilitation in pediatric conditions	CORE	100	30	70	100	30	70	4	3	7 X2
											Total -82

DUAL SPECIALIZATION IN MPT
Assessment & Evaluation in Orthopedic and Sports Physiotherapy
MPT202G

Course Objective:

- To understand human anatomy and physiology of skeletal system
- To evaluate, assess and examine the musculoskeletal conditions and sports injuries.
- To understand different surgeries for musculoskeletal system in different conditions.
- To learn how to manage non traumatic medical condition in athlete.

Course Content:

Unit-I: Fracture and soft tissue injuries of upper limb : Shoulder and arm, Elbow and forearm, Wrist and hand
Fracture and soft tissue injuries of lower limb : Pelvis, Hip and thigh, Knee and leg, Ankle and foot

Unit-II: Method of different types of some common surgeries and its rehabilitation.
Menisectomy, Patellectomy, Arthroplasty :-Shoulder, Elbow, Hip, Knee Arthroplasty.
Arthrodesis :- triple arthrodesis, Hip, Knee, Shoulder Elbow arthrodesis, Spinal Fusion , Osteotomy, Bone grafting, Bone Lengthening, Tendon transfers , Soft Tissue release ,Nerve Repair and grafting etc.

Unit-III: Burns
Amputation:Types, Levels & procedures
i. Pre and post operative rehabilitation.
ii. Prosthesis and stump care.
iii. Limb transplantation Surgery

Unit-IV: Illness
I. Hypertension
II. Urine abnormalities
III. Exercise Induced Asthma
IV. Anemia
V. Delayed onset muscle soreness (DOMS)
VI. Runner's high & Exercise addiction.
VII. G.I.T. Diseases
VIII. Exercises and congestive heart failure
IX. Exercise for Post coronary & bye pass patients
X. Exercise for diabetics

Diagnosis and management of skin conditions of Athletes
- Bacterial infections
- Fungal Infections
- Viral infections
- Boils
- Cellulites.

- AIDS in sports people.

Unit-V: Female Specific problems

1. Sports Amenorrhea.
2. Injury to female reproductive tract.
3. Menstrual Synchrony.
4. Sex determination.
5. Exercise and pregnancy.
6. Eating disorders in athletes

Common Infectious disease:

1. Common Cold
2. Diarrhea
3. Dysentery
4. Typhoid
5. Cholera
6. Amoebiasis
7. Food Poisoning
8. Tuberculosis
9. Malaria
10. Hepatitis
11. Venereal disease etc

Books suggested:

1. Morris B. Mellion: Office Sports Medicine, Hanley & Belfus.
2. Richard B. Birrer: Sports Medicine for the primary care Physician, CRC Press.
3. Torg, Welsh & Shephard: Current Therapy in Sports Medicine III - Mosby.
4. Zulunga et al: Sports Physiotherapy, W.B. Saunders.
5. Brukner and Khan: Clinical Sports Medicine, McGraw Hill.
6. Reed: Sports Injuries – Assessment and Rehabilitation, W.B. Saunders.
7. Gould: Orthopedic Sports Physical Therapy, Mosby.
8. C. Norris: Sports Injuries – Diagnosis and Management for Physiotherapists, Heinmann.
9. D. Kulund: The Injured Athlete, Lippincott.
10. Turek's Orthopedics: Principles and their Application, Weinstein SL and Buckwalter JA, Lippincott
11. Apley's System of Orthopedics and Fractures, Louis Solomon , Arnold publishers.
12 Textbook of Orthopedics for Fractures, Adams: Churchill Livingston
13. Clinical Orthopedic Rehabilitation, Brent Brotzman.
14. Tidy's Physiotherapy, Ann Thomasons,Varghese publishing House.
15 Textbook of Orthopedics, John Ebnezar, Japee Brothers.
16 Treatment and Rehabilitation of fractures,S Hoppenfield, Vasantha LM;Lippincott William and Wilkins..
17 Essentials of Orthopaedics and Applied Physiotherapy, Jayant Joshi,prakash Kotwal; Churchill Livingstone

Course Outcomes:

After the end of the course, the student will be able to

CO1: Understand the basic sciences and their integration with musculoskeletal physiotherapy clinical practice.(Bloom's Level-L2)

CO2: Apply sound theoretical and practical knowledge and understanding of musculoskeletal system.(Bloom's Level-L3)

CO3: Perform an appropriate subjective and physical examination.(Bloom's Level-L3)

CO4: Use suitable analytical skills to evaluate data obtained.(Bloom's level-L3)

CO5: Plan and execute physiotherapy treatment in musculoskeletal system.(Bloom's Level-L5)

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & assignment.
CD4	Self- learning advice using internets

Mapping Of Course Outcomes Onto Program Outcomes

Course Outcome	**Bloom's Level**	**Po1**	**Po2**	**Po3**	**Po4**	**Po5**	**Po6**	**Po7**	**Po8**
Co1	L2	H	H	H	M	L	M	L	L
Co2	L3	H	M	H	H	M	M	L	M
Co3	L3	M	H	L	H	H	M	L	M
Co4	L3	M	M	H	H	L	L	-	L
Co5	L5	M	H	H	M	H	L	-	M

H- High, M- Moderate, L- Low, '-' For No Correlation

Mapping Between CO and CD

Cd	**Course Delivery Methods**	**Course Outcomes**
Cd1	Lecture By Use Of Boards/Lcd Projectors/Ohp Projectors	Co1, Co2, Co3,Co4
Cd2	Tutorials/Assignments	Co1
Cd3	Hospital & Opd	Co1, Co2,Co5
Cd4	Self- Learning Advice Using Internets	Co1

Physiotherapy & Rehabilitation in Orthopedic Conditions
MPT 203G

Course Objective:

- To understand human anatomy and physiology of vertebrae
- To evaluate, assess and examine the spinal conditions
- To understand different surgeries for spine.

Course Content:

Unit-I:

I. Review of anatomy and pathomechanics of vertebral column
II. Application of advance techniques like Maitland, McKenzie, Mulligan
III. Principles of management
IV. Congenital disorders of vertebral column.
V. Congenital and Acquired deformities
VI. Ergonomics

Unit-II: Non traumatic disorders of vertebral column

I. Degenerative
II. Infections
III. Inflammatory
IV. Spinal instabilities

Unit-III: Traumatic injuries of vertebral column: General & regional injuries, Soft tissue injuries, tightness, structural changes, Bone injuries (fractures & dislocations of spine)**,**pre and post operative management of spinal surgeries.

Unit-IV: Spinal cord injuries

Types, Classifications
Pathology
Level
Examination
Management & rehabilitation
Orthopedic surgeries
Pre & post operative rehabilitation

Unit-V: Bio engineering appliances & support devices

Books suggested:

25. Turek's Orthopaedics: Principles and their Application, Weinstein SL and Buckwalter JA, Lippincott
26. Apley's System of Orthopaedics and Fractures, Louis Solomon , Arnold publishers.
27. Textbook of Orthopaedics, Adams: Churchill Livingstone
28. Clinical Orthopaedic Rehabilitation, Brent Brotzman.
29. Orthopaedic Physiotherapy, Robert A Donatelli, Churchill Livingstone.
30. Tidy's Physiotherapy, Ann Thomasons,Varghese publishing House.
31. Physical Rehabilitation Assessment and Treatment, Susan Sullivan, Japee brothers
32. Textbook of Orthopaedics, John Ebnezar, Japee Brothers.
33. Pain Series Rene Calliet., Japee Brothers.
34. Essentials of Orthopaedics and Applied Physiotherapy, Jayant Joshi,prakash Kotwal;

Course Outcomes:

After the end of the course, the student will be able to

CO1: Understand of the basic sciences and their integration with spinal conditions. (Bloom's Level-L2)

CO2: Apply theoretical and practical knowledge and understanding vertebral system. (Bloom's Level-L2)

CO3: Perform an appropriate subjective and physical examination of spinal conditions. (Bloom's Level-L3)

CO4: Use suitable analytical skills to evaluate data obtained. (Bloom's level-L3)

CO5: Plan and execute physiotherapy treatment in spinal disorders. (Bloom's Level-L5)

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & assignment.
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	**Bloom's Level**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
CO1	L2	L	H	H	M	L	M	L	L
CO2	L2	H	M	H	H	M	M	L	M
CO3	L3	M	H	L	H	H	M	L	M
CO4	L3	M	M	H	H	L	L	-	L
CO5	L5	M	H	H	M	H	L	-	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	**Course Delivery methods**	**Course Outcomes**
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3
CD2	Tutorials/Assignments	CO1
CD3	Hospital & OPD	CO3,CO4,CO5
CD4	Self- learning advice using internets	CO1

Current Concepts in Ortho & Sports Physiotherapy
MPT204G

Course Objectives

- To diagnose, evaluate and assess musculoskeletal system through different techniques
- To understand different techniques used in management of physiotherapy treatment

Course Content:

Unit-I: Butler mobilization of nerves, Manual Therapy: Introduction, History, Basic Classification, Assessment for manipulation, discussion in brief about the concepts of mobilization like

I. Cyriax,
II. Maitland
III. Mulligan
IV. Myofasical Release: Concept & brief discussion of its application technique
V. Muscle Energy Techniques **and** Positional release technique

Unit-II: Body Composition & Weight Control:

I. Composition of human body
II. Somatotyping
III. Techniques of body composition analysis
IV. Obesity
V. Health risks of obesity
VI. Weight control

Unit-III: History and current status of Sports Psychology.

I. Personality Assessment and sports personality.
    1. Theories of personality
    2. Personality assessment
II. Attention and perception in sports.
    1. Attention
    2. Perception
III. Concentration training in sports.
    1. Basic principles of concentration
    2. Concentration training
    3. Concentration awareness exercises
IV. Motivational orientation in sports.
    1. Athlete's needs of motivation
    2. Motivational inhibitors
    3. Motivational techniques

Unit-IV: Pre-competitive anxiety.

1. Source of PCA
2. Effect of PCA on performance

Relaxation Training.

Aggression in sports.

1. Theories of aggression
2. Management of aggression

Role of Psychology in Dealing with injuries.

Goal setting

Unit-V: Psychological aspect of doping

I. Psychological preparation of elite athletes
   1. Concept of psychological preparation

II. Biofeedback training

III. Mental imagery

IV. Stress management
   1. Principles of Stress Management
   2. Stress Management technique.

Group Behavior and leadership.

Emotion

Books suggested:

11. Chest physiotherapy in the Intensive Care Unit,Colin F Meckengei, William and Wilkins.
12. Physical Rehabilitation Assessment and Treatment, Susan Sullivan, Japee brothers
13. Muscle Energy Technique, Leon chaitow,Churchill Livingstone.
14. Maitland's vertebral Manipulation, GD Maitland, Butterworth Heinemann.
15. Textbook of Orthopaedic Medicine James Cyriax, AITBS Publishers.
16. Cyriax's Illustrated Manual of Orthopaedic Medicine, JH Cyriax, Butterworth
17. Peripheral Manipulation, GD Maitland, Butterworth Heinemann.
18. Position Release Technique, Leon chaitow,Churchill Livingstone.
19. Manual Therapy, Brain Mulligan.
20. Butler Neural mobilization, Butler

Course Outcomes:

After the end of the course, the student will be able to

CO1: Understand the current concepts in musculoskeletal physiotherapy.(Bloom's Level-L2)

CO2: Understand theoretical and practical k n o w l e d g e and understanding of pain management in musculoskeletal system.(Bloom's Level-L2)

CO3: Perform an appropriate subjective and physical examination in order to apply various treatment technique.(Bloom's level-L3)

CO4: Apply soft tissue release technique to treat conditions.(Bloom's Level-L3)

CO5: Execute techniques of body composition analysis.(Bloom's level-L5)

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & OPD
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	**Bloom's Level**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
CO1	L2	H	H	H	M	M	M	L	M
CO2	L2	H	H	H	H	M	M	M	H
CO3	L3	M	H	L	M	M	M	L	M
CO4	L3	M	H	L	H	L	M	-	L
CO5	L5	M	H	H	M	H	L	-	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	**Course Delivery methods**	**Course Outcomes**
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2
CD2	Tutorials/Assignments	CO1,CO2
CD3	Hospital & OPD	CO3,CO4,CO5
CD4	Self- learning advice using internets	CO1,CO2

Physiotherapy & Rehabilitation in Sports
MPT205 G

Corse Objective:

- To understand new concept in sports physiotherapy.
- To understand exercise for special categories of athlete.
- To identify the proper equipment and assistive device for the athlete.

Course Content:

Unit-I: Exercise and Common Pulmonary Conditions
Exercise induced bronchial obstruction
Exercise in chronic airway obstruction
Air pollution and exercise
Exercise and Cardiac Conditions
Exercise prescription for heart disease
Exercise in primary prevention in ischemic heart disease
Exercise for secondary prevention of ischemic heart disease
Diabetes and Exercise
Exercise in diabetic patients
Exercise as a method of control of diabetes.

Unit-II: Protective equipments design of shoe safety factors in equipment.
Special concerns for handicapped athletes
Disability sports, Paralympics

Unit-III: Exercises for special categories
Child and adolescent athlete's problems
Special problems of older athletes
Sports and exercise programme for geriatrics and rheumatic population

Unit-IV: Doping in Sports
IOC prohibited drugs- groups and classifications
IOC rules and regulations on doping in sports hazards of prohibited substances.

Unit-V: Identification of talent for sports –
Meaning and its importance
Detailed procedure for screening and identification of sports talent
Prediction of adult potentials at the young age.

Books suggested :

1. Morris B. Mellion: Office Sports Medicine, Hanley & Belfus.
2. Richard B. Birrer: Sports Medicine for the primary care Physician, CRC Press.
3. Torg, Welsh & Shephard: Current Therapy in Sports Medicine III - Mosby.
4. Zulunga et al: Sports Physiotherapy, W.B. Saunders.
5. Brukner and Khan: Clinical Sports Medicine, McGraw Hill.
6. Reed: Sports Injuries – Assessment and Rehabilitation, W.B. Saunders.
7. Gould: Orthopaedic Sports Physical Therapy, Mosby.
8. C. Norris: Sports Injuries – Diagnosis and Management for Physiotherapists, Heinmann.
9. D. Kulund: The Injured Athlete, Lippincott.
10. Nicholas Hershman:
    Vol. I The Upper Extremity in Sports Medicine.
    Vol. II The Lower Extremity and Spine in Sports Medicine.
    Vol. III The Lower Extremity and Spine in Sports Medicine Mosby.
11. Lee & Dress: Orthopaedic Sports Medicine - W.B Saunders.
12. K. Park: Preventive and Social Medicine - Banarsi Dass Bhanot - Jabalpur..

Course Outcomes:

CO	STATEMENT (After completion of this course, student will be able to)	Bloom's Level
CO1	Understand the current concept of biomechanical assessment of sports and motor control in sports activities	L2
CO2	Understand the role of sports physiotherapist in the sports team training and competition setting and the value of communication in the Sports Medicine Team approach.	L2
CO3	Select specific screening and preventive conditioning programs for common sports and injuries	L3
CO4	Develop independent research publications and critically analyze already published articles.	L6
CO5	Evaluate evidence based treatment protocols and other relevant current concepts of treatment in the field of sports physiotherapy	L5

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & OPD
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	L2	M	M	M	M	L	M	M	L
CO2	L2	M	M	M	L	L	M	M	M
CO3	L3	M	M	M	M	M	M	H	H
CO4	L6	H	H	H	H	H	H	H	H
CO5	L5	H	H	H	H	H	H	H	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3
CD2	Tutorials/Assignments	CO1,CO2,CO3,CO4
CD3	Hospital & OPD	CO1, CO4,CO5
CD4	Self- learning advice using internets	CO1,CO2,CO3,CO5

Assessment & Evaluation in Neurological and Pediatric Conditions
MPT202H

Course Objectives:

- To learn different assessment strategies that can assist recovery of normal function from neurological dysfunction.
- To understand the conservative and surgical management of neurological condition as relevant to physiotherapy.
- To correlate the knowledge gained in understanding the neurological dysfunction.

Course Content:

Unit-I: Cerebral Trauma (Head and Brain Injury)

Epidemiology, Pathophysiology, Symptoms, Signs, Investigation, Management, Pre and Post Operative Physiotherapy, Complications.Closed skull Fractures.
Hematomas: Epidural, Sub Dural, Intracerebral
Open cranio-cerebral injuries,Reconstruction operation in head injuries
Stupor and Coma,The Neural basis of consciousness.
Lesions responsible for Stupor and Coma
The assessment and Investigation of the unconscious patient,The Management of the Unconscious patient.
Disorders of the Cerebral Circulation – Stroke, Neoplastic lesion -Intracranial Tumors,Cerebral Hemisphere ,Tumors from related structures, Meninges, Cranial Nerves,cerebellar
Cerebrovascular Diseases,Intracranial Aneurysm,Spontaneous Subdural ,Extradural Hemorrhage
Intracerebral Hemorrhage
Subarachnoid hemorrhage, AV Malformations

Unit-II: Infections-Meningitis,Encephalitis , Brain abscess
Neuro Syphilis(Tabes dorsalis)
Herpes Simplex
Chorea
Tuberculosis
Chronic fatigue syndrome
AIDS
Demyelinating Diseases of the Nervous system
Classification of Demyelinating Diseases
Multiple Sclerosis.
Diffuse Sclerosis
Movement disorders
Akinetic-rigidity Syndromes disorder and other extra Pyramidal Syndromes
Dyskinetic disorders

Unit-III: General pediatric assessment of child.
To evaluate &assessment of Delayed milestone condition.
To evaluate & assessment of cerebral palsy.
To evaluate &assessment of mental retardation.
How to evaluate & assist in condition of abnormal growth & development.
How to evaluate & assist in condtion if autism.
How to evaluate & assessment of down syndrome .
How to evaluate & assessment pediatric musculo skeletal condtion.

Unit-IV: To evaluate & assessment pediatric cardio vascular & pulmonary condition
To evaluate & assessment of congenital anamolies
To evaluate & assessment of Marfans syndrome.
To evaluate & assessment of GBS.
To evaluate & assessment of epileptic disorder
To evaluate & assessment of poliomyelitis
To evaluate & assessment of encephalopathic conditions.
To evaluate & assessment of muscular atrophy .
To evaluate & assessment of movement disorder

Unit-V: Nutritional evaluation& dietary management
Evaluation & asseement of nutritional deficinces
To evaluate the nutritional management of LOW BIRTH WEIGHT
To evaluate & assessment of NICU & PICU care condition

Course Outcome

After the end of the course, the student will be able to

CO1: Identify the diseases of brain.(Bloom's Level-3)

CO2: Differentiate the diagnose of the disease for brain.(Bloom's Level-L4)

CO3: Evaluate conditions and prescribe appropriate physiotherapy treatment.(Bloom's Level-L5)

CO4: Differentiate the various brain infections.(Bloom's level-L4)

CO5: Assessment and management of various disorders.(Bloom's Level-L5)

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & assignment.
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	**Bloom's Level**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
CO1	L3	H	H	H	M	M	M	L	L
CO2	L4	M	M	H	H	H	M	L	M
CO3	L5	M	H	L	H	H	M	H	H
CO4	L4	M	L	H	L	L	M	-	L
CO5	L5	M	H	H	M	H	M	H	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	**Course Delivery methods**	**Course Outcomes**
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3
CD2	Tutorials/Assignments	CO1
CD3	Hospital & OPD	CO1, CO2,CO3,CO4,CO5
CD4	Self- learning advice using internets	CO1,CO2

Physiotherapy & Rehabilitation in Neurological Conditions

MPT 203H

Course Objectives:

- To learn different physiotherapeutic strategies that can assist recovery of normal function from neurological dysfunction.
- To understand the conservative and surgical management of neurological condition as relevant to physiotherapy.
- To correlate the knowledge gained in understanding the neurological dysfunction.

Course Content:

Unit-I: Degenerative Diseases of the Spinal cord and Cauda Equina

Ataxia (sensory)
Motor Neuron Disease
Spinal Muscular Atrophy
Spino-cerebellar Degeneration (Friedreich's Ataxia)
Transverse Myelitis

Unit-II: Disorders / rehabilitation of the spinal cord & cauda equina

Acute Traumatic injuries of the spinal cord
Slow progressive compression of the spinal cord
Syringomyelia
Ischemia and infection of the Spinal Cord (Transverse myelitis) and Cauda Equina
Tumors of Spinal Cord
Surges surgical management in Spinal Cord

Unit-III: Disorders of peripheral nerves:

Peripheral neuropathies and peripheral nerve lesions
Clinical diagnosis of peripheral neuropathy
All types of levels of peripheral neuropathies and brachial plexus lesions
Causalgia
Reflex sympathetic dystrophy
Traumatic, Compressive and Ischemic neuropathy
Spinal Radiculitis and Radiculopathy
Hereditary motor and sensory neuropathy
Acute idiopathic polyneuritis
Neuropathy due to infections
Vasculomotor neuropathy
Neuropathy due to Systemic Medical Disorders
Drug induced neuropathy
Metal poisoning, Chemical neuropathies
Polyneuropathies:Acute,Subacute and Chronic level polyneuropathy
Surgeries on peripheral Nerves

Unit-IV: Disorders of muscles:

Muscular dystrophies of adulthood
The Myotonic disorders
Inflammatory disorders of muscle
Myasthenia gravis
Endocrine and metabolic myopathies
Duchene muscular dystrophy
Progressive muscular dystrophy.

Unit-V:

a) Deficiency & Nutritional Disorders, Deficiency of vitamins & related disorders, Other nutritional neuropathies
b) Disorders of Autonomic nervous system: Bladder and Bowel dysfunction,, Orthostatic hypotension, Autonomic dysreflexia, Autonomic Neuropathy.
c) Nervous system aging effects and Geriatric neurological disorders

Books suggested:

23. Cash's textbook of neurology for physiotherapists - Downi - J.P.Brothers.
24. Adult Hemiplegia - Evaluation & treatment - Bobath - Oxford Butterworth Heinmann.
25. Neurological Rehabilitation - Carr & Shephered -Butter worth Heinmann.
26. Tetraplegia & Paraplegeia - A guide for physiotherapist - Bromley – Churchill Livingston
27. Neurological Physiotherapy - A problem solving approach - Susan Edwards - Churchill Livingstone.
28. Neurological Rehabilitation - Umpherd - Mosby.
29. Geriatric Physical Therapy - Gucciona - Mosby.
30. Brunnstrom's Movement Therapy in Hemiplegia-Sawner&La Vigne-Lippincott
31. Treatment of Cerebral Palsy and Motor Delay-Sophie Levitt
32. Motor Relearning Programme for stroke-carr&Shepherd
33. Right in the Middle-Patricia M.Davies-Springer
34. Brain's Disease of the Nervous System - Nalton - ELBS.
35. Guided to clinical Neurology - Mohn & Gaectier - Churchill Livingstone.
36. Principles of Neurology - Victor - McGraw Hill lnternational edition.
37. Davidson's Principles and practices of medicine - Edward – Churchill Livingstone.
38. Physical Medicine & Rehabilitation-Susan Sullivan
39. Neurological Rehabilitation-Illus
40. Physical Medicine & Rehabilitation-Delsore
41. Assessment in Neurology-Dejong.
42. Differential Diagnosis-John PatternNeurology in Clinical Practice – Bradley&Daroff
43. Neurological Assessment-Blicker staff.
44. Steps to follow-PATRICIA M.DAVIES-Springer

Course Outcomes:

After the end of the course, the student will be able to

CO1: Formulate a rationalized physiotherapy plan for the patient.(Bloom's Level-L5)

CO2: Compare & contrast the outcome of various physiotherapy treatment approaches to rehabilitate patient.(Bloom's level-L5)

CO3: Implement necessary physiotherapy treatment, document the status of the patients as written records (Bloom's Level-L4).

CO4: Assess and manage peripheral nerve disorders.(Bloom's level-L5)

CO5: Differentiate nutritional deficiency disorders.(Bloom's level-L4)

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & assignment.
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	**Bloom's Level**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
CO1	L5	H	H	H	M	M	H	M	H
CO2	L5	H	H	M	H	M	M	M	M
CO3	L4	M	H	H	H	M	M	H	L
CO4	L5	M	H	H	M	H	M	L	M
CO5	L4	M	L	H	L	L	M	-	L

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	**Course Delivery methods**	**Course Outcomes**
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO3,CO5
CD2	Tutorials/Assignments	CO1
CD3	Hospital & OPD	CO1, CO2,CO3,CO4,CO5
CD4	Self- learning advice using internets	CO2,CO3

Current Concept in Neuro-Pediatric Physiotherapy

MPT 204H

Course Objectives:

- To understand the recent concepts in treatment of neurological conditions.

Course Content:

Unit-I: Treatment planning process:

Classification of treatment techniques based on current concepts & approaches.

All types of strengthening techniques.

Overview of Neurological Impairments and their treatment, with emphasis on recording and documentation.

Therapeutic exercises used in neurological disorders. Neuromuscular Training

Methods For Optimizing Neuromuscular & Postural Control : Proprioception Training And Kinesthetic Training (Sensory Integration),

Problem Solving Approach, Motor Control, Clinical Decision Making And Clinical Reasoning,

Evidence Based Practice.

Unit-II: Advanced Neuro-therapeutic techniques:

Muscle Energy Techniques (MET) Reflexology,

Cranio-sacral therapy,

Motor learning Theories – Concept, Therapeutic, Positional.

Myofacial release techniques

Biofeedback, Nerve mobilization (Concept): Butler concept.

Management of pain and Spasticity and paralysis in neurological disorders.

Unit-III: Special Neurological Approaches and Their Concept:

Neurodevelopment Approach,

Brunnstrom's Approach,

PNF Approach,

MRP and Inhibition & facilitation techniques.

Modified CIMT.

Electrotherapy in Neurological disorders.

Unit-IV: Therapeutic exercises use Pediatrics disorders.

Special Pediatric Approaches and Their Concept:

Advanced Neuro-therapeutic techniques:

Muscle Energy Techniques (MET) Reflexology,

Cranio-sacral therapy,

Motor learning Theories – Concept, Therapeutic, Positional.

Myofacial release techniques

Unit-V: Play therapy

Speech therapy

Books suggested:

22. Adult Hemiplegia - Evaluation & treatment - Bobath - Oxford Butterworth Heinmann.
23. Neurological Rehabilitation - Carr & Shephered -Butter worth Heinmann.
24. Tetraplegia & Paraplegeia - A guide for physiotherapist - Bromley - Churchill Livingstone.
25. Neurological Physiotherapy - A problem solving approach - Susan Edwards - Churchill Livingstone.
26. Neurological Rehabilitation - Umpherd - Mosby.
27. Geriatric Physical Therapy - Gucciona - Mosby.
28. Motor Assessment of Developing Infant - Piper & Darrah - W.E. Saunders.
29. Paediatric Physical Therapy - Teckling - Lippmcott
30. Treatmentof Cerebral Palsy and Motor Delay - Levins - Blackwell Scientific Publications London.
31. Physiotherapy in Paediatrics – Shephered – Butterworth Heinrnann
32. Brunnstrom's Movement Therapy in Hemiplegia-Sawner&La Vigne-Lippincott
33. Treatment of Cerebral Palsy and Motor Delay-Sophie Levitt
34. Motor Relearning Programme for stroke-carr&Shepherd
35. Right in the Middle-Patricia M.Davies-Springer
36. Physical Medicine & Rehabilitation-Susan Sullivan
37. Neurological Rehabilitation-Illus
38. Physical Medicine & Rehabilitation-Delsore
39. Differential Diagnosis-John PatternNeurology in Clinical Practice – Bradley&Daroff
40. Steps to follow-PATRICIA M.DAVIES-Springer
41. Muscle Energy Techniques-Chaitow-Churchill Living Stone
42. Clinical Evaluation of Muscle Function-Lacote- Churchill Living Stone

Course Outcomes:

After the end of the course, the student will be able to

CO1: Understand the changing knowledge base in neurology and pediatrics and the international context and sensitivities of the area.(Bloom's Level-L2)

CO2: Evaluate and synthesize research and professional literature and apply this information to clinical situation.(Bloom's Level -L5)

CO3: Articulate their knowledge, understanding and managing neurological patients.(Bloom's Level -L4)

CO4: Apply neurological approaches while treating a patient.(Bloom's Level-L3)

CO5: Understand the basic principles of various treatment techniques.(Bloom's Level-L2)

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & OPD
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	**Bloom's Level**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
CO1	L2	M	H	H	H	L	M	L	L
CO2	L5	M	M	H	H	M	M	M	M
CO3	L4	H	H	L	H	H	M	M	H
CO4	L3	M	H	M	L	L	L	-	-
CO5	L2	H	L	L	M	-	M	-	L

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	**Course Delivery methods**	**Course Outcomes**
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3,CO5
CD2	Tutorials/Assignments	CO1
CD3	Hospital & OPD	CO1, CO2,CO3,CO4
CD4	Self- learning advice using internets	CO1,CO2

Physiotherapy & Rehabilitation in Pediatrics Conditions
MPT 205H

Course Objectives:

To understand the recent concepts in treatment of Pediatric conditions

Course content

Unit-I:

Cerebral palsy
Autism
Delayed milestone
Mental retardation
Encephaliatis

Unit-II:

Gullians barrie syndrome
Down syndrome
Marfans syndrome
Attention deficit syndrome
Asperger syndrome

Unit-III:

CTEV
Adolescent idiopathic scoliosis and back pain
Atypical club foot
Annualar ligament

Unit-IV:

Traumatic injuries
Amputataion
Rheumatic heart diseases
Child abuse
Childhood obesity

Unit-V:

Respiratory disorders in neonates
Neonatal ICU care.
Infective conditions of musculoskeletal

Course Outcome:

CO	STATEMENT (After completion of this course, student will be able to)	Bloom's Level
CO1	Asses and diagnose all possible findings on the patient to plan a Rehabilitation programme.	L2
CO2	Document patients with scale, out come measures, electro diagnostic procedures and asses the progression.	L2
CO3	Use recent Technique/ approaches to treat & train children with Neurological, Orthopaedic &Cardiorespiratory deficit .	L3
CO4	Be able to impart knowledge for training the post graduate students.	L6
CO5	In the end student will learn about various pediatric conditions and the role of physiotherapy in these conditions.	L5

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & assignment.
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	L2	M	M	M	M	L	M	M	L
CO2	L2	M	M	M	L	L	M	M	M
CO3	L3	M	M	M	M	M	M	H	H
CO4	L6	H	H	H	H	H	H	H	H
CO5	L5	H	H	H	H	H	H	H	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3
CD2	Tutorials/Assignments	CO1,CO2,CO3,CO4
CD3	Hospital & OPD	CO1, CO4,CO5
CD4	Self- learning advice using internets	CO1,CO2,CO3,CO5

MPT 205: Major Project cum Dissertation

Course Objectives:

- To undertake a research study under the guidance of Guide.
- To undergo a project viva-voice by examining committee.

Course Outcomes:

CO	Statement (After completion of this course, student will be able to)	Bloom's Level
CO1	Demonstrate the skill to evaluate, diagnose (physical diagnosis) and manage subjects under supervision of a faculty.	L3
CO2	Demonstrate the records and relevant patient's information, treatment and follow up.	L3
CO3	Demonstrate skill and presentation of a patient under his/ her during clinical meetings.	L4

MPT 206: ANANDAM

Objectives:

- To instil the joy of giving in young people, turning them into responsible citizens to build up a better society.
- To inculcate the habit of service in students across the University.
- A compulsory course of 2 credits per semester to be included in each program of University.
- Students to be expected to engage in individual and group acts of service and goodness.

Action Plan:

Students will be expected to

- Do at least one act of individual service each day
- Record this act of service in a dedicated Register / Personal Diary
- Share this Register / Personal Diary day in the Anandam Class scheduled per week. The class interaction will include Personal Diary check, Showing of Community based motivation videos, Community based presentations by students, Role playing etc.
- Undertake one group service project for 64 hours every semester (outside college hours)
- Upload the report on the group project on the Anandam platform
- Participate in a sharing and presentation on the group service in the discussion sessions held once in week
- There will be some suggested projects and organizations that students can work with. Students can also suggest their own projects which others can join

Each student will finish the year with a portfolio of giving. This will include their Register / Personal Diaries and their reports on group service projects.

11. TEACHING-LEARNING PROCESS/ METHODOLOGY (TLM):

The teaching-learning process should be aimed at systematic exposition of basic concepts so as to acquire knowledge of physiotherapy in a canonical manner. In this. The various components of teaching learning process are summarized in the following heads.

1. **Class room Lectures:** The most common method of imparting knowledge is through lectures. There are diverse modes of delivering lectures such as through blackboard, power point presentation and other technology aided means. A judicious mix of these means is a key aspect of teaching-learning process.
2. **Tutorials:** To reinforce learning, to monitor progress, and to provide a regular pattern of study, tutorials are essential requirements. During these tutorials, difficulties faced by the students in understanding the lectures, are dealt with. Tutorials are also aimed at solving problems associated with the concepts discussed during the lectures.
3. **Practical:** To provide scientific visualization and obtaining results of Physiotherapy the practical sessions are conducted in exercise therapy and electrotherapy labs. These sessions provide vital insights into scientific concepts and draw learner's attention towards limitations of exercise therapy.
4. **Choice based learning/Open elective:** LOCF in this undergraduate programme provides great flexibility both in terms of variety of courses and range of references in each course.
5. **OPD AND HOSPITAL(FIELD BAISED LEARNING) :** Students may enhance their knowledge through rotatory clinical postings, medical camps and visits to special school.
6. **Textbooks learning:** A large number of books are included in the list of references of each course for enrichment and enhancement of knowledge.
7. **E-learning:** Learner may also access electronic resources and educational websites for better understanding and updating the concepts.
8. **Self-study materials:** Self-study material provided by the teachers is an integral part of learning. It helps in bridging the gaps in the classroom teaching. It also provides scope for teachers to give additional information beyond classroom learning.
9. **Assignment/Problem solving:** Assignments at regular intervals involving applications of theory are necessary to assimilate basic concepts of courses. Hence, it is incumbent on the part of a learner to complete open-ended projects assigned by the teacher
10. **WORKSHOP AND SEMINARS:** Workshop and seminar on recent trends in the field of physiotherapy are organized time to time to update with the current scenario.

Course Delivery Methods:

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Seminars & assignments
CD3	Hospital & assignment.
CD4	Self- learning advice using internets

Clinical learning opportunities imparted through the use of advanced techniques

Teaching modality	Learning opportunity examples
Patients	Teach and assess in selected clinical scenarios
	Practice soft skills
	Practice physical examination
	Receive feedback on performance
Mannequins	Perform acquired techniques
	Practice basic procedural skills
	Apply basic science understanding to clinical problem solving
Simulators	Practice teamwork and leadership
	Perform cardiac and pulmonary care skills
	Apply basic science understanding to clinical problem solving
Task under trainers	As specific to the physiotherapy profession. Joint manipulation, chest physiotherapy etc.

12. ASSESSMENT AND OUTCOME MESUAREMENT METHODS (AOMM):

A range of assessment methods which are appropriate to test the understanding of various concepts of courses will be used. Various learning outcomes will be assessed using time-bound examinations, problem solving, assignments and viva-voce examination. For various courses in this programme, the following assessment methods shall be adopted:

I. Scheduled/unscheduled tests
II. Problem solving sessions aligned with classroom lectures
III. Mid semester examination and semester end comprehensive examination
IV. Mini Case Evaluation Exercise
V. Case-based discussion
VI. Direct observation of procedures
VII. Multi-source feedback
VIII. Patient satisfaction questionnaire

Examination and Evaluation:

I. The medium of instructions and examination shall be English.
II. Candidates shall be examined according to the scheme of examination and syllabus as approved by the BOS and Academic Council from time to time.
III. To pass each semester examination, a candidate must obtain at least 50% marks in each written paper, practical work semester examination.
IV. Each theory paper for the respective semester examination shall be set and evaluation of the answer books shall be done as per the University rules.

V. The assessment of External Evaluation i.e. End Term Semester Examination will be made out of 70 (Seventy) marks in theory Papers and Internal Evaluation of 30 (Thirty) marks.

Criterion for awarding Grading System:

Criterion for Awarding AGPA and CGPA: The criterion for awarding the Annual Grade Point Average (AGPA) and Cumulative Grade Point Average (CGPA) for MPT degree shall be as follows:

a) The criterion for passing in a subject is that a student should secure minimum 40% marks in individual paper.

b) A student obtaining less than pass marks as specified above, in each subject (sum of internal and End-Term examinations) he will be declared fail in that subject and will have to re-appear in a End-Term examination of the course in subsequent odd / even semester end term examination, subject to maximum permissible period of n+4 semesters to complete the course.

c) The University has adopted Absolute Grading System for converting marks into grades. The formula of 10- point grading system for conversion of marks obtained into Letter Grades and converting Letter Grades to Grade Point is given below:

Table: Marks, Letter Grades and Grade Points

Marks	Letter Grade	Grade Points
90-100	O (Outstanding)	10
80-90	A+(Excellent)	9
70-80	A(Very Good)	8
60-70	B+(Good)	7
50-60	B(Above Average)	6
0-49	F (Fail)*	0
-	AB (Absent)	0

***Pass Mark: 50% in individual paper**

d) The criterion for passing in a subject is that a student should secure minimum 50% marks in individual paper.

e) While converting the marks into Letter Grade, the rounding off marks must be considered.

f) A student obtaining Grade F shall be considered failed and will be required to reappear in the examination.

g) For noncredit courses "Satisfactory" or Unsatisfactory" shall be indicated instead of the letter grade and this will not be counted for the computation of AGPA/CGPA.

Computation of AGPA and CGPA:

The university has adopted UGC recommended procedure for computation of Annual Grade Point Average (AGPA) and Cumulative Grade Point Average (CGPA)

a) The AGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the papers/ courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e.

AGPA (Si) = Σ (Ci x Gi) / ΣCi

Where Ci is the number of credits of the i^{th} course and Gi is the grade point scored by the student in the i^{th} course. The university shall issue Semester Grade Card to the student.

b) The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme, i.e.

CGPA = Σ (Ci x Ai) / Σ Ci

Where Ai is the AGPA of the ith semester and Ci is the total number of credits in that semester.

c) The AGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.

Illustration of Computation of AGPA and CGPA and Format for Transcripts:

a) Computation of AGPA and CGPA

Illustration for AGPA

Course	Credit	Grade Letter	Grade Point	Credit Point (Credit x Grade)
MPT101	**8**	**A**	**8**	**64**
MPT102	**8**	**C**	**5**	**40**
MPT 103	**8**	**B+**	**7**	**56**
MPT 104	**8**	**A**	**8**	**64**
MPT 105	**8**	**B**	**6**	**48**
MPT 106A	**14**	**C**	**5**	**70**
MPT106B	**14**	**C**	**5**	**70**
MPT106C	**14**	**C**	**5**	**70**
TOTAL	**54**			**342**

Note: MPT 106A, B, C credits are same and any one subject will be preferred as per the optional scheme, so only one credit is considered under the total credits as well as in credit points. i.e is 14 and 70

Thus, AGPA= 342/54= 6.33

b) Illustration for CGPA

MPT 1st Year	**MPT 2nd Year**
Credit: 54	Credit: 64
AGPA:6.3	AGPA:5.3

Thus, CGPA= 54x6.3+64x5.3= **…….**

13. TEACHERS TRAINING (TT):

Learning Outcomes Based Curriculum Framework (LOCF) Quality initiative of UGC based on Outcome Based Education (OBE) is being implemented by the University Grants Commission to enhance the Quality of Higher Education and that of Higher Education Learners and Teachers. Therefore, university arrange following activities for teachers training:

1. Workshops for LOCF implementation.
2. Seminar for LOCF implementation.
3. FDP on LOCF.
4. Outcome based higher education and understanding the learning objectives, learning outcomes, new approaches in the area of outcome measurement, preparing future ready teachers and students.
5. Developing a battery of quality speakers/educators to become resource persons to play role for Training of Trainers (TOT).

14. KEY WORDS:

PO, LOCF, CBCS, Course Learning Outcomes, Employability, Graduate Attributes Communication Skills and Critical Thinking

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Annexure 1:

PO	Action Verb(s) in Pos	Bloom's level for Pos
PO1	Demonstrate	L3
PO2	Apply	L3
PO3	Acquire	L1
PO4	Research	L4
PO5	Define	L1
	Apply	L3
PO6	Choose	L5
PO7	Identify	L1
PO8	Practice	L2