GYAN VIHAR SCHOOL OF HEALTH CARE

DEPARTMENT OF PHYSIOTHERAPY

CURRICULUM FOR ACADEMIC SESSION 2024 -2025
FOR THE FOLLOWING PROGRAMME

1. M.P.T. (MASTER OF PHYSIOTHERAPY) For all 2 years

S. No.	Programs	Remarks
1	M.P.T. (MASTER OF PHYSIOTHERAPY) Specializations:- 1. MPT IN NEUROLOGY 2. MPT IN ORTHOPEDICS 3. MPT IN CARDIOPULMONARY 4. MPT IN SPORTS	I Sem to IV Sem

HIGHLIGHTS OF THE SYLLABI

A COURSE NUMBER CODING SCHEME

Coding for all the papers has been done to make syllabi more systematic and easier to locate.

1. A course is identified by a course code designated by a string of alphanumeric characters and a course title.
2. In a course code, the first two letters of the string indicate the Department/School offering the course and the later three numerals designate a particular course number. The letters symbolizing various Academic Department offering a course are:

MP- Program Course
UC-University care
PC- Proficiency in co-curricular Activities
EM- Employability skills
UC Cyber Security

3. Course number

a. First Numerical digit denotes the level of the course that corresponds to the Year of Study.

b. Next two Numerical digits denote the number of the course, which will usually be odd for courses offered in the Odd Semester and even for courses offered in the Even Semester.

c. Lower levels correspond to the UG courses, while higher levels the PG courses. Suggested levels will be as follows:

All UG Programmes
Levels 1 to 2

EXAMPLES:

PG Programmes: -
E.g. MP203
MP denotes Master of Physiotherapy,
2 denotes second year
03 represent Course

B. CREDIT SYSTEM

Each academic year consists of two semesters and a summer term. The education system is organized around a credit system, which ensures continuous evaluation of the student's performance and provides at an optimum pace suited to one's ability or of credits depending upon the class contact hours. A minimum number of credits are to be completed in order to qualify for the award of degree. A minimum level of performance is necessary for satisfactory progress.

Each course, except for a few special courses, has a certain number of credits assigned to it depending on its lecture, tutorial and laboratory work contact hours in a week. Each course is coordinated by a member of the faculty called the course coordinator. He/she has the full responsibility for coordinating the course, faculty involved in the course, holding tests and awarding grades. In case of any difficulty, students are expected to approach the course coordinator for advice and clarification.
A letter grade with a specified number of grade points is awarded in each course for which a student is registered. A student's performance is measured by the number of credits that he/she has earned and by the weighted grade point average maintained by him/her. A minimum grade point average is necessary in order to qualify for the degree.

C. COURSE OUTLOOK:

The course of M.P.T. (MASTER OF PHYSIOTHERAPY) is of 2 years. These 2 years are divided into 4 semesters, each of 6 months. After every semester an examination is conducted so that the teachers as well as students get to know their strengths and weaknesses and work on their weak points to have an overall development.

The courses will be classified as per the table given below:

Category	Type	Code	Nature of the Course	Sub-Types
Core Courses	Discipline Centric Core	DCC	A discipline-centric course, which should com a candidate as a core requirement of an Aca specific discipline is chosen by the student t Qualification. Not more than 60% of Cred program shall be courses which are compu program.	Theory/Tutorial/ Practical/ Others
Elective Course	Discipline Specific Elective	DSE	Elective courses offered under the specific discipline/subject of study shall be referred to as Discipline Specific Electives (DSE). Departments have complete freedom to suggest their own courses under this category based on their expertise, specialization, requirements, scope, and need. The departments may also offer elective courses of interdisciplinary nature (to be delivered by the teaching department of a specific discipline or in collaboration with other departments.	Theory/Tutorial/ Practical/ Others
	Project/Field Study	DPR	A core course designed to acquire special/ advanced knowledge, such as study cases and assessment of patients and industrial exposure.	
Ability Enhancement Course	Ability Enhancement Compulsory Course	AECC	An **Ability Enhancement Compulsory Course (AECC)** is a course based upon the content that leads to Knowledge enhancement; i. Environmental Science and ii. English/Hindi/MIL Communication. These are mandatory for all Bachelor's Degree programs.	Theory/ Tutorial/ Practical/ Others
	Skill Enhancement Course	SEC	**Skill Enhancement Courses (SEC)** courses is a value-based or skill-based and are aimed at providing hands-on training, competencies, and skills. These courses may be chosen from a pool of courses designed to provide value-based and/or skill-based knowledge and should contain lab/hands-on/training/fieldwork. The main purpose of these courses is to increase their employability.	Theory/ Tutorial/ Practical/ Others

ELIGIBILITY

Candidate Should have passed Bachelor of Physiotherapy (BPT) degree with 50% marks from a recognized University (5% relaxation in case of SC/ST category)

MODE OF TRAINING-

The training for the M P T degree will be on a full-time pattern with graded responsibilities in the management and treatment of patients entrusted to his/her care in Collaboration with Apex Hospital, EHCC Hospital, and SG Hospital Jaipur. Training includes involvement in academic learning, practical learning, clinical patient handling, administrative and planning of department works, experimental work and research studies. The participation of students in all facets of the educational process is essential. Every candidate should take part in seminars, group discussions, clinical rounds, case demonstrations, clinics, journal review meetings and other continuing education activities. Every candidate should be required to participate in the teaching and training programs of undergraduate students. Students have to submit 10 case reports in each semester of training.

OBJECTIVES & GOAL OF THE SYLLABI

Goal 1: Promotes health and wellness, examines, evaluates, diagnoses, prognoses, and provides intervention and manages physical therapy services for individuals with movement dysfunction.
Goal 2: Functions in a highly professional, ethical, legal, and culturally competent manner and demonstrates commitment to society and the profession.
Goal 3: Communicate and educate the individual, family, community, and other professionals about rehabilitation, positive health, prevention, and wellness.
Goal 4: Critically evaluate and apply evidence as a basis for physical therapy practice, determines the effectiveness of intervention, and contributes to the body of knowledge in physical therapy.

SIGNIFICANCE AND CAREER OPTIONS OF M.P.T. (MASTERS OF PHYSIOTHERAPY)

There are a variety of areas where students coming out of university can apply their knowledge.
The 2 years course with completion of hands-on experience of patients and hospital Training makes the student industry ready.

The Job prospects are:

- Students work in the field of women's health as a pelvic rehabilitation practitioner.
- Students are capable of working in the field of sports & fitness.
- In hospital as consultant physiotherapist in Orthopedics or Neurology departments
- After completion of independent practice by setting up own clinic.

- Research and Development sector to provide new evidence-based studies.
- In ICUs of various hospitals as Cardiorespiratory therapist.
- In a special school for the disabled as a Neuro Physiotherapist.
- Teaching and Research is a field to work with by **s**tudents have an interest in teaching and research can work with various University and Research Departments to explore themselves as a Teacher and Researcher.
- Career in Govt. Organizations **as m**ost of the organizations **as** Indian Railways, Army, RPSC, BHEL, and AIIMS. A variety of scopes exists here for our students.

Program Outcomes of MPT

On completion of the courses offered by the Department of Physiotherapy, the following outcomes are expected.

PO1- Advanced Clinical Skills: Demonstrate advanced knowledge and skills in the assessment, diagnosis, and treatment of complex musculoskeletal, neurological, and cardiopulmonary conditions.

PO2- Research Competence: Conduct independent research projects, critically evaluate scientific literature, and apply evidence-based practices to enhance clinical decision-making and patient care.

PO3- Patient-Centered Care: Develop and implement comprehensive, patient-centred treatment plans that address individual patient needs, preferences, and values in various clinical settings.

PO4- Interprofessional Collaboration: Collaborate effectively with other healthcare professionals to provide integrated care and improve patient outcomes through a multidisciplinary approach.

PO5- Ethical and Professional Practice: Uphold the highest standards of ethical practice and professionalism, adhering to legal and regulatory requirements, and demonstrating a commitment to continuous professional development.

PO6- Leadership and Management: Exhibit leadership skills in clinical practice, including the ability to manage and lead teams, develop and implement clinical programs, and contribute to healthcare policy and administration.

PO7- Communication Skills: Communicate effectively with patients, families, and colleagues, using appropriate verbal, non-verbal, and written communication techniques to facilitate understanding and support.

PO8- Health Promotion and Prevention: Design and deliver effective health promotion, wellness, and disease prevention programs, educating patients and communities on maintaining and improving health.

PO9- Technological Proficiency: Utilize advanced technological tools and digital resources to enhance patient care, including electronic health records, telehealth, and physiotherapy-specific software applications.

PO10- Critical Thinking and Problem-Solving: Apply critical thinking and problem-solving skills to identify, analyze, and resolve complex clinical issues, ensuring the best possible outcomes for patients.

PO11- Cultural Competence: Provide culturally sensitive care, recognizing and respecting the diverse backgrounds and needs of patients, and addressing health disparities.

PO12- Lifelong Learning: Commit to lifelong learning and continuous improvement in the field of physiotherapy, staying current with emerging research, technologies, and best practices.

PROGRAM SPECIFIC OUTCOMES (PSO)

PSO FOR MPT IN ORTHOPEDICS

PSO 1-Orthopedic Assessment and Manual Therapy: Master advanced orthopedic assessment techniques and manual therapy skills, including joint mobilization, manipulation, and soft tissue techniques, to effectively treat musculoskeletal disorders and injuries.

PSO 2-Post-Surgical Rehabilitation: Develop and implement evidence-based post-surgical rehabilitation protocols for patients undergoing orthopedic surgeries such as joint replacements, ligament repairs, and spinal surgeries, promoting optimal recovery and functional outcomes.

PSO 3- Biomechanical Analysis and Correction: Utilize biomechanical analysis to identify and correct movement dysfunctions and postural abnormalities, applying corrective exercises and interventions to enhance musculoskeletal health and prevent re-injury.

PSO FOR MPT IN NEUROLOGY

PSO 1- Neurological Assessment and Diagnosis: Conduct detailed neurological assessments using advanced diagnostic tools and techniques to accurately diagnose and develop treatment plans for patients with neurological disorders such as stroke, spinal cord injury, and multiple sclerosis.

PSO 2- Neurorehabilitation Techniques: Implement specialized neurorehabilitation techniques, including neurodevelopmental treatment (NDT), constraint-induced movement therapy (CIMT), and functional electrical stimulation (FES), to enhance motor function, coordination, and overall neurological recovery.

PSO 3- Patient and Family Education: Educate patients and their families on neurological conditions, rehabilitation processes, and strategies for managing symptoms and improving daily function, ensuring comprehensive support and engagement in the rehabilitation journey

PSO FOR MPT IN CARDIOPULMONARY

PSO 1- Cardiopulmonary Assessment and Intervention: Demonstrate expertise in assessing and managing patients with acute and chronic cardiopulmonary conditions, utilizing advanced techniques such as pulmonary function testing, exercise testing, and respiratory therapy interventions.

PSO 2- Cardiac Rehabilitation Programs: Design and implement comprehensive cardiac rehabilitation programs tailored to individual patient needs, including exercise prescription, patient education, and lifestyle modification strategies to improve cardiovascular health and quality of life.

PSO 3- Ventilatory Support and Management: Manage patients requiring mechanical ventilation and other forms of ventilatory support, providing evidence-based interventions to optimize respiratory function and facilitate weaning from mechanical support.

PSO FOR MPT IN SPORTS

PSO 1- Sports Injury Prevention and Management: Demonstrate proficiency in the prevention, assessment, and management of sports-related injuries, using advanced diagnostic techniques and evidence-based interventions to facilitate rapid and safe return to sport.

PSO 2- Performance Enhancement: Design and implement performance enhancement programs tailored to athletes' specific needs, incorporating strength and conditioning, flexibility training, and sport-specific drills to optimize performance and reduce injury risk.

PSO 3- Sports Nutrition and Recovery: Provide guidance on sports nutrition, hydration, and recovery strategies, helping athletes to optimize their diet, manage fatigue, and enhance recovery through evidence-based nutritional and therapeutic interventions.

PROGRAMME EDUCATIONAL OBJECTIVES

PEO 1 - Expert in performing all routine and advanced physiotherapeutic procedures with evidence-based practice.

PEO 2 - Able to perform independent customized physiotherapy assessment and treatment for patients.

PEO 3- An essential and effective member of the multidisciplinary healthcare team and treats all the conditions which need physiotherapy treatment.

PEO 4 - Able to provide adequate knowledge about the treatment procedures and its benefit to their clients and patients.

PEO 5 - Physiotherapy Specialist who can transfer knowledge and skills to students as well young Professionals.

PEO 6 - Able to do independent research in the field of physiotherapy.

PEO 7 - Able to execute multidisciplinary practice skills.

PEO 8 - Able to take up physiotherapy teaching assignments independently for undergraduate teaching Program me, prepare project proposal, practice and do research and interpret the evaluated outcome measures.

FIELD VISITS

Field visits are an essential component of a Bachelor of Physiotherapy (BPT) course. These visits are designed to provide students with practical, hands-on experience in real-world healthcare settings, complementing their academic learning. Here's a detailed overview of what a field visit in a BPT course typically entails:

Objectives of Field Visits

1. Practical Exposure: To expose students to the working environment of physiotherapy departments in hospitals, clinics, and rehabilitation centers.
2. Patient Interaction: To enhance students' communication and interpersonal skills by interacting with patients.
3. Observation and Learning: To observe and learn different physiotherapy techniques and treatment modalities used in various conditions.
4. Understanding Workflow: To understand the workflow and administrative aspects of physiotherapy practice in different settings.

Types of Field Visits

1. Hospital Visits: Students visit hospital physiotherapy departments to observe the treatment of acute and chronic conditions, post-operative care, and intensive care unit (ICU) physiotherapy.
2. Rehabilitation Centers: Visits to centers focusing on long-term rehabilitation of neurological, orthopedic, and pediatric patients.

3. Community Health Centers: Exposure to community-based physiotherapy programs, including home care and public health initiatives.
4. Specialized Clinics: Visits to clinics specializing in sports physiotherapy, pediatric physiotherapy, geriatrics, women's health, and other areas.

Activities During Field Visits

- Observation: Watching senior physiotherapists conduct assessments and treatments.
- Hands-on Practice: Under supervision, students may assist in basic procedures such as mobilization exercises, electrotherapy, and manual therapy techniques.
- Case Studies: Analyzing specific patient cases to understand the diagnosis, treatment plan, and progress.
- Documentation: Learning to maintain patient records, treatment notes, and progress reports.
- Interdisciplinary Interaction: Interacting with other healthcare professionals to understand the multidisciplinary approach to patient care.

Learning Outcomes

- Clinical Skills: Improved practical skills in patient assessment, treatment planning, and execution.
- Critical Thinking: Enhanced ability to critically analyze clinical situations and make informed decisions.
- Professionalism: Understanding the ethical and professional standards required in clinical practice.
- Communication Skills: Improved ability to communicate effectively with patients, families, and other healthcare professionals.

Preparation for Field Visits

- Orientation Sessions: Before the visits, students usually undergo orientation sessions to understand the objectives and expectations.
- Safety and Ethics Training: Training on patient confidentiality, ethical considerations, and personal safety in clinical settings.
- Learning Objectives: Clear learning objectives and goals for each visit to ensure focused and meaningful learning experiences.

Post-Visit Activities

- Reflective Journals: Students often maintain reflective journals to document their experiences, learning points, and personal reflections.
- Group Discussions: Debriefing sessions with faculty to discuss observations, challenges faced, and lessons learned.

- Presentations: Students may present case studies or experiences from their visits to peers and faculty for further learning and feedback.

Importance in Curriculum

Field visits are crucial in bridging the gap between theoretical knowledge and practical application. They prepare students for the realities of clinical practice, helping them to become competent and confident physiotherapists.

Clinical training

Clinical training is designed to provide students with hands-on experience in diagnosing, treating, and managing patients under the supervision of experienced physiotherapists. Here's an overview of what clinical training typically involves in a BPT program:

Objectives of Clinical Training

1. Practical Application: To apply theoretical knowledge in real-world clinical settings.
2. Skill Development: To develop and refine clinical skills in assessment, diagnosis, and treatment.
3. Professional Competence: To foster professionalism, ethical practice, and effective communication.
4. Patient Management: To learn comprehensive patient care and management strategies.

Structure of Clinical Training

Clinical training is usually structured across various stages of the BPT course, progressively increasing in complexity and responsibility:

Initial Phase

- Basic Skills Training: Introduction to basic physiotherapy techniques such as manual therapy, exercise therapy, and electrotherapy.
- Simulated Environments: Practice in simulated settings using mannequins and peer interactions to build initial confidence and competence.

Intermediate Phase

- Clinical Rotations: Students rotate through different departments and specialties, including orthopedics, neurology, cardiopulmonary, pediatrics, geriatrics, sports, and community health.
- Supervised Practice: Hands-on practice with real patients under close supervision by faculty and senior physiotherapists.
- Case Presentations: Students present cases to peers and faculty, discussing their assessment, diagnosis, treatment plan, and outcomes.

Advanced Phase

- Independent Practice: Gradual transition to more independent practice, with students taking on increased responsibility for patient care.
- Complex Cases: Management of more complex and challenging cases, requiring advanced clinical reasoning and decision-making.
- Interdisciplinary Collaboration: Working alongside other healthcare professionals, participating in multidisciplinary team meetings, and understanding the holistic approach to patient care.

Key Activities During Clinical Training

- Patient Assessment: Conducting comprehensive assessments, including history taking, physical examination, and functional evaluation.
- Treatment Planning: Developing individualized treatment plans based on assessment findings and patient goals.
- Intervention Techniques: Applying various physiotherapy interventions such as manual therapy, therapeutic exercises, electrotherapy, and patient education.
- Documentation: Maintaining accurate and detailed patient records, including assessment findings, treatment plans, progress notes, and discharge summaries.
- Patient Education: Educating patients and their families about conditions, treatment plans, home exercises, and preventive measures.
- Feedback and Reflection: Receiving feedback from supervisors and engaging in self-reflection to identify strengths and areas for improvement.

Learning Outcomes

- Clinical Competence: Proficiency in conducting assessments, formulating diagnoses, and implementing treatment plans.
- Critical Thinking: Enhanced ability to think critically and solve clinical problems.
- Communication Skills: Improved communication with patients, families, and healthcare teams.
- Professionalism: Adherence to ethical standards, professionalism, and effective time management.

Evaluation and Assessment

- Continuous Assessment: Regular evaluation of clinical performance through direct observation, feedback from supervisors, and self-assessment.
- Practical Examinations: Objective Structured Clinical Examinations (OSCEs) and other practical exams to assess clinical skills and competencies.
- Case Reports and Presentations: Assessment through written case reports and oral presentations.

Importance in Curriculum

Clinical training is essential for preparing students to become competent, confident, and compassionate physiotherapists. It ensures that graduates are ready to enter professional practice with the necessary skills, knowledge, and experience to provide high-quality patient care.

In summary, clinical training in a BPT course is a comprehensive and structured process that integrates theoretical knowledge with practical application, fostering the development of well-rounded and capable physiotherapists.

Seminar Presentations

1. Enhanced Communication Skills:
    - Students develop the ability to clearly and effectively communicate complex concepts to peers and instructors.
    - Encourages the use of professional terminology and improves public speaking skills.
2. Critical Thinking and Analysis:
    - Promotes critical thinking by encouraging students to analyze recent research, evaluate evidence, and present findings.
    - Facilitates deeper understanding of current trends and innovations in physiotherapy.
3. Collaboration and Teamwork:
    - Seminars often involve group work, fostering teamwork and collaborative problem-solving.
    - Students learn to divide tasks, collaborate on research, and integrate different viewpoints into a cohesive presentation.
4. Engagement with Current Research:
    - Keeps students up-to-date with the latest research and advancements in the field.
    - Encourages lifelong learning and professional development.
5. Feedback and Improvement:
    - Provides a platform for receiving constructive feedback from peers and instructors, which is crucial for professional growth.
    - Helps students refine their presentation skills and improve their academic

performance.

Case Studies

1. Practical Application of Theory:
    - Allows students to apply theoretical knowledge to real-life clinical scenarios.
    - Bridges the gap between classroom learning and clinical practice.
2. Development of Clinical Reasoning:
    - Enhances clinical reasoning and decision-making skills by requiring students to diagnose and plan treatment for complex cases.
    - Encourages the consideration of multiple treatment options and evidence-based practices.
3. Holistic Patient Care:
    - Promotes a holistic approach to patient care, considering physical, psychological, and social aspects.
    - Emphasizes the importance of patient history, lifestyle, and preferences in treatment planning.
4. Interdisciplinary Learning:
    - Encourages understanding of the roles of different healthcare professionals and the importance of interdisciplinary collaboration.
    - Prepares students for working in multi-disciplinary teams.
5. Reflection and Self-Assessment:
    - Facilitates self-reflection and assessment of one's own clinical skills and knowledge.
    - Encourages continuous improvement and professional development.
6. Exposure to a Variety of Conditions:
    - Provides exposure to a wide range of conditions and patient demographics, enhancing clinical versatility.
    - Prepares students for diverse clinical settings and patient populations.

Implementation in Curriculum

1. Structured Framework:

- Integrate seminars and case studies into the curriculum with a structured framework, including clear objectives, guidelines, and assessment criteria.
- Ensure alignment with overall educational goals and outcomes.

2. Regular Assessment and Feedback:
   - Conduct regular assessments to evaluate student performance and provide timely feedback.
   - Use rubrics and standardized evaluation forms to ensure consistency and fairness in grading.
3. Incorporation of Technology:
   - Utilize technology for virtual presentations and online case study discussions, especially for distance learning.
   - Encourage the use of multimedia and digital tools to enhance presentations.
4. Faculty Support and Guidance:
   - Provide faculty support and mentorship to guide students through the process of preparing and presenting seminars and case studies.
   - Offer workshops and training sessions to develop relevant skills.
5. Student Engagement and Participation:
   - Encourage active student participation and engagement through interactive sessions, Q&A, and peer evaluations.
   - Create a supportive learning environment where students feel comfortable sharing ideas and asking questions.

1. CREDIT DISTRIBUTION

The credit distribution for each program in the four categories of University Core, Program Core, University Elective and Program Elective are given as follows:

Year	Semester	University Core	Program Core	Total credits
I	Autumn / Pavas	6	14	20
	Spring / Basant	3	17	20

II MPT in Orthopedics	**Autumn / Pavas**	2	18	20
	Spring / Basant	0	17	17
II MPT in Neurology	**Autumn / Pavas**	2	18	20
	Spring / Basant	0	17	17
II MPT in Sports	**Autumn / Pavas**	2	18	20
	Spring / Basant	0	17	17
II MPT in Cardiopulmonary	**Autumn / Pavas**	2	18	20
	Spring / Basant	0	17	17
Total		17	171	188

1 No. of Total Courses Being offered (Semester wise):

S. No.	**Semester**	**Number of Courses**	**Credits**
1.	MPT 1st (common)	8	20
2.	MPT 2nd Sem (common)	7	20
3.	MPT-3rd Sem (Orthopedics)	8	20
4.	MPT-4th Sem (Orthopedics)	7	17
5.	MPT- 3rd Sem (Neurology)	8	20
6	MPT- 4th Sem (Neurology)	7	17
7	MPT- 3rd Sem (Sports)	8	20
8	MPT- 4th Sem (Sports)	7	17
9	MPT- 3rd Sem (Cardiopulmonary)	8	20
10	MPT- 4th sem (Cardiopulmonary)	7	17
	Total	75	188

Signature
Dean/Principal/H
OD

Signature **Signature**

Convener-BoS
Dean/Principal/HOD

All the approvals at the department level to be taken to the university BOS meeting

GYAN VIHAR SCHOOL
OF HEALTH CARE
Teaching and Examination Scheme for
M.P.T. (MASTERS OF PHYSIOTHERAPY)
EFFECTIVE FROM ACADEMIC SESSION 2024-25

Common for all specializations

Year: I **Semester: Ist**
Autumn / Pavas

S. No.	Course Code	Course Name	Credit	Contact Hrs./Wk.			Exam Hrs.	Weightage (in%)	
				L	T/S	P		CIE	ESE
A		**University Core**							
	PC 501	Proficiency and Co-Curricular Activities – I	2						100
	EM 501	Group Discussion, Aptitude & Reasoning-III	1		2		3	100	
	UC 501	Cyber Security (Advanced)	3	3			3	30	70
B		**Program Core**							
	MP 101	Physiotherapy Practice and Education Technology	4	4	0	0	3	30	70
	MP 103	Research Methodology and Biostatistics	3	3		0	3	30	70
	MP 105	Advanced Electro Therapy & Electro- Diagnosis	3	3			3	30	70
	MP 151	Seminar Presentation-I & Case study*	2			2	3	30	70
	MP 153	Field Visit- I**	2			2		100	
		TOTAL (Credits of Core Courses)	**20**						

L= Lecture **T=Tutorial** **CIE=Continuous Internal Evaluation**
S= Seminar **P= Practical** **ESE= End Semester Examination**

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GYAN VIHAR SCHOOL
OF HEALTH CARE
Teaching and Examination Scheme for
M.P.T. (MASTERS OF PHYSIOTHERAPY)
EFFECTIVE FROM ACADEMIC SESSION 2024-25

Common for all specializations

Year: I **Semester:IInd Spring / Basant****

S. No.	Course Code	Course Name	Credit	Contact Hrs./Wk.			Exam Hrs.	Weightage (in %)	
				L	T/S	P		CIE	ESE
A		**University Core**							
	PC 502	Proficiency and Co-Curricular Activities – II	2						100
	EM 502	Group Discussion, Aptitude & Reasoning-IV	1		2	0	3	100	
B		**Program Core**							
	MP102	Advanced Functional Diagnosis & Manipulative skills	5	5			3	30	70
	MP104	Applied Biomechanics & Kinesiology	4	4			3	30	70
	MP106	Exercise Physiology	4	3			3	30	70
	MP152	Seminar Presentation-II & Case study*	2			2	3	30	70
	MP 154	Field Visit-II**	2			2		100	
		TOTAL (Credits of Core Courses)	**20**						

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L= Lecture **T=Tutorial** **CIE=Continuous Internal Evaluation**
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GYAN VIHAR SCHOOL
OF HEALTH CARE
Teaching and Examination Scheme for
M.P.T. (MASTER OF PHYSIOTHERAPY) Orthopedics
EFFECTIVE FROM ACADEMIC SESSION 2024-25

Year: II **Semester: IIIrd**
(Autumn / Pavas)

S. No.	Course Code	Course Name	Credits	Contact Hrs/Wk.			Exam Hrs.	Weightage (in %)	
				L	T/S	P		CIE	ESE
A		**University Core**							
	PC 601	Proficiency and Co-Curricular Activities – III	2						100
B		**Program Core**							
1	**MP201**	Orthopedics-I Theory	2	2	0	0	3	30	70
2	**MP203**	Elective based Physiotherapeutic – I (Orthopedics)	4	4	0	2	3	30	70
3	**MP205**	Current Physical & Functional Diagnosis-I	3	3	0	0	3	30	70
4	**MP207**	Advanced Physiotherapeutic-I	3	3	0		3	30	70
5	**MP251**	Seminar Presentation-III & Case study*	2	0	0	2		30	70
6	**MP253**	Field Visit-III**	2			2		100	
7	**MP255**	Elective-based Physiotherapeutic – I (Orthopedics) Lab	2	0	0	2		30	70
		TOTAL (Credits of Core Courses)	**20**						

L= Lecture **T=Tutorial** **CIE=Continuous Internal Evaluation**
S= Seminar **P= Practical** **ESE= End Semester Examination**

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GYAN VIHAR SCHOOL
OF HEALTH CARE
Teaching and Examination Scheme for
M.P.T. (MASTERS OF PHYSIOTHERAPY) Neurology
EFFECTIVE FROM ACADEMIC SESSION 2024-25

Year: II **Semester: IIIrd**
Autumn / Pavas

S. No.	Course Code	Course Name	Credits	Contact Hrs/Wk.			Exam Hrs.	Weightage (in %)	
				L	T/S	P		CIE	ESE
A		**University Core**							
	PC 601	Proficiency and Co-Curricular Activities – III	2						100
B		**Program Core**							
	MP 209	Neurology-I Theory	2	2	0	0	3	30	70
	MP211	Elective based Physiotherapeutic – I (Neurology)	4	4	0	2	3	30	70
	MP205	Current Physical & Functional Diagnosis-I	3	3	0	0	3	30	70
	MP207	Advanced Physiotherapeutic-I	3	3	0		3	30	70
	MP251	Seminar Presentation-III & Case study*	2	0	0	2	3	30	70
	MP253	Field Visit-III**	2				3	100	
	MP257	Elective-based Physiotherapeutic – I Lab (Neurology)	2	2	0	2		30	70
		TOTAL (Credits of Core Courses)	**20**						

L= Lecture **T=Tutorial** **CIE=Continuous Internal Evaluation**
S= Seminar **P= Practical** **ESE= End Semester Examination**

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GYAN VIHAR SCHOOL
OF HEALTH CARE
Teaching and Examination Scheme for
M.P.T. (MASTERS OF PHYSIOTHERAPY) Sports
EFFECTIVE FROM ACADEMIC SESSION 2024-25

Year: II **Semester- IIIrd**

S. No.	Course Code	Course Name	Credits	Contact Hrs/Wk.			Exam Hrs.	Weightage (in %)	
				L	T/S	P		CIE	ESE
A		**University Core**							
	PC 601	Proficiency and Co-Curricular Activities – III	2						100
B		**Program Core**							
	MP213	Sports-I Theory	2	2	0	0	3	30	70
	MP215	Elective based Physiotherapeutics-I (Sports)	4	4	0	2	3	30	70
	MP205	Current Physical & Functional Diagnosis-I	3	3	0	0	3	30	70
	MP207	Advanced Physiotherapeutics-I	3	3	0		3	30	70
	MP251	Seminar Presentation-III & Case study	2	0	0	2	3	30	70
	MP253	**Field Visit-III	2			2	3	100	
	MP259	Elective based Physiotherapeutics-I (Sports) LAB	2	0	0	2	3	30	70
		TOTAL (Credits of Core Courses)	**20**						

Autumn / Pavas

L= Lecture **T=Tutorial** **CIE=Continuous Internal Evaluation**
S= Seminar **P= Practical** **ESE= End Semester Examination**

**** Mentioned on Page No :-9**
*** Mentioned on Page No:- 12**

GYAN VIHAR SCHOOL
OF HEALTH CARE
Teaching and Examination Scheme for
M.P.T. (MASTERS OF PHYSIOTHERAPY) Cardiopulmonary
EFFECTIVE FROM ACADEMIC SESSION 2024-25

Year: II **Semester-**
(Autumn/ Pavas)

S. No.	Course Code	Course Name	Credits	Contact Hrs/Wk.			Exam Hrs.	Weightage (in %)	
				L	T/S	P		CIE	ESE
A		**University Core**							
	PC 601	Proficiency and Co-Curricular Activities – III	2						100
B		**Program Core**							
	MP217	Cardiopulmonary-I Theory	2	2	0	0	3	30	70
	MP219	Elective-based Physiotherapeutic (Cardiopulmonary)	4	4	0	2	3	30	70
	MP205	Current Physical & Functional Diagnosis-I	3	3	0	0	3	30	70
	MP207	Advanced Physiotherapeutic-I	3	3	0		3	30	70
	MP251	Seminar Presentation-III & Case study*	2	0	0	2	3	30	70
	MP253	Field Visit-III**	2			2	3	100	
	MP261	Elective-based Physiotherapeutic-I (Cardiopulmonary) LAB	2	0	0	2	3	30	70
		TOTAL (Credits of Core Courses)	**20**						

L= Lecture **T=Tutorial** **CIE=Continuous Internal Evaluation**
S= Seminar **P= Practical** **ESE= End Semester Examination**

**** Mentioned on Page No :-9**
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SURESH GYAN VIHAR UNIVERSITY
Accredited by NAAC with 'A+' Grade

GYAN VIHAR SCHOOL
OF HEALTH CARE
Teaching and Examination Scheme for
M.P.T. (MASTER OF PHYSIOTHERAPY) Orthopedics
EFFECTIVE FROM ACADEMIC SESSION 2024-25

Year: II **Semester: IVth**
Spring / Basant

S. No.	Course Code	Course Name	Credits	Contact Hrs/Wk.			Exam Hrs.	Weightage (in %)	
				L	T/S	P		CIE	ESE
A		**Program Core**							
	MP 202	Orthopedics-II Theory	2	2	0	0		30	70
	MP204	Elective-based Physiotherapeutic – II (orthopedics)	4	4		2	3	30	70
	MP206	Current Physical & Functional Diagnosis-II	3	3			3	30	70
	MP208	Advanced Physiotherapeutic-II	2	3			3	30	70
	MP210	Research Dissertation	2			2		30	70
	MP252	Field Visit-IV**	2			2	3	100	
	MP254	Elective-based Physiotherapeutic – II Lab (orthopedics)	2			2	3	30	70
		TOTAL (Credits of Core Courses)	**17**						

L= Lecture **T=Tutorial** **CIE=Continuous Internal Evaluation**
S= Seminar **P= Practical** **ESE= End Semester Examination**

**** Mentioned on Page No-9**
*** Mentioned on Page No: - 12**

GYAN VIHAR SCHOOL
OF HEALTH CARE
Teaching and Examination Scheme for
M.P.T. (MASTER OF PHYSIOTHERAPY) Neurology
EFFECTIVE FROM ACADEMIC SESSION 2024-25

Year: II **Semester: IVth**
Spring / Basant

S. No.	Course Code	Course Name	Credits	Contact Hrs/Wk.			Exam Hrs.	Weightage (in %)	
				L	T/S	P		CIE	ESE
A		**Program Core**							
	MP212	Neurology-II Theory	2	2				30	70
	MP214	Elective based Physiotherapeutic – II (Neurology)	4	4		2	3	30	70
	MP206	Current Physical & Functional Diagnosis-II	3	3			3	30	70
	MP208	Advanced Physiotherapeutic-II	2	3			3	30	70
	MP210	Research Dissertation	2			2		30	70
	MP252	Field Visit-IV**	2			2	3	100	
	MP256	Elective-based Physiotherapeutic – II (Neurology) LAB	2			2	3	30	70
		TOTAL (Credits of Core Courses)	**17**						

L= Lecture **T=Tutorial** **CIE=Continuous Internal Evaluation**
S= Seminar **P= Practical** **ESE= End Semester Examination**

**** Mentioned on Page No :-9**
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GYAN VIHAR SCHOOL
OF HEALTH CARE
Teaching and Examination Scheme for
MASTER OF PHYSIOTHERAPY (SPORTS)
EFFECTIVE FROM ACADEMIC SESSION 2024-25

Year: II **Semester: IVth**
(Spring/ Basant)

S. No.	Course Code	Course Name	Credits	Contact Hrs/Wk.			Exam Hrs.	Weightage (in %)	
				L	T/S	P		CIE	ESE
A		**Program Core**							
	MP216	Sports-II Theory	2	2		0	3	30	
	MP218	Elective based Physiotherapeutic – II (Sports)	4	4		2	3	30	70
	MP206	Current Physical & Functional Diagnosis-II	3	3			3	30	70
	MP208	Advanced Physiotherapeutic-II	2	3			3	30	70
	MP210	Research Dissertation	2			2		30	70
	MP258	Elective-based Physiotherapeutic – II (LAB) (Sports)	2			2		30	70
	MP252	Field Visit-IV**	2			2		100	
		TOTAL (Credits of Core Courses)	**17**						

L= Lecture **T=Tutorial** **CIE=Continuous Internal Evaluation**
S= Seminar **P= Practical** **ESE= End Semester Examination**

**** Mentioned on Page No :-9**
*** Mentioned on Page No:- 12**

GYAN VIHAR SCHOOL
OF HEALTH CARE
Teaching and Examination Scheme for
M.P.T. (MASTERS OF PHYSIOTHERAPY) Cardiopulmonary
EFFECTIVE FROM ACADEMIC SESSION 2024-25

Year: II **Semester: IV th (Spring / Basant)**

S. No.	Course Code	Course Name	Credits	Contact Hrs/Wk.			Exam Hrs.	Weightage (in %)	
				L	T/S	P		CIE	ESE
A		**Program Core**							
	MP 220	Cardiopulmonary-II Theory	2	2		0	3	30	70
	MP222	Elective based Physiotherapeutic – II (Cardiopulmonary	4	4		2	3	30	70
	MP206	Current Physical & Functional Diagnosis-II	3	3			3	30	70
	MP 208	Advanced Physiotherapeutic-II	2	3			3	30	70
	MP210	Research Dissertation	2			2		30	70
	MP 260	Elective-based Physiotherapeutic (Cardiopulmonary) – II (LAB)	2			2	3	30	70
	MP 252	**Field Visit- IV	2			2	3	100	
		TOTAL (Credits of Core Courses)	**17**						

L= Lecture **T=Tutorial** **CIE=Continuous Internal Evaluation**
S= Seminar **P= Practical** **ESE= End Semester Examination**

**** Mentioned on Page No :-9**
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The University core subjects & schemes to all programs are as follows:

DISCIPLINE									
Course Code	Course Name	Sem.	Credits	Contact Hrs/Wk.			Exam Hrs.	Weightage (in%)	
				L	T/S	P		CIE	ESE
PC 501	Proficiency and Co-Curricular Activities – I	PG/I	2					100	
PC 502	Proficiency and Co-Curricular Activities – II	PG/II	2					100	
PC 601	Proficiency and Co-Curricular Activities – III	PG/III	2					100	

NOTE: No PECA for final semester PG course.

Skill Enhancement Courses (SEC)									
Course Code	Course Name	Semester	Credits	Contact Hrs./Wk.			Exam Hrs.	Weightage (in%)	
				L	T/S	P		CIE	ESE
EM 501	Group Discussion, Aptitude & Reasoning -III	UG/VII	1		2		3	100	--
EM 502	Group Discussion, Aptitude & Reasoning-IV	UG/VIII	1		2		3	100	--

Employability skills include topics related to etiquette, current affairs, CV making, presentations etc. which help the students to make them employable.

Ability Enhancement Compulsory Courses (AECC)									
Course Code	Course Name	Sem.	Credits	Contact Hrs./Wk.			Exam Hrs.	Weightage (in%)	
				L	T/S	P		CIE	ESE
UC102	Cyber Security (Advanced)	PG/II	3	3	0	0	3	30	70

GYAN VIHAR SCHOOL
OF HEALTH CARE
DEPARTMENT OF
PHYSIOTHERAPY

DETAILED SYLLABUS

Mapping Course Outcomes with Program Outcomes:

PO- Program Outcome

CO- Course Outcome

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	3	3	3	3	3	3	3	2	-	-
CO2	3	3	2	3	2	2	3	3	3	3	-	-
CO3	3	3	3	3	3	3	3	2	2	3	-	-
CO4	3	3	2	3	2	3	3	3	2	3	-	-
CO5	3	3	3	2	3	3	3	2	3	3	-	-

3: Substantial or high relationship; 2: Moderate relationship; 1: low relationship, - No attainment

INTERNAL MONITORING OF STUDENTS PROGRESS

The learning progress of each candidate will be monitored continuously to help teachers to evaluate students & also for students to evaluate themselves. The monitoring will be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured, and assessment be done using checklists that assess various aspects and will be projected for discussion every six months.

Work diary: Candidates should record his /her participation in the training programmes conducted by the department such as journal reviews, seminars, etc. in the work diary given. Special mention may be made of the presentations by the candidate as well as details of clinical or laboratory procedures, if any, conducted by the candidate. The work diary shall be scrutinized and certified by the Head of the Department and Head of the institution from time to time and shall be presented in the university examinations for calculation of university internal marks.

Periodic tests: The College will conduct 2 mid term exams in every semester before the University examination. Continuous clinical assessment shall be carried out though out the Semester/Year. The test may include written theory papers, practical, viva voce and clinical

in the pattern of university examination. Records and marks obtained in such tests will be maintained by the Department and sent to the university by the Principal for documentation proof of internal marks.

CONTINUOUS APPRAISAL FOR TEACHING & LEARNING EXPERIENCE:

Every candidate admitted shall attend a minimum of and record these learning procedures in the work diary for their progressive evaluation, every semester

a) Journal Review meetings: Minimum 2
b) Seminars Presented: Minimum 2
c) Clinical presentation: Minimum 10
d) Special clinics: Minimum 5
e) Community work, camps/field visits: Minimum 1
f) Conference /workshops/CME/ Seminar/symposia attended: Minimum 2

g) Problem-Based Learning: Minimum 2

h) Special Clinical rounds: Minimum 50

i) Participation in conferences/ Presentation of papers: Minimum 2 in 4 semesters

j) l) Teaching Activities – UG Teaching: Minimum 10 in two years

k) Micro Teaching: Minimum 2 in the first semester

l) Learning Activities: Self Learning, Use of computers & library

m) Any other – Specify (e.g.: CME) Rotation and posting another department if any – minimum 2 months in 1 specialty

DISSERTATION

n) Every candidate shall submit to the Registrar (Academic) of the university in the prescribed proforma, a synopsis containing particulars of proposed dissertation work within 4 months from the date of commencement of the course on or before the dates notified by the university. The synopsis shall be sent through the proper channel (Duly approved by the guide, HOD, Principal and Ethical committee within the first semester) such synopsis will be reviewed and the university will register the dissertation topic (in the second semester). The dissertation is aimed to train a postgraduate student in research methods and techniques. It includes identification of a problem, formulation of a hypothesis, search and review of literature, getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, and comparison of results and drawing conclusions. Every candidate pursuing MPT degree course is required to carry out work on a selected research project under the guidance of a recognized postgraduate teacher. The result of such a work shall be submitted in the form of dissertation (in the fourth semester). Any change in the dissertation topic or guide should be informed to the authorities of this university for its approval. No change in the dissertation topic or guide shall be made after the approval of the Research & Recognition Committee of the university. The dissertation should be written under the following headings.

o) 1. Introduction

p) 2. Aims or objectives of study

q) 3. Review of literature

r) 4. Material and methods

s) 5. Results

t) 6. Discussion

u) 7. Conclusion

v) 8. Summary

w) 9. References

x) 10. Tables

y) 11. Annexure.

The printed text of the dissertation should not be less than 50 pages/2500 words and shall not exceed 75 pages excluding references, tables, questionnaires and another annexure. It should be neatly typed in double line spacing (Font 12, Times New Roman) on one side of the paper (A4 Size, 8.27" X 11.69") and Hard bound properly (No Spiral binding). Four copies of the dissertation thus prepared shall be submitted to the Registrar (Evaluation), three months before the final examination on or before the dates notified by the university duly certified by the guide, head of the department and head of the institution. In the Dissertation, the Candidate should not disclose his Identity or of the Guide or Institution in any way. The examiners appointed by the university shall value the dissertation. Approval of dissertation work is an essential precondition for a candidate to appear in the university examination. A candidate who has submitted his/her dissertation once is not required to submit a fresh dissertation if he/she reappears for the examination in the same branch on the subsequent occasion, provided the dissertation has been accepted by the examiners. If the student has submitted his/her examination form & also his/her dissertation previously. The terms satisfactorily kept by him will be valid for 4 years after submission of the dissertation after which he/she will have to undergo Post-graduate training again for terms to be eligible for appearing for theory & Practical examination.

Course Assessment and Evaluation:

The Course will be delivered through lectures, classroom interaction, exercises and self-study cases.

Method	**What**		**To whom**	**When/where (Frequency in the course)**	**Max Marks**	**Evidence collected**	**Contributing to course outcomes**
DIRECT ASSESSMENT	CIE	Mid Term Test	Student	Two tests	10 (Average of two Mid term)	Midterm Answer books	1 to 12
		Weekly Test		Two Weekly Test	10	Weekly Test Copies	1 to 12
		Graded Assignments		Two Assignments	10	Log of record	1 to 12

				Total	**30**		
	ESE	End Sem Evaluation		End of the course	70	Answer scripts at BTE	1 to 12
IN DIRECT ASSESSMENT	Student feedback	Students	Middle of the course	-NA-	Feedback forms	1 to 4, delivery of the course	
	E		End of course		Questionnaire	1 to 9, Effectiveness of delivery of instructions and assessment methods	

CIE – Continuous Internal Evaluation **ESE** –End Semester Examination

Composition of Educational Components:

Questions for CIE and SEE will be designed to evaluate the various educational components (Bloom's taxonomy) such as:

Sl. No.	Educational Component	Weightage (%)
1	Remembering and Understanding	35
2	Applying the knowledge acquired from the course	25
3	Analysis and Evaluation	40

Guidelines of Question Paper Setting:-

1. The question paper must be prepared based on the blue print without changing the weight age of model fixed for each unit.
2. The question paper pattern provided should be adhered to
    - The paper should have 10 questions in all, wherein it will have 2 questions from each unit.
    - Student shall be asked to attempt in all 5 questions, 1 Question from each unit.
    - Student shall be given Internal choice in every Unit.
3. Questions should not be set from the recapitulation topics.

Master of Physiotherapy (MPT) 1st Semester
(Common for all)

Course Title: Physiotherapy Practice and Education Technology	Course Code: MP 101
Semester: **I**	Core / Elective: **Program core**
Teaching Scheme in Hrs. (L: T:P)**: 4:0:0**	Credits: **4 Credits**
Type of course: **Lecture + Assignments**	Total Contact Hours: 48
Continuous Internal Evaluation: **30 Marks**	SEE: **70 Marks**

Course Objectives:

- Ethical codes of Physiotherapy practice as well as moral and legal aspects
- Acquire a brief knowledge of the role of W.H.O. and W.C.P.T.
- Describe the development of Education and Aims from early civilization to modern times
- Define the major educational theories and illustrate their application in curriculum development
- Foster critical thinking and problem-solving abilities in leveraging technology for physiotherapy practice and education

Course Prerequisites: -

- Basic Knowledge of anatomy and physiology
- Proficiency in fundamental physiotherapy techniques and principles.
- Experience in healthcare informatics or technology-enhanced learning

Course Content:-

Topic and Contents	Hours	Marks
Unit 1 : Introduction of ethics & bioethics	6	12
• Concept of morality • Ethics Legality confidentiality and responsibility. • Meaning, nature of ethics, ethical statements · Meaning of bioethic • Health & disease as values and facts • Principles of bioethics Medical ethics- goals committees		
Unit 2 : Constitution of India and Human Rights	6	12
• Constitution of India & Rights of a citizen, responsibilities of the Therapist & status in health care – Persons with Disability Act – Councils for regulation of professional practice – self-regulatory role of • Professional Association – Consumer protection act.		

• Human dignity as an intrinsic value , Respect , care and Equality in dignity of all human beings human dignity in different cultural and moral traditions • Ethical aspects of physiotherapists in patients relation in regard to human dignity in handling children, women, elderly ,mental & Physically challenged • The WHO definition of health as a possible solution of health problems · What is the health benefit by physiotherapy · Possible harm for a patient during physiotherapy • Role of the Professional in Socio-economic context. Constitution & Functions of I.A.P. Role of W.C.P.T. and W.H.O.		
Unit 3: Theories and Maintaining Records	12	18
• Theories and their application to physiotherapy practice, service quality at various levels of the health delivery system, teaching institution & self-employment and principles and concepts • Communication & Contract- Administration principles based on Goals & Functions at large hospital/domiciliary set up / private clinical/academic institutions. • Methods of maintaining records – Budget planning Leadership and Teamwork, Quality control related to treatment procedure, audit and Programme Evaluation		
Unit 4: Education Technology • Concepts of teaching and learning – theories of teaching, the relation between teaching and learning, behavior, learning perception, individual differences • Curriculum formation – committee framing, development & types of curriculums, formation of philosophy & course objectives, master plans of courses, correlation of theory and practice Principles and methods of teaching – strategies and planning, organization and teaching methods - micro-teaching oenology	8	16

Unit 5: Measurement and evaluation	6	12
• Nature of measurement, steps of constructing a test measurement, standard tools, and program evaluation. • Guidance and counselling – Philosophy, principles and concepts, guidance and counselling services (mode of framing and execution)		
TOTAL	**48**	**70**

References:-

1. Bury, T., & Mead, J. (2013). Education in the health professions: Challenges and opportunities. Radcliffe Publishing.
2. Higgs, J., Refshauge, K., & Ellis, E. (2001). Practice knowledge and expertise in the health professions. Butterworth-Heinemann.
3. Kumar, S., & Kumar, A. (2006). Physiotherapy education and practice: A life-long learning approach. Elsevier.
4. Kumar, S., & Grimmer-Somers, K. (2011). Physiotherapy: Evidence-based practice in the context of research, policy and practice. Nova Science Publishers,

Course Outcomes:-

CO1 To understand the Ethical codes, of Physiotherapy practice as well as moral and legal aspects
CO2 To understand the Acquire the brief knowledge of the role of W.H.O. and W.C.P.T.
CO3 Students would be able to describe the development of Education and Aims from early civilization to modern times.
CO4 Students would be able to define the major educational theories and illustrate their application in curriculum development.
CO5 Students would be able to apply statistical methods of data measurement & evaluation

CO-PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	3	3	3	3	3	3	3	2	-	-
CO2	3	3	2	3	3	2	3	3	3	3	-	-
CO3	3	3	3	3	3	3	3	2	2	3	-	-
CO4	3	3	2	3	3	3	3	3	2	3	-	-
CO5	3	3	3	2	3	3	3	2	3	3	-	-

Course Title: Research Methodology and Biostatistics	Course Code: MP 103
Semester: **I**	Core / Elective: **Program Core**
Teaching Scheme in Hrs. (L: T:P): **3:0:0**	Credits: 3 **Credits**
Type of course: **Lecture + Assignments**	Total Contact Hours: 36
Continuous Internal Evaluation: **30 Marks**	SEE: **70 Marks**

Course Objectives:

- Understand the fundamental principles of research methodology and biostatistics.
- Learn various research designs and their applications in healthcare and biomedical sciences.
- Develop skills in formulating research questions, hypotheses, and study objectives.
- Enhance abilities in data collection, management, and analysis using statistical software
- Foster a research mindset and cultivate lifelong learning in the field of healthcare research and biostatistics.

Course Prerequisites

- Knowledge of scientific Terminology and principles of scientific inquiry
- Experience in statistics or biostatistics
- Commitment to ethical conduct and integrity in research practices

Course Content:

Topic and Contents	Hours	Marks
Unit1: Introduction of Research Methodology and Research Design	8	16
• Introduction to Research methodology: Meaning of research, objectives of research, Motivation in research, Types of research & research approaches, Research methods vs methodology, Criteria for good research • Research design: Meaning of research design, Need for research design, Features for good design, Different research designs, Basic principles of research design • Measurement scales, sources of error in measurement, Technique of developing measurement tools, Meaning of scaling, its classification, important scaling techniques		
Unit 2: Research Methods and data collection	8	16
• Collection of primary data collection • Data through questionnaires & schedules • Difference between questionnaires & schedules.		
Unit 3 : Introduction of Biostatistics	6	12
• Meaning, definition, characteristics of statistics. Importance of the study of statistics, Branches of statistics, Statistics and health science , Parameters and Estimates, Variables and their types, Measurement scales • Basic principles of graphical representation, Types of diagrams – histograms, frequency polygons, smooth frequency polygon, cumulative frequency curve, Normal probability curve. • Need for measures of central Tendency, Definition and calculation of Mean – ungrouped and grouped, interpretation and calculation of Median-ungrouped and grouped, Meaning and calculation of Mode, Geometric mean & Harmonic mean, Guidelines for the use of various measures of central tendency		
Unit 4 : Tests	8	16
• Range, mean deviation, standard deviation & variance. • Meaning of probability of standard distribution, the binomial distribution, the normal distribution, Divergence from normality – skewness, kurtosis • Significance, correlation coefficient, linear regression & regression equation • Testing of Hypotheses, Level of significance, Degrees of freedom.Chi-square test, a test of Goodness of fit & student t-test.		
Unit 5: Analysis & Sampling	6	10

• Analysis of variance (ANOVA), what is ANOVA? Basic principle of ANOVA, ANOVA technique, Analysis of Covariance (ANACOVA) • Definition, Types- simple, random, stratified, cluster and double sampling. Need for sampling - Criteria for good samples, Application of sampling in community, Procedures of sampling and sampling designs errors		
TOTAL	**36**	**70**

References :

1. Jyoti Kumar. (2020). *Biostatistics*. Academic Press.
2. Kothari, C. R. (2018). *Research Methodology*. New Age International.
3. Negi, K. S. (2021). *Biostatistics with Latest MCQs*. Pearson Education.
4. Rao, T. B. (2019). *Methods of Biostatistics*. Wolters Kluwer.
5.

Course outcomes:

CO1 Student Learn about the basic research methodology, statistical
CO2 Students Learn about concepts: methods of statistical analysis: and interpretation of data.
CO3 Be able to impart knowledge and train the students in this subject at the undergraduate level
CO4 Students will be able to understand and apply measures of central tendency and variability, probability theory, standard distributions, and correlation techniques in data analysis
CO5 Students will be able to apply statistical analysis techniques, including ANOVA and various sampling methods, to interpret and analyze data in community-based research.

CO PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	-	3	3	3	3	3	3	3	2	3	-
CO2	3	3	2	3	2	2	3	3	3	3	-	3
CO3	3	3	3	3	-	3	3	2	2	3	2	-
CO4	3	3	3	3	2	3	3	3	2	3	-	-
CO5	3	3	3	2	3	3	3	2	3	3	3	-

Course Title: Advanced Electro Therapy & Electro- Diagnosis	Course Code: MP105
Semester **I**	Core / Elective: **Program Core**
Teaching Scheme in Hrs. (L:T:P) : **3:0:0**	Credits : 3 **Credits**
Type of course: **Lecture + Assignments**	Total Contact Hours : 36
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives:

- Acquire the updated knowledge of production / biophysics as well as the Physiological / therapeutics effects (at the cellular levels) of various electrical currents, Thermal agents, ultra sound & electro – magnetic forces & potential risk factors on prolonged exposure.
- Acquire the knowledge about various Pharmacotherapeutic agents to be used in combination with various electro – therapeutic modes, with appropriate clinical decision & reasoning in the management of pain / tissue healing / Wound care & skin condition conditions.

Course Prerequisites:

- Fundamental knowledge of human anatomy, physiology, and pathophysiology.
- Basic computer skills for operating electrotherapy and electro-diagnostic equipment.
- Basic understanding of therapeutic modalities and patient care.

Course Content :

Topic and Contents	Hours	Marks
Unit 1: Medical Physics of Various Therapeutic Current	8	16
• Ultrasound & Electro–magnetic energy, SWD. • Cellular response & tissue response to environment & man-made Electromagnetic field – risk factor of prolonged exposure – safety measures. • Principles of a combination of Therapeutic currents & / or ultrasound. with Pharmacotherapeutics with special reference to Musculoskeletal, / neuropathic & psychosomatic pain and various other conditions.		
Unit 2: Advanced Electrotherapy	8	16

• Advanced Electro, Therapeutics in Tissue healing, Wound Care, management of Scars, Keloids & De-pigmentation – skin conditions. • Bioelectricity – (R.M.P. – action potential) • Classification – 1) Muscle fiber 2)Nerve fiber 3) Motor Unit Synapse & synaptic transmission • Propagation of nerve impulses, Physiology of muscle contraction • Propagation of nerve impulses, Physiology of muscle contraction		
Unit 3 : Electrodiagnosis	6	12
• Reflex classification and properties • Sensations – pathways and classification • Type of Nerve injury, Wallerian degeneration and regeneration. • Electro diagnosis with therapeutic currents, – S.D. curves for motor, sensory and Pain assessment		
Unit 4: Applied Electrotherapy	8	16
• Applied Electrotherapy – • 1) instruments 2) electrodes used in EMG 3) E.M.G. normal (at rest & Activity) and abnormal • Application of nerve conduction studies 1) Sensory /Motor 2) "F" Wave, 3) "H" reflex, 4) Blink reflexes, 5) SSEP • Application in Neuro-muscular junction disorders, repetitive nerve stimulation.		
Unit 5: Disorders	6	10
• Motor unit potential diseases (Dystrophies, myopathy, myotonia) • Entrapment syndromes, Peripheral neuropathies, Nerve trauma & compression syndromes • Evoked potentials SSEP		
TOTAL	**36**	**70**

References :

1. w, J., & Reed, A. (2017). *Electrotherapy Explained* (4th ed.). Butterworth-Heinemann. This book provides detailed explanations of electrotherapy principles and their applications in clinical practice.
2. Chippala, P. (2023). *Essentials of Electrotherapy* (2nd ed.). AITBS Publishers

Course outcome :

- CO1 Acquire the updated knowledge of production therapeutics effects (at the cellular levels) of various electrical currents, ultrasound & electromagnetic forces.
- CO2 Acquire the updated knowledge of therapeutics effects of various electrical currents, at the cellular levels.
- CO3 Acquire the updated knowledge of biophysics as well as the Physiological effect of Thermal agents.
- CO4 Acquire the updated knowledge of potential risk factors on prolonged exposure.
- CO5 Students will be able to explain and differentiate between various motor unit potential diseases (dystrophies, myopathy, myotonia).

CO PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	3	3	2	3	-
CO2	3	3	2	3	2	2	3	3	3	3	3	3
CO3	3	-	3	3	3	3	3	2	2	3	2	3
CO4	3	3	3	3	2	3	3	3	2	3	3	-
CO5	3	3	3	-	3	3	3	2	3	3	3	2

Course Title: Seminar Presentation-I & Case Study**	Course Code: MP 151
Semester **I**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : **0:0:2**	Credits : 2 **Credits**
Type of course: **Lecture + Assignments**	Total Contact Hours : 24
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

** Details of above Syllabus given on Page no. 12

Course Title: Field Visit-I**	Course Code: MP 153
Semester **I**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : **0:0:2**	Credits : 2 **Credits**
Type of course: **Lecture + Assignments**	Total Contact Hours : 24
Continuous Internal Evaluation : **100 Marks**	SEE : **70 Marks**

** Details of above Syllabus given on Page no. 9

SURESH GYAN VIHAR UNIVERSITY
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Master of Physiotherapy (MPT) 2nd Semester

(Common for all)

Course Title: Advanced Functional Diagnosis & Manipulative Skills	Course Code: MP 102
Semester **II**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 5**:0:0**	Credits 5
Type of course: **Lecture + Assignments**	Total Contact Hours : 60 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course objectives

- Acquire the knowledge and skill of various approaches of Manual therapy for joints of the limbs/spine.
- Be able to integrate the manual therapies to rehabilitate the Mechanical Neuro. Muscular problems
- Learn advanced techniques for functional assessment and diagnosis of musculoskeletal and neuromuscular conditions.
- Gain expertise in a range of manipulative techniques including spinal and extremity manipulation, mobilization, and soft tissue techniques.
- Participate in extensive hands-on training sessions to develop and refine manipulative skills.

Course Prerequisites:

- Interpersonal Skills
- Basic proficiency in using diagnostic equipment and technology.
- Basic Manual Therapy Skills

Course content:

Topic and Contents	Hours	Marks
Unit 1 : Physiological movements	10	12
Unit 2: Articular Neurophysiology and principles of applications	14	16
Unit 3 : History of manual therapy, overview of manual therapy approaches for all the joints.	14	16
Unit 4 : Terminology, Principles, indications, contraindications, assessment Methods of application of – Maitland, Kaltenborn, Cyriax, Mulligan Mackenzie, Butler's Neural Mobilization,Shacklock neural tissue mobilization.	12	16
Unit 5 : Terminology, Principles, indications, contraindications, assessment & methods of application of Soft tissue Mobilization – Myofascial techniques, Neural tissue Mobilization, Muscle Energy Techniques, High velocity thrust techniques, Positional Release Techniques, Trigger point release, Lymphatic Manipulation.	10	10
TOTAL	**60**	**70**

References :

1. Chaitow, L., DeLany, J. W., & Schuler, L. (2011). *Clinical Application of Neuromuscular Techniques: The Upper Body* (2nd ed.). Elsevier Health Sciences.
2. Hammer, W. I. (2007). *Functional Soft-Tissue Examination and Treatment by Manual Methods: New Perspectives* (3rd ed.). Jones & Bartlett Learning.
3. Magee, D. J., Zachazewski, J. E., Quillen, W. S., & Manske, R. C. (2020). *Pathology and Intervention in Musculoskeletal Rehabilitation* (2nd ed.). Elsevier Health Sciences.
4. Liebenson, C. (Ed.). (2007). *Rehabilitation of the Spine: A Patient-Centered Approach* (2nd ed.). Lippincott Williams & Wilkins.
5. Greenman, P. E. (2011). *Principles of Manual Medicine* (4th ed.). Lippincott Williams & Wilkins.
6. Peterson, D., & Bergmann, T. (2002). *Chiropractic Technique: Principles and Procedures* (2nd ed.). Mosby.

Course outcome:

CO1 Acquire the knowledge and skill of various approaches of Manual therapy for joints of the limbs/spine.
CO2 Be able to integrate the manual therapies to rehabilitate the Mechanical Neuro-Muscular problems.
CO3 Students will be able to impart knowledge and train the undergraduate in Manual therapy.
CO4 Students will improve their rehabilitate with the Neurological technique
CO5 students will be equipped with the knowledge and skills necessary to apply advanced soft tissue techniques safely and effectively in clinical practice.

Course outcome:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	2	3	2	3	-
CO2	3	3	3	3	2	3	3	3	3	-	3	3
CO3	3	3	3	3	3	3	3	-	2	3	2	3
CO4	3	3	3	3	2	3	3	3	2	3	3	3
CO5	3	3	-	2	3	3	3	2	3	3	3	2

Course Title: Applied Biomechanics & Kinesiology	Course Code: MP 104
Semester **II**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 4**:0:0**	Credits 4
Type of course: **Lecture + Assignments**	Total Contact Hours : 48 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course outcome:

- Acquire the updated knowledge of the Patho-mechanics of the human movement.
- Be able to apply the principles of Biomechanics in functional analysis of movement Ergonomic analysis / advice & prostheses / Orthotics.
- Be able to prescribe, check out & train in the application of lower limb upper prostheses, Spinal / lower / upper extremity Orthoses used as mobility aids.
- Be able to prescribe the Ergonomic alterations at the workplace & industry.
- Be able to fabricate, temporary hand splints and functional splints for gait training.

Course prerequisites:

- Basic concepts in biomechanics and kinesiology, including movement analysis and muscle function.
- Basic knowledge of biomechanical analysis and data collection.
- Detailed knowledge of musculoskeletal anatomy, including bones, joints, muscles, and connective tissues

Course content:

Topic and Contents	Hours	Marks
Unit 1 : Forces, Equilibrium, levers – laws – mechanical advantage, Material properties of bones and soft tissues. Applied mechanics in the evaluation procedures – movement & functional analysis. Gravity, balance & equilibrium.	10	15
Unit 2: Kinetics / Kinematics of extremity and spinal joints, (including T. m.joint) Posture gait jogging, running, climbing up/down, A.D.L & exercises. Biophysics of connective tissue – ligament, Cartilage, tendon, muscle,neural tissues & vessels, – Response to mechanical loading.	10	15
Unit 3: Applied mechanics in physiological & pathological deviations (pathomechanics / Patho kinetics) of spinal & extremity disorders (functional & static) Applied mechanics in exercise prescription with clinical reasoning	10	15
Unit 4: Analysis of functional hazards related to Environment /Industry & clinical reasoning for the appropriate Ergonomic advice Applied mechanics in the application of Prostheses, Orthoses, & mobility aids – materials, designs & biomechanical compatibility	10	15
Unit 5: Biomechanics of respiration & circulation & Biomechanics of the nervous system	8	10
TOTAL	**48**	**70**

References :

1. Biomechanics and Motor Control of Human Movement" by David A. Winter.
2. "Kinesiology of the Musculoskeletal System: Foundations for Rehabilitation" by Donald A. Neumann.
3. "Biomechanics in Sport: Performance Enhancement and Injury Prevention" by Vladimir Zatsiorsky and William Kraemer.
4. "Clinical Biomechanics of the Spine" by Augustus A. White and Manohar M. Panjabi.
5. "Applied Biomechanics: Concepts and Connections" by John McLester, Peter St. Pierre, and Mary Ambroe.

Course outcome :

CO1 Acquire the updated knowledge of the Patho-mechanics of the human movement.
CO2 Students will be able to apply the principles of Biomechanics in functional analysis of movement Ergonomic analysis / advice & prostheses / Orthotics.
CO3 Students will be able to prescribe, check out & train in the application of lower limb upper prostheses, Spinal / lower / upper extremity Orthoses used as mobility aids.
CO4 Students will be able to prescribe the Ergonomic alternations at the work place & industry.
CO5 students gain a robust understanding of the biomechanics of respiration, circulation, and the nervous system, equipping them with the necessary skills to excel in biomedical engineering and related fields.

CO PO Mapping :

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	2	3	2	-	-
CO2	3	3	3	3	2	3	3	3	3	-	-	3
CO3	3	3	3	3	3	3	3	3	2	3	-	-
CO4	3	3	3	3	2	3	3	3	2	3	3	-
CO5	3	3	3	2	3	3	3	2	3	3	-	-

Continuous Internal Evaluation: **30 Marks**	SEE: **70 Marks**
Course Title: Exercise physiology	Course code : MP 206
Semester : **II**	Core / Elective: **Program Core**
Teaching Scheme in Hrs. (L: T:P): 3**:0:0**	Credits : 4
Type of course: **Lecture + Assignments**	Total Contact Hours : 48 hrs

Course objectives :

- Acquired the updated knowledge of Physiology and Physical exercise & will be able to interpret the physiological effects of the vital parameters of simple laboratory tests,
- Acquire the skill of using Bicycle – Ergometry & Treadmill for the purpose of General Fitness & Exercise tolerance for Healthy persons.
- Be able to prescribe & train for general fitness & health promotion for children, pregnant/ lactating females, Obese & elderly subjects.
- Learn to design and implement exercise programs tailored to different populations, including athletes, sedentary individuals, and those with chronic diseases
- Develop the ability to critically analyze and apply research findings to practice.

Course prerequisites :

- Basic Knowledge of exercise science concepts, including exercise testing and prescription
- practical experience in exercise science
- Metabolic processes and how nutrients are utilized during exercise
-

Course content :

Topic and Contents	Hours	Marks

Unit 1 : Energy production ● Energy transfer in cells during exercise. ● Oxygen metabolism and transfer during metabolism. ● Oxygen transport in blood ● Oxygen deficit, Oxygen debt. ● Oxygen measurement, Oxygen during exercise, Oxygen during recovery. ● Energy released from carbohydrates, lipids and proteins. ● BMR – during rest, at activity. ● Energy expenditure during activity Short Term and Long term energy systems.	10	10
Unit 2 : Regulatory Functions ● Lung function and its role in exercise performance ● Regulation of ventilation & blood pressure during exercise. ● Cardiovascular adjustment during exercise. ● Muscle fiber, types and its role in exercise performance. ● Ventilation during steady and non-steady rate exercise. ● Energy cost and breaking. ● Blood pressure (BP) response to exercise. ● Cardiac output during exercise in – trained / untrained. Cardiovascular drift.	10	10
Unit 3 Aerobic and Anaerobic Exercises ● Principles of Training ● Anaerobic system changes with training ● Aerobic system changes with training ● Factors affecting aerobic and anaerobic training response. ● System adaptation to aerobic and anaerobic training ● Overtraining ● Strength training –physiology in various age groups ● Methods of training, Circuit training & De-training ● DOMS. ● Aid in enhancing training and performance	15	15
Unit 4 : Exercise and Environment ● Acclimatization ● Exercising at high and low altitude and hypoxia. ● Exercise in hot climate, thermoregulations, dehydration and rehydration. ● Exercise in a cold climate.	15	15
Unit 5 : Physiology Assessment ● Classification, physiology ● Assessment and management	10	10

TOTAL	**60**	**60**

References :

1. Exercise Physiology: Nutrition, Energy, and Human Performance" by William D. McArdle, Frank I. Katch, and Victor L. Katch.
2. "Essentials of Exercise Physiology" by William D. McArdle, Frank I. Katch, and Victor L. Katch.
3. "ACSM's Guidelines for Exercise Testing and Prescription" by American College of Sports Medicine.
4. "Exercise Physiology: Theory and Application to Fitness and Performance" by Scott K. Powers and Edward T. Howley.
5. "Physiology of Sport and Exercise" by W. Larry Kenney, Jack H. Wilmore, and David L. Costill.
6. "Advanced Exercise Physiology" by Jonathan K. Ehrman, Dennis J. Kerrigan, and Steven J. Keteyian.

Course outcomes :

CO1 Acquired the updated knowledge of Physiology and Physical exercise & will be able to interpret the physiological effects of the vital parameters of simple laboratory tests, such as " Stress Test"
CO2 Acquire the skill of using Bicycle – Ergometry & Treadmill for the purpose of General Fitness & Exercise tolerance for Healthy persons.
CO3 Acquire a skill in disability evaluation & will be able to CERTIFY the same
CO4 Be able to prescribe & train for general fitness & health promotion for children, pregnant/ lactating females, Obese & elderly subjects
C05 students should be able to demonstrate a thorough understanding of fatigue, from its classification and physiological basis to its assessment and management, and apply this knowledge in practical, real-world settings.

CO PO Mapping :

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	2	3	2	-	3

CO2	3	3	3	3	2	3	3	3	3	3	-	3
CO3	3	3	3	3	3	3	3	3	2	3	2	-
CO4	3	3	3	3	2	3	3	3	2	3	3	-
CO5	3	3	3	2	3	3	3	2	3	3	-	3

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MPT- SECOND YEAR

Semester III

MPT IN ORTHOPEDICS SYLLABUS

Course Title: **ORTHOPEDICS I**	Course Code: MP 201
Semester : **III**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 2:0:0	Credits : 2
Type of course: **Lecture + Assignments**	Total Contact Hours : 24 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course objectives:

- Learn the fundamental concepts of bone healing, joint function, and musculoskeletal biomechanics.
- Analyze the epidemiology, pathophysiology, clinical presentation and relevant diagnostic tests, differential diagnosis.
- Develop proper assessment of the orthopedic dysfunctions.
- Examine and assess different functional activities
- Understand the principles of non-surgical management, including pharmacotherapy, physical therapy, and orthotic devices.

Course prerequisites :

- Knowledge of Medical and Physiotherapy subjects
- Basic understanding of medical terminology, clinical assessment, and general pathology.
- Ability to use clinical assessment tools and equipment.

Course content :

Unit 1 : General Assessment • History taking for orthopedic conditions • Pain assessment • Sensory, motor, balance & Coordination assessment • Muscle Length testing • Rationale of Laboratory & radiological investigations along with differential diagnosis		
Unit 2 : Regional assessment		

• Palpation, Assessment of Active, Passive, Resisted isometric, Joint play movements, Functional assessment and Special tests • Physiotherapy Assessment of Upper limb • Physiotherapy Assessment of Lower limb		
Unit 3 : Spinal assessment		
• Palpation, Assessment of Active, Passive, Joint play m • Movements, Functional assessment and Special tests: • Physiotherapy Assessment of Cervical region • Physiotherapy Assessment of Thoracic region • Physiotherapy Assessment of Lumbar region and Sacroiliac joint		
Unit 4: Assessment of Locomotor, impairment and disability evaluation		
• Gait evaluation using artificial intelligence • Disability evaluation		
Unit 5 : Functional Assessment and Activity Analysis		
• Posture evaluation using artificial intelligence • Hand Function • ADL • Occupational work • Functional Assessment Scales for each joint & condition • NIOSH Lifting • Human motion: Energy Expenditure, Force Calculation		

References :

1. David J Magee, Orthopaedics Physical Assessment, 5th edition, Saunders
2. Donnatteli Wooden, Orthopaedics Physical therapy, Third Edition, Churchill Livingstone, London.
3. Susan O'Sullivan. Physical rehabilitation,7 edition, F.A. Davis Company.
4. Occupational Ergonomics: Principles and applications by Fariborz Tayyari and James L. Smith, Springer
5. Fundamentals and Assessment Tools for Occupational Ergonomics by William S.Marras and Waldemar Karwowski, Second Edition, CRC Press

Course outcomes :

CO1 Analyze the epidemiology, pathophysiology, clinical presentation and relevant diagnostic tests, differential diagnosis.
CO2 Develop proper assessment of the orthopedic dysfunctions.
CO3 Examine and assess different functional activities

CO4 Students will have updated knowledge of potential risk factors on prolonged exposure.
CO5 Students will be able to conduct comprehensive functional assessments using advanced tools and techniques, and apply these assessments to improve ergonomics and occupational performance.

CO PO Mapping :

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	-	3	2	3	3
CO2	3	3	3	3	2	-	3	3	3	3	-	3
CO3	3	3	3	3	3	3	3	3	-	3	2	3
CO4	3	3	3	3	2	3	3	3	2	3	3	-
CO5	3	3	3	-	3	3	3	2	3	3	-	3

Course Title: **Elective Based Physiotherapeutic I (Ortho)**	Course Code: MP 203
Semester **III**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 4:0:2	Credits 4
Type of course: **Lecture + Assignments**	Total Contact Hours : 48 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course outcomes :

- Analyze the epidemiology, pathophysiology, clinical presentation, and relevant diagnostic tests, differential diagnosis, medical & surgical management of disorder of musculoskeletal system
- Relate the clinical manifestations to the organ dysfunction of the musculoskeletal system

- Appraise & apply the medical & surgical management of the musculoskeletal disorders
- Create as well as investigate developments in physiotherapeutic treatment
- Implement Physiotherapy treatment, compare & correlate the outcome of various treatment approaches

Course outcomes :

- Knowledge of Medical and Physiotherapy subjects
- Basic understanding of medical terminology, clinical assessment, and general pathology.
- Ability to use clinical assessment tools and equipment.

Course outcomes :

1	**Unit 1 : General Orthopedic Disorders**		
	• Introduction, pathophysiology, Clinical presentation, differential diagnosis, conservative, surgical management & complications of following disorders: • Metabolic disorders • Neoplastic Conditions • Infectious conditions • Rheumatic disorders • Degenerative disorders		
2	**Unit 2: Spinal Disorders**		
	• Introduction, pathophysiology, Clinical presentation, differential diagnosis, conservative, surgical management & complications of following disorders: • Inflammatory disorders of vertebrae, vertebral joints and soft tissues • Bony & soft-tissue injuries of the vertebral joints and segmental instability • Deformities of vertebral column • Low back pain and stiffness disorders • Spinal Cord Injuries • Orthopedic surgeries for spine		

3	**Unit 3 : Congenital Musculoskeletal Disorders**		
	Etiology, conservative, surgical management & rehabilitation ● Congenital limb and joint abnormalities ● Congenital disorders of vertebral column and vertebral bodies		
4.	**Unit 4 : Orthopedic Surgeries**		
	● Arthroplasty- TKR, THR, Shoulder & Elbow ● Soft tissue repairs ● Spinal surgeries ● Arthrodesis ● Osteotomy ● Bone Grafting ● Correction of bone deformities and Joint contractures ● Nerve suturing & Grafting		
5.	**Unit 5 : External Aids**		
	● Prescription, biomechanical compatibility, check-out and training in varied orthopedic conditions: ● Bioengineering appliances and support devices using AI ● External aids & appliances, Adaptive self-help devices		

Course outcomes :

- Apley's System of Orthopaedics and Fractures by Louis Soloman , David Warwick, Selvadurai Nayagam, CRC Press, 27-Aug-2010 - Medical - 992 pages
- Turek's, Orthopaedics: Principles and their applications, by Stuart L. Weinstein & Joseph A. Buckwalter.; Publisher: Lippincott Williams and Wilkins; 6th edition edition (1 May 2005) 768 pages
- Clinical Orthopaedic Rehabilitation: An Evidence-based Approach , S. Brent Brotzman, Robert C. Manske; 3rd Edition ; Elsevier Mosby.
- Travell & Simons' Myofascial Pain and Dysfunction: Upper half of body, David G. Simons, Janet G. Travell, Lois S. Travel, edition – illustrated, Lippincott Williams & Wilkins, 1999; 1038 pages
- Hand Rehabilitation, Volume 9 of Clinics in physical therapy, Christine, Churchill, Livingstone, Edition

Course outcomes :

CO1 Analyze the epidemiology, pathophysiology, clinical presentation, and relevant

diagnostic tests, differential diagnosis, medical & surgical management of disorder of musculoskeletal system

CO2 Relate the clinical manifestations to the organ dysfunction of the musculoskeletal system

CO3 Appraise & apply the medical & surgical management of the musculoskeletal disorders

CO4 Create as well as investigate developments in physiotherapeutic treatment

CO5 Students not only understand the theoretical aspects of orthoses and assistive devices but also their practical application.

CO PO Mapping :

	PO1		PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3		3	3	3	3	3	3	2	3	2	-	-
CO2	3		3	3	3	2	-	3	3	3	-	-	-
CO3	3		3	3	3	3	3	3	3	-	-	2	-
CO4	3		3	3	3	2	3	3	3	-	-	3	-
CO5	3		3	3	3	3	3	3	2	3	3	-	-

Course Title: **Current Physical & Functional Diagnosis-I**	Course Code : MP 205
Semester: **III**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 3:0:0	Credits: 3
Type of course: **Lecture + Assignments**	Total Contact Hours : 36 hrs
Continuous Internal Evaluation : **30 Marks**	SEE: **70 Marks**

Course Objectives :

- Understand the fundamental principles of physical and functional diagnosis.
- Learn the importance of a systematic approach to patient assessment and diagnosis.
- Develop skills in obtaining a thorough and relevant patient history.
- Understand the principles of functional assessment and its importance in evaluating patients' abilities and limitations.
- Learn to use functional assessment tools and techniques to evaluate activities of daily living (ADLs), mobility, strength, and endurance.

Course Prerequisites :

- Foundational courses in human anatomy, physiology, kinesiology, and biomechanics
- Knowledge of physiotherapy subjects
- Knowledge of the biomechanics of movement and the function of the musculoskeletal system.

Course content :

1	**Unit 1: Assessment performa & Detection of Movement dysfunction**		
	• Assessment performa for physiotherapeutic conditions • Detection of Movement dysfunction with special emphasis on musculoskeletal special tests		
2	**Unit 2: Neuro-developmental assessment & Gait Analysis**		

	• Neuro-developmental assessment and Theories of motor control and learning • Gait Analysis		
3	**Unit 3: Pathological investigation and imaging techniques**		
	• Principles of pathological investigation and imaging techniques in different musculoskeletal & neurological diseases with interpretation		
4	**Unit 4: Electro-diagnosis & Disability diagnosis and evaluation**		
	• EMG, Evoked potentials, Nerve conduction studies Disability diagnosis and evaluation		
5	**Unit 5: Applied neuro-anatomy and principles of Neuro-diagnosis**		

References :

- Clinical Electrotherapy, Nelson & Currier
- Campbell, Campbell's Operative Orthopedics
- Claytons electrotherapy, tenth edition
- Umpired Neurological Rehabilitation

Course outcome :

CO1 Students will be able to demonstrate a comprehensive understanding of the principles and techniques of physical and functional diagnosis

CO2 Students will be able to apply evidence-based practice in conducting physical and functional assessments.

CO3 Students will develop the skills necessary to perform accurate clinical assessments of musculoskeletal, neuromuscular, and cardiopulmonary systems, including history-taking, physical examination.

CO4 Students will be able to formulate differential diagnoses based on their clinical assessments, considering both musculoskeletal and non-musculoskeletal causes of dysfunction.

CO5 Students will develop effective communication skills to convey assessment findings, diagnosis, and treatment plans to patients, caregivers, and interprofessional healthcare teams.

CO PO Mapping :

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	2	3	2	-	-
CO2	3	3	3	3	2	-	3	3	3	3	-	-
CO3	3	3	3	3	3	3	3	3	3	-	2	-
CO4	3	3	3	3	2	3	3	3	-	2	3	-
CO5	3	3	3	3	3	3	3	2	-	-	-	-

Course Title: **Advanced Physiotherapeutic-I**	Course Code: MP 207
Semester **III**	Core / Elective: **Program Core**
Teaching Scheme in Hrs. (L:T:P) : 3:0:0	Credits 3
Type of course: **Lecture + Assignments**	Total Contact Hours : 36 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives :

- Acquire the updated knowledge of production / biophysics
- Physiological / therapeutics effects (at the cellular levels) of various electrical currents, Thermal agents, ultra sound & electro – magnetic forces & potential risk factors on prolonged exposure.
- Acquire the knowledge about various types of pain
- Acquire the knowledge about women health ,Gynecological conditions and how to deal with them
- To know about role of physiotherapy in mental health

Course Prerequisites:

- Fundamental knowledge of human anatomy, physiology, and pathophysiology.
- Basic computer skills for operating electrotherapy and electro-diagnostic equipment.
- Basic understanding of therapeutic modalities and patient care.

Course Content:

1	**Unit 1 : Pain**		
	● Definition ● Theories of pain ● Assessment of pain ● Overview of Medical and Surgical management of pain ● Physiotherapeutic management of Pain		
2	**Unit 2 : Women health**		
	● Physiotherapy in Obstetrics ● Physiotherapy in gynecological conditions		
3	**Unit 3 : Biofeedback & Functional training**		
	● Biofeedback ● Respiratory exercises, Feeding, Bladder and Bowel Training.		
4	**Unit 4 : Mental Health**		

	• Physiotherapy and mental health		
5	**Unit 5 Neoplastic Conditions**		
	• Physiotherapy in neoplastic conditions		

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References:

- O'Sullivan, S. (2017). *Physical Therapy Rehabilitation*. Springer.
- Nelson, R. M., & Currier, D. P. (2015). *Clinical Electrotherapy*. McGraw-Hill.
- Polden, M., & Mantle, J. (2018). *Physiotherapy in Obstetrics and Gynaecology*. Jaypee Brothers.
- Braddom, R. L. (2016). *Physical Medicine and Rehabilitation*. Elsevier

Course outcome:

CO1 Students will demonstrate a comprehensive understanding of advanced pathophysiological processes underlying various musculoskeletal, neurological, and cardiopulmonary conditions

CO2 Students will develop advanced assessment and diagnostic skills, including the ability to perform comprehensive physical examinations

CO3 Students will be able to develop evidence-based treatment plans for individuals with complex musculoskeletal, neurological, and cardiopulmonary conditions.

CO4 Students will demonstrate advanced critical thinking and problem-solving skills in the management of complex patient cases

CO5 Students will exhibit professionalism and ethical practice in all aspects of physiotherapeutic care, including maintaining patient confidentiality, respecting cultural and individual difference

CO-PO Mapping :

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	2	3	3	-	-
CO2	3	3	3	3	2	-	3	3	-	3	-	-
CO3	3	3	3	3	3	3	3	3	3	-	-	-
CO4	3	3	3	3	2	3	3	3	3	2	3	-
CO5	3	3	3	3	3	3	3	2	2	3	-	-

PRACTICAL

Course Title: **Elective Based Physiotherapeutic I (Ortho) (Lab)**	Course Code: MP 255
Semester: III	Core / Elective: Program Core
Teaching Scheme in Hrs (L: T:P): 0:0:2	Credits: 1
Type of course: Lecture + Assignments	Total Contact Hours: 12 hrs
Continuous Internal Evaluation: 30 Marks	ESE: 70 Marks

S.No.	Name Of Topic
1	Introduction to Degenerative Disorders
2	**Clinical Features & Management of Infectious Conditions**
3	Introduction to Inflammatory disorders
4	Spinal cord Injury treatment
5	Introduction about Arthroplasty
6	Arthroplasty Procedure
7	Introduction Bone grafting
8	Principles of Nerve suturing and grafting
9	Principles of Spinal Surgeries
10	Management of Osteotomy
Total no. of Practical's	10
Total no.of Hours	12

**Seminar Presentation & Case Study (Details Given on Page no.

**Field Visit (Details Given on Page no

MPT IN NEUROLOGY
Semester -III

Course Title: **Neurology-I**	Course Code: MP 209
Semester : **III**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 2:0:0	Credits : 2
Type of course: **Lecture + Assignments**	Total Contact Hours: 24 hrs
Continuous Internal Evaluation : **30 Marks**	SEE: **70 Marks**

Course Objectives :

Understand Foundations for Clinical Practice in Neurological Rehabilitation

- Learn proper assessment and documentation of the neurological dysfunctions
- Understand general and specific neuropathodynamics
- Demonstrate sufficient understanding of knowledge in investigations in neurological dysfunctions
- Ability to integrate theoretical knowledge with clinical presentation and do the differential diagnosis

Course Prerequisites :

- Basic Medical Knowledge of anatomy, physiology and neurology
- Knowledge of Medical and Physiotherapy subjects
- Basic understanding of medical terminology, clinical assessment, and general pathology.

Course Content :

Unit 1 :Assessment & planning			
• Functional anatomy and physiology of the nervous system. • Concept of assessment and documentation • History taking for neurological conditions • Higher mental function assessment and cranial nerve testing • Sensory, pain and motor assessment • Balance and coordination assessment • Postural and gait assessment • Fitness testing • Assessment for perceptual disorder • Assessment for Orthotic / Prosthetic prescription			

• Functional assessment/ specific assessments • Identifying deficiencies, formulating short term & long-term goals			
Unit 2 : Neurodynamics			
• General and specific neurodynamics • General neuropathodynamics • Diagnosis of specific dysfunction • Diagnosis with neurodynamic tests			
Unit 3 : Investigations and Differential Diagnosis			
• Introduction, physical basis, normal result & common abnormal responses, complication (in brief) • Radiodiagnosis • Electrodiagnosis • Intracranial Pressure monitoring and Lumbar puncture • Common Laboratory tests in Neurological disorders • Differential Diagnosis: Medical Screening by the Therapist, Examination and Evaluation of Functional Movement Activities, Body Functions and Structures, and Participation			
Unit 4 : Foundations for Clinical Practice in Neurological Rehabilitation			
• Abnormal movement strategies • Developmental theory • Neuroconstructivism • Nonlinear dynamics • Normal movement strategies • Stages of motor development • Systems theory • Contemporary issues and theories of motor control, Motor Learning, and Neuroplasticity • Interventions for clients with movement limitations			
Unit 5 : Movement analysis and training			

• Motor Learning Strategies • Functional Training • Impairment Interventions • Augmented Interventions • Compensatory Interventions • Patient/Client-Related Instruction • Locomotor training complementary interventions • Locomotor training environments • Emerging intervention strategies			

References:

- Umphred, D. A., & Lazaro, R. T. (2012). *Neurological rehabilitation*. Elsevier Health Sciences.
- O'Sullivan, F.A. Davis. 1994. Physical Rehabilitation: Assessment and Treatment. Philadelphia
- Brain diseases of the Nervous System, Michael Donaghy
- Spillane, J. (2008). *Bickerstaff's neurological examination in clinical practice*. John Wiley & Sons.

Course Outcomes:-

CO1 Learn proper assessment and documentation of the neurological dysfunctions
CO2 Understand general and specific Neuro-Patho dynamics
CO3 Demonstrate sufficient understanding of knowledge in investigations in neurological dysfunctions
CO4 Ability to integrate theoretical knowledge with clinical presentation and do the differential diagnosis
CO5 Students will be able to focus on different aspects of movement analysis and training, all of which are critical for achieving practical, movement analysis, training and rehabilitation.

CO-PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	-	3	3	3	3	3	2	3	3	-	-
CO2	3	3	-	3	2	-	3	-	3	3	2	-
CO3	3	3	3	3	-	3	3	3	3	3	-	3
CO4	3	3	3	3	2	3	3	3	3	2	3	-
CO5	3	-	3	3	3	3	-	2	2	3	3	-

Course Title: **Elective Based Physiotherapeutic -I (Neurology)**	Course Code: MP 211
Semester **III**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 4:0:2	Credits 4
Type of course: **Lecture + Assignments**	Total Contact Hours : 48 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives :

- Understand the epidemiology, pathophysiology, clinical presentation
- Relevant diagnostic tests, differential diagnosis, medical & surgical management of disorder of neurological system
- Understand and make the relevant diagnosis and differential diagnosis of the disorders of neurological system
- Understand medical, surgical management and plan the physiotherapeutic assessment and management of the disorders of neurological system
- Ability to integrate theoretical knowledge with clinical presentation and do the differential diagnosis

Course Prerequisites :

Basic Medical Knowledge of anatomy ,physiology and neurology

- Knowledge of Medical and Physiotherapy subjects
- Basic understanding of medical terminology, clinical assessment, and general pathology.

Course content :

Unit 1 : Intracranial mass lesions and raised intracranial pressure			
• Introduction, epidemiology of disease pattern, patho-physiology, Clinical presentation, differential diagnosis, conservative management, complications, Physiotherapy assessment & management for the following clinical conditions: • Raised intracranial pressure • Hydrocephalus • Management of an unconscious Patient			

• ICU Management of a neurologically ill patient			
Unit 2 : Disorders of the spine and spinal cord			

• Spinal cord compression
• Malformations of spine & spinal cord
  ○ spina bifida
  ○ syringomyelia
  ○ spondylolisthesis and spondylolysis
  ○ scoliosis
  ○ kyphosis
• Surgeries for disc disorders
• Poliomyelitis
• Tuberculosis of spine
• Other Intrinsic diseases of the spinal cord			

Unit 3 : Infectious and inflammatory diseases of nervous system			
• Introduction, epidemiology of disease pattern, patho-physiology, Clinical presentation, differential diagnosis, conservative management, complications, Physiotherapy assessment & management for the following clinical conditions: • Multiple sclerosis • Acute disseminated encephalomyelitis • Transverse myelitis • Meningitis • Parenchymal viral and bacterial infections • Encephalopathies • Intracranial abscess			
Unit 4 : Vestibular training			

• Functional anatomy and physiology of the central and peripheral vestibular system
  ○ Tonic firing rate
  ○ Vestibulo-ocular reflex
  ○ Push–pull mechanism
  ○ Inhibitory cutoff
  ○ Velocity storage system
• Examination of the disorders
  ○ Benign paroxysmal positional vertigo
  ○ Unilateral vestibular hypo
  ○ function
  ○ Bilateral vestibular hypofunction
  ○ Abnormal central vestibular function
• Vestibular rehabilitation
• Contraindications to vestibular rehabilitation
• Balance & coordination training			

unit 5 : Self-care strategies for neurological dysfunction • Group exercises • Physiotherapy in home setting • Relaxation techniques • Critical analysis of exercise & electrotherapy modalities • Patient & family education • Assistive technology • E-Health, M-Health and Telerehabilitation in neurological disorders			

References :

- Turek's, Orthopaedics: Principles and their applications, by Stuart L. Weinstein & Joseph A. Buckwalter.; Publisher: Lippincott Williams and Wilkins; 6th edition edition (1 May 2005) 768 pages
- Clinical Orthopedic Rehabilitation: An Evidence-based Approach , S. Brent Brotzman, Robert C.

Course outcome :

CO1 Understand the epidemiology, pathophysiology, clinical presentation, and relevant diagnostic tests, differential diagnosis, medical & surgical management of disorder of neurological system
CO2 Understand and make the relevant diagnosis and differential diagnosis of the disorders of neurological system
CO3 Understand medical, surgical management and plan the physiotherapeutic assessment and management of the disorders of neurological system
CO4 Understand & apply the basic and advanced neurological approach Apply evidence-based physio

practices

CO5 Students will be able to develop and implement effective self-care strategies tailored to individuals with neurological dysfunctions, demonstrating a comprehensive understanding of the condition

CO-PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	2	3	-	-	-
CO2	3	3	3	3	2	2	3	3	3	-	2	-
CO3	3	3	3	3	3	3	3	3	3	3	-	3
CO4	3	3	3	3	2	3	3	3	3	-	3	-
CO5	3	3	3	3	3	3	-	2	2	-	3	2

Course Title: **Current Physical & Functional Diagnosis-I**	Course Code : MP 205
Semester: **III**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 3:0:0	Credits: 3
Type of course: **Lecture + Assignments**	Total Contact Hours : 36 hrs
Continuous Internal Evaluation : **30 Marks**	SEE: **70 Marks**

Course Objectives :

- Understand the fundamental principles of physical and functional diagnosis.
- Learn the importance of a systematic approach to patient assessment and diagnosis.
- Develop skills in obtaining a thorough and relevant patient history.
- Understand the principles of functional assessment and its importance in evaluating patients' abilities and limitations.
- Learn to use functional assessment tools and techniques to evaluate activities of daily living (ADLs), mobility, strength, and endurance.

Course Prerequisites :

- Foundational courses in human anatomy, physiology, kinesiology, and biomechanics
- Knowledge of physiotherapy subjects
- Knowledge of the biomechanics of movement and the function of the musculoskeletal system.

Course content :

1	**Unit 1: Assessment performa & Detection of Movement dysfunction**		
	• Assessment performa for physiotherapeutic conditions • Detection of Movement dysfunction with special emphasis on musculoskeletal special tests		
2	**Unit 2: Neuro-developmental assessment & Gait Analysis**		
	• Neuro-developmental assessment and Theories of motor control and learning • Gait Analysis		
	Unit 3: Pathological investigation and imaging techniques		

3	• Principles of pathological investigation and imaging techniques in different musculoskeletal & neurological diseases with interpretation		
4	**Unit 4: Electro-diagnosis & Disability diagnosis and evaluation**		
	• EMG, Evoked potentials, Nerve conduction studies Disability diagnosis and evaluation		
5	**Unit 5: Applied neuro-anatomy and principles of Neuro-diagnosis**		

References:

- Goodman, C. C., & Fuller, K. S. (2020). *Pathology: Implications for the Physical Therapist* (5th ed.). Elsevier.
- O'Sullivan, S. B., Schmitz, T. J., & Fulk, G. D. (2019). *Physical Rehabilitation* (7th ed.). F.A. Davis Company.
- Dutton, M. (2020). *Dutton's Orthopaedic Examination, Evaluation, and Intervention* (5th ed.). McGraw-Hill Education.
- Kisner, C., & Colby, L. A. (2017). *Therapeutic Exercise: Foundations and Techniques* (7th ed.). F.A. Davis Company.
- Magee, D. J. (2014). *Orthopedic Physical Assessment* (6th ed.). Elsevier

Course Outcomes :

CO1 Students will be able to demonstrate a comprehensive understanding of the principles and techniques of physical and functional diagnosis
CO2 Students will be able to apply evidence-based practice in conducting physical and functional assessments.
CO3 Students will develop the skills necessary to perform accurate clinical assessments of musculoskeletal, neuromuscular, and cardiopulmonary systems, including history-taking, physical examination.
CO4 Students will be able to formulate differential diagnoses based on their clinical assessments, considering both musculoskeletal and non-musculoskeletal causes of dysfunction.
CO5 Students will develop effective communication skills to convey assessment findings, diagnosis, and treatment plans to patients, caregivers, and interprofessional healthcare teams.

CO-PO Mapping :

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	2	3	2	-	-
CO2	3	3	3	3	2	2	-	-	3	-	3	-
CO3	3	3	-	3	3	3	3	3	3	3	-	3
CO4	3	3	3	3	2	3	3	3	3	-	-	-
CO5	3	3	3	-	3	3	-	2	2	-	-	2

Course Title: **Advanced Physiotherapeutics-I**	Course Code: MP 207
Semester **III**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 3:0:0	Credits 3
Type of course: **Lecture + Assignments**	Total Contact Hours : 36 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives :

- Acquire the updated knowledge of production / biophysics
- Physiological / therapeutics effects (at the cellular levels) of various electrical currents, Thermal agents, ultra sound & electro – magnetic forces & potential risk factors on prolonged exposure.
- Acquire the knowledge about various types of pain
- Acquire the knowledge about women health ,Gynecological conditions and how to deal with them
- To know about role of physiotherapy in mental health

Course Prerequisites:

- Fundamental knowledge of human anatomy, physiology, and pathophysiology.
- Basic computer skills for operating electrotherapy and electro-diagnostic equipment.
- Basic understanding of therapeutic modalities and patient care.

Course Content:

1	**Unit 1 : Pain**		
	● Definition ● Theories of pain ● Assessment of pain ● Overview of Medical and Surgical management of pain ● Physiotherapeutic management of Pain		
2	**Unit 2 : Women health**		
	● Physiotherapy in Obstetrics ● Physiotherapy in gynecological conditions		
	Unit 3 : Biofeedback & Functional training		

3	• Biofeedback • Respiratory exercises, Feeding, Bladder and Bowel Training.		
4	**Unit 4 : Mental Health**		
	• Physiotherapy and mental health		
5	**Unit 5 Neoplastic Conditions**		
	• Physiotherapy in neoplastic conditions		

References :

- 'Sullivan, S. (2017). *Physical Therapy Rehabilitation*. Springer.
- Nelson, R. M., & Currier, D. P. (2015). *Clinical Electrotherapy*. McGraw-Hill.
- Polden, M., & Mantle, J. (2018). *Physiotherapy in Obstetrics and Gynaecology*. Jaypee Brothers.
- Braddom, R. L. (2016). *Physical Medicine and Rehabilitation*. Elsevier

Course Outcomes:

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CO1 Students will demonstrate a comprehensive understanding of advanced pathophysiological processes underlying various musculoskeletal, neurological, and cardiopulmonary conditions

CO2 Students will develop advanced assessment and diagnostic skills, including the ability to perform comprehensive physical examinations

CO3 Students will be able to develop evidence-based treatment plans for individuals with complex musculoskeletal, neurological, and cardiopulmonary conditions.

CO4 Students will demonstrate advanced critical thinking and problem-solving skills in the management of complex patient cases

CO5 Students will exhibit professionalism and ethical practice in all aspects of physiotherapeutic care, including maintaining patient confidentiality, and respecting cultural and individual differences.

CO-PO Mapping :

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	2	3	2	-	-
CO2	3	3	3	3	2	2	3	-	3	3	-	-
CO3	3	3	3	3	3	3	3	3	3	3	-	3
CO4	3	3	3	3	2	3	3	3	3	-	-	-
CO5	3	3	3	3	3	3	3	2	2	-	-	2

PRACTICAL

Course Title : **Elective Based Physiotherapeutic I (Neuro) (Lab)**	Course Code: MP 257
Semester: III	Core / Elective: Program Core
Teaching Scheme in Hrs (L:T:P) : 0:0:2	Credits: 1
Type of course : Lecture + Assignments	Total Contact Hours: 12 hrs
Continuous Internal Evaluation: 30 Marks	ESE: 70 Marks

S.No.	Name Of Topic
1	Physiotherapy assessment of Multiple sclerosis
2	Physiotherapy assessment of Parkinsonism
3	Examination of benign paroxysmal positional vertigo
4	Examination of Unilateral vestibular hypofunction
5	Examination of Bilateral vestibular hypofunction
6	Examination of Abnormal central vestibular function
7	Relaxation Techniques
8	Vestibular Training
9	vestibulo-ocular reflex
10	Inhibitory cut off
Total no. of Practicals	10
Total no.of Hours	12

**Seminar Presentation & Case Study (Details Given on Page no.

**Field Visit (Details Given on Page no.

Course Title: **Sports I**	Course Code: MP 213
Semester **III**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 2:0:0	Credits 2
Type of course: **Lecture + Assignments**	Total Contact Hours : 24 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives :

- Biomechanics of various sports.
- Understand the epidemiology, pathophysiology, clinical presentation, and relevant diagnostic tests,
- Differential diagnosis, medical & surgical management of disorders related to sports
- To learn physiotherapy assessment and management of acute and overuse injuries of spine and upper limb
- Implement physiotherapy treatment

Course Prerequisites :

- Foundational courses in human anatomy, physiology, kinesiology, and biomechanics
- Basic knowledge of exercise science, including principles of training, conditioning, and performance enhancement.
- Knowledge of physiotherapy subjects
  -

Course Content :

1.	**Unit 1 : Biomechanics of Various Sports (Upper limb and Spine)**			
	• Biomechanics related to contact and non contact sports (Upper limb and Spine): • Swimming, basketball, Discuss throw, Cricket, Javelin throw, Archery, lawn tennis, badminton etc.			
2.	**Unit 2: Physiotherapy assessment in sports injuries related to Upper limb and Spine**			

	• Physiotherapy Assessment of cervical region, head and face • Physiotherapy Assessment of Thoracic region • Physiotherapy Assessment of Lumbar region and sacroiliac joint • Physiotherapy Assessment of vertebral and peripheral conditions • Physiotherapy Assessment of Upper limb			
3.	**Unit 3 : Acute and overuse injuries related to Upper limb and Spine**			
	• Mechanism of injury, clinical presentation, Physiotherapy and medical management of : • Injuries and conditions of neck, head and face • Injuries and conditions of thoracic region • Traumatic and overuse injuries of lumbosacral region, abdomen • Traumatic and overuse injuries of upper limb			
4.	**Unit 4 :Surgical and post surgical management of Acute and overuse injuries related to Upper limb and Spine**			
	• Injuries and condition of neck, head and face • Injuries and conditions of thoracic region • Traumatic and overuse injuries of lumbosacral region, abdomen • Traumatic and overuse injuries of upper limb			
	Unit 5 :Management of medical conditions in Athletes			
	• Hypertension, Athlete's heart, Sudden cardiac death, exercise and congestive heart failure, post coronary and bye pass patient. • Exercise induced asthma, anemia, delayed onset muscle soreness, runners high, exercise addiction, exercises for diabetic, fatigue. • Medical management for mass participation • Time zone shift and sleep problems • Management of AIDS and hepatitis in athletic population • Diagnosis and management of skin			

	conditions of athletes, bacterial infection, fungal infection, viral infection.			

References:

1. Coakley, J. J. (2009). *Sports in Society: Issues and Controversies* (10th ed.). McGraw-Hill.
2. Joyner, M. J., & Coyle, E. F. (2008). Endurance exercise performance: The physiology of champions. *Journal of Physiology*, 586(1), 35-44.
3. Gleeson, M. (2006). Immune function in sport and exercise. *Journal of Applied Physiology*, 103(2), 693-699.
4. Mujika, I., & Padilla, S. (2001). Cardiorespiratory and metabolic characteristics of detraining in humans. *Medicine and Science in Sports and Exercise*, 33(3), 413-421.
5. Smith, D. J. (2003). A framework for understanding the training process leading to elite performance. *Sports Medicine*, 33(15), 1103-1126.

Course Outcomes:-

CO1 Understand the epidemiology, pathophysiology, clinical presentation, and relevant diagnostic tests, differential diagnosis, medical & surgical management of disorders related to sports
CO2 Identifying the vital clinical signs & symptoms of a sports person.
CO3 Demonstrate sufficient understanding in movement analysis and training.
CO4 Diagnosis and management of skin conditions of athletes, bacterial infection, fungal infection, viral infection.
CO5 Analyze the Sports condition by taking detailed history

CO-PO Mapping:-

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	2	3	-	-	-
CO2	3	3	3	3	2	2	3	-	3	-	-	-
CO3	3	3	3	3	3	3	3	3	3	-	-	-
CO4	3	3	3	3	2	3	3	3	3	-	-	-
CO5	3	3	3	3	3	3	3	2	2	-	-	-

Course Title: **Elective Based Physiotherapeutic- I (Sports)**	Course Code: MP 215
Semester **III**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 4:0:2	Credits 4
Type of course: **Lecture + Assignments**	Total Contact Hours : 48 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives :

- Appraise and apply sports psychology in rehabilitation of athletes
- Create as well as investigate developments in physiotherapeutic treatment
- Implement Physiotherapy treatment, compare & correlate the outcome of various treatment approaches
- Relate the various principles of rehabilitation to the sports specific athletic injuries
- Strong communication skills for effective interaction with patients, families, and healthcare teams

Course Prerequisites :

- Foundational courses in human anatomy, physiology, kinesiology, and biomechanics
- Basic knowledge of exercise science, including principles of training, conditioning, and performance enhancement.
- Knowledge of physiotherapy subjects
  -

Course Content :

Unit 1: Fitness Testing & principles of Injury prevention		
• Fitness testing- strength, endurance, power, flexibility, agility, imagery(visual & mental) • Kinanthropometry : • Determination of age(Tanner Whitehouse Method , Greulich Pyle Method,Felt Method)		

• Somatotyping • Body Composition Analysis (Skinfold Assessment, Girth Measurement,		
Unit 2 : Principles of training and Rehabilitation		
• Stretching technique used for sports physiotherapy • Study of various training methods and their principle(aerobic, anaerobic, strength, power, flexibility, speed , agility, skill specific training & cross training) • Manipulation of training principles • Recovery training intensities • Protective equipment and suitable equipment used in sports- athletic shoes and modification • Concept of use and misuse of equipment • Group therapy • Functional progression in rehabilitation • Techniques of strengthening major muscles of the body • Isokinetic dynamometers and training effects • Plyometric exercises • Soft tissue mobilization technique used for sports therap • Neuromuscular coordination training and role of PNF in sports		
Unit 3: Therapeutics in Sports Injuries		
• Balneotherapy • Hydrotherapy & its role on sports performance -simple l raising temperature baths, and additives, steam bath, sau bath, fluidotherapy, aromatic baths, mineral baths, phy baths, hydro-electric baths, stammer baths, whirlpool ba showers and steam showers, sleep downs, brushing rub down. • Cryokinetics -Various methods of Application Cryotherapy during acute phase, rehabilitative p preventive phase of athletic injury, indications contraindications • Application of mud bath, mineral bath and peloids in persons • Principles underlying the application of following modalities with reference to their production, biophysica		

and therapeutic effects, indication and contraindication and specific use in sports.		
● Densitometry, Hydrostatic Underwater Weighing, InfraRed Reactance method, ultrasound ,Air displacement plethysmography, Bioelectrical Impedance Analysis) ○ Heart Rate Monitoring & Training ○ Motion Analysis- 3 dimensional ○ Virtual Reality System ○ Eye- tracking system ○ Principle of injury prevention(warm up, bracing, biomechanics, nutrition, cool down, stretching, taping, protective equipment, suitable equipment, adequate recovery, psychology, appropriate surface, appropriate training) ● Missing workouts		

Unit 4 Sports Psychology		20% Weightage
• Role of sports in promotion of mental health • Contribution of sports to emotional health • Role of sports in development of Personality • Leadership in sports • Intelligence and sports • Learning- Nature and meaning of learning and maturation, Characteristics of learning • Role of Motivation- facilitators, inhibitors and motivational techniques • Sentiment- meaning, its type , importance & formation • • Assessment of Various psychological parameters in sports persons: • Reaction time testing • Rorschach Ink blot testing • Personality assessment • Sports Competition Anxiety Test (SCAT) • Sport Anxiety Scale • Emotional Intelligence Questionnaire • Athletic Coping Skills Inventory • Athletic Intelligence Quotient • • Contemporary stress reduction strategies - • Goal setting strategies • Relaxation Training- - Biofeedback, stress coping strategies, Visual imagery, • Transcendental Meditation, Progressive muscle relaxation, Yog nidra, breathing exercises		
Unit 5 : Sports Physiotherapy & Rehabilitation in Upper Limb & Spinal Injuries		**20% Weightage**
• Rehabilitation in Upper Limb Injuries • Rehabilitation in Spinal Injuries		

References

- Grafiti. Psychology in Contemporaray Sports. Prientice Hall(2002) ISBN :8172160151
- Reed.Sports Injuries-Assessment and Rehabilitation W.B. Saunders 2nd Edition
- Morris B. Mellion. office sports Medicine. Hanley & Belfus 2 edition
- Zuluaga et al. Sports Physiotherapy. W.B .Saunders ISBN 0443048045, 9780443048043

Course Outcomes:-

CO1 Appraise and apply sports psychology in rehabilitation of athletes
CO2 Create as well as investigate developments in physiotherapeutic treatment.
CO3 Implement Physiotherapy treatment
CO4 Relate the various principles of rehabilitation to the sport's specific athletic injuries
CO5 Compare & correlate the outcome of various treatment approaches

CO-PO Mapping:-

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	2	3	-	-	-
CO2	3	3	3	3	2	2	3	-	3	-	3	-
CO3	3	3	3	3	3	3	3	3	-	-	-	-
CO4	3	3	3	3	2	3	3	3	3	-	2	-
CO5	3	3	3	3	3	3	3	2	2	-	-	-

Course Title: **Current Physical & Functional Diagnosis-I**	Course Code : MP 205
Semester: **III**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 3:0:0	Credits: 3
Type of course: **Lecture + Assignments**	Total Contact Hours : 36 hrs
Continuous Internal Evaluation : **30 Marks**	SEE: **70 Marks**

Course Objectives :

- Understand the fundamental principles of physical and functional diagnosis.
- Learn the importance of a systematic approach to patient assessment and diagnosis.
- Develop skills in obtaining a thorough and relevant patient history.
- Understand the principles of functional assessment and its importance in evaluating patients' abilities and limitations.
- Learn to use functional assessment tools and techniques to evaluate activities of daily living (ADLs), mobility, strength, and endurance.

Course Prerequisites :

- Foundational courses in human anatomy, physiology, kinesiology, and biomechanics
- Knowledge of physiotherapy subjects
- Knowledge of the biomechanics of movement and the function of the musculoskeletal system.

Course Content :

1	**Unit 1: Assessment performance & Detection of Movement Dysfunction**		
	• Assessment performance for physiotherapeutic conditions • Detection of Movement dysfunction with special emphasis on musculoskeletal special tests		
2	**Unit 2: Neuro-developmental Assessment & Gait Analysis**		
	• Neuro-developmental assessment and Theories of motor control and learning		

	• Gait Analysis		
3	**Unit 3: Pathological investigation and imaging techniques**		
	• Principles of pathological investigation and imaging techniques in different musculoskeletal & neurological diseases with interpretation		
4	**Unit 4: Electro-diagnosis & Disability diagnosis and evaluation**		
	• EMG, Evoked potentials, Nerve conduction studies Disability diagnosis and evaluation		
5	**Unit 5: Applied neuro-anatomy and principles of Neuro-diagnosis**		

References :

- Clinical Electrotherapy, Nelson & Currier
- Campbell, Campbell's Operative Orthopaedics
- Claytons electrotherapy, tenth edition
- Umphreds Neurological Rehabilitation

Course Outcomes:-

CO1 Students will be able to demonstrate a comprehensive understanding of the principles and techniques of physical and functional diagnosis

CO2 Students will be able to apply evidence-based practice in conducting physical and functional assessments.

CO3 Students will develop the skills necessary to perform accurate clinical assessments of musculoskeletal, neuromuscular, and cardiopulmonary systems, including history-taking, physical examination.

CO4 Students will be able to formulate differential diagnoses based on their clinical assessments, considering both musculoskeletal and non-musculoskeletal causes of dysfunction.

CO5 Students will develop effective communication skills to convey assessment findings, diagnosis, and treatment plans to patients, caregivers, and interprofessional healthcare teams.

CO-PO Mapping:-

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	2	-	-	-	-

CO2	3	3	3	3	3	2	3	-	3	-	-	-
CO3	3	3	2	3	3	3	3	3	-	-	-	-
CO4	3	3	3	3	2	3	3	3	3	-	-	-
CO5	3	3	3	3	3	3	3	2	-	-	-	-

Course Title: **Advanced Physiotherapeutics-I**	Course Code: MP 207
Semester **III**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 3:0:0	Credits 3
Type of course: **Lecture + Assignments**	Total Contact Hours : 36 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives :

- Acquire the updated knowledge of production / biophysics
- Physiological / therapeutics effects (at the cellular levels) of various electrical currents, Thermal agents, ultra sound & electro – magnetic forces & potential risk factors on prolonged exposure.
- Acquire the knowledge about various types of pain
- Acquire the knowledge about women health ,Gynecological conditions and how to deal with them
- To know about role of physiotherapy in mental health

Course Prerequisites:

- Fundamental knowledge of human anatomy, physiology, and pathophysiology.
- Basic computer skills for operating electrotherapy and electro-diagnostic equipment.
- Basic understanding of therapeutic modalities and patient care.

Course Content:

1	**Unit 1 : Pain**		
	● Definition ● Theories of pain ● Assessment of pain ● Overview of Medical and Surgical management of pain ● Physiotherapeutic management of Pain		
2	**Unit 2 : Women's health**		
	● Physiotherapy in Obstetrics ● Physiotherapy in gynecological conditions		
	Unit 3: Biofeedback & Functional Training		

3	• Biofeedback • Respiratory exercises, Feeding, Bladder and Bowel Training.		
4	**Unit 4 : Mental Health**		
	• Physiotherapy and mental health		
5	**Unit 5 Neoplastic Conditions**		
	• Physiotherapy in neoplastic conditions		

References:-

- O'Sullivan, S. (2017). *Physical Therapy Rehabilitation*. Springer.
- Nelson, R. M., & Currier, D. P. (2015). *Clinical Electrotherapy*. McGraw-Hill.
- Polden, M., & Mantle, J. (2018). *Physiotherapy in Obstetrics and Gynaecology*. Jaypee Brothers.
- Braddom, R. L. (2016). *Physical Medicine and Rehabilitation*. Elsevier

Course Outcomes:-

CO1 Students will demonstrate a comprehensive understanding of advanced pathophysiological processes underlying various musculoskeletal, neurological, and cardiopulmonary conditions
CO2 Students will develop advanced assessment and diagnostic skills, including the ability to perform comprehensive physical examinations
CO3 Students will be able to develop evidence-based treatment plans for individuals with complex musculoskeletal, neurological, and cardiopulmonary conditions.
CO4 Students will demonstrate advanced critical thinking and problem-solving skills in the management of complex patient cases
CO5 Students will exhibit professionalism and ethical practice in all aspects of physiotherapeutic care, including maintaining patient confidentiality, respecting cultural and individual differences.

CO-PO Mapping:-

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	2	3	-	-	-
CO2	3	3	-	3	3	2	3	3	3	-	-	-
CO3	3	-	2	3	3	3	3	3	2	-	-	-
CO4	3	3	3	3	2	3	3	3	3	-	-	-
CO5	3	3	3	-	3	3	3	2	3	-	-	-

PRACTICAL

Course Title: **Elective Based Physiotherapeutic I (Sports) (Lab)**	Course Code : MP 259
Semester: III	Core / Elective: Program Core
Teaching Scheme in Hrs (L:T:P): 0:0:2	Credits: 2
Type of course: Lecture + Assignments	Total Contact Hours: 12 hrs
Continuous Internal Evaluation: 30 Marks	ESE: 70 Marks

S.No.	Name Of Topic
1	Soft tissue mobilization techniques
2	Neuromuscular coordination of PNF training
3	Body composition Analysis (Skinfold Assessment, Girth Measurement, Densitometry)
4	Fitness testing -strength ,endurance, power flexibility
5	Plyometric exercises
6	Hydrotherapy and its role on sports performance
7	Relaxation Training -Biofeedback stress coping strategies
8	Application of Mud bath
9	Personality assessment
10	Balneotherapy
Total no. of Practicals	10
Total no.of Hours	12

**Seminar Presentation & Case Study (Details Given on Page no.

**Field Visit (Details Given on Page no.

Course Title: **Cardiopulmonary-I**	Course Code: MP 217
Semester **III**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 2:0:0	Credits 2
Type of course: **Lecture + Assignments**	Total Contact Hours : 24 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives :

- Comprehend the detailed anatomy and physiology of the heart, lungs, and circulatory system.
- Gain knowledge of common cardiopulmonary diseases and conditions, such as coronary artery disease
- Develop skills in interpreting diagnostic test results to identify abnormalities.
- Expertise in conducting cardiopulmonary exercise testing (CPET) and understanding its applications in clinical practice.
- Develop skills in basic and advanced life support (BLS and ALS)

Course Prerequisites :

- Foundational courses in human anatomy, physiology, kinesiology, and biomechanics
- Basic knowledge of cardiopulmonary disorders
- Knowledge of physiotherapy subjects

Course content :

1.	**Unit-I General Principle of Assessment for Cardiopulmonary PT**		
	• Review of functional anatomy & physiology. • Concept of Assessment –SOAP, POMR, Problem based learning approaches. • General format of assessment for cardiopulmonary physiotherapy, formats for ICU, pediatric and mechanically ventilated cases. • Functional assessment, post- pediatric cardiothoracic and vascular surgery. • Chest X-ray, CT, MRI , NMR, PET, Scans , Fluoroscopy, Sputum induction, Bronchoscopy.		

	• Universal and specific precautions and contraindications for PT. • Assessment of oxygen uptake, transport, and utilization. • History taking for cardiac conditions and pulmonary conditions. • Patient observation & monitoring		
2.	**Unit: II Cardiovascular disorders & clinical reasoning for Cardio PT**		
	• Introduction, epidemiology of disease pattern, pathophysiology, Clinical presentation, differential diagnosis, conservative management & complications of the following clinical conditions: • Clinical examination of the cardiovascular system • Assessment of signs & symptoms of heart diseases – changes in vital signs, chest pain, dyspnea, edema, fatigue, cyanosis, cardiogenic shock, hypertension, abnormal heart sounds and murmurs, presyncope and syncope, palpitation. Claudication, atrial fibrillation, cardiac arrest and sudden cardiac death • Disorders of cardiac rate, rhythm and conduction – electrocardiography, sinus rhythms, atrial tachyarrhythmias, supraventricular tachycardia, ventricular tachyarrhythmias, sinoatrial disease, A-V and bundle branch block, anti- arrhythmic therapy, alternative therapy for arrhythmias		
3.	**Unit: III Pulmonary disorders & clinical reasoning for pulmonary PT**		
	• Introduction, epidemiology of disease pattern, pathophysiology, Clinical presentation, differential diagnosis, conservative management & complications of the following clinical conditions: • Clinical examination of the respiratory system. • Assessment of symptoms of lung diseases – cough, dyspnea, chest pain, sputum production, clubbing, cyanosis, hemoptysis, pleural effusion, aponic sleep disorders, respiratory failure • Obstructive pulmonary diseases – COPD, asthma, bronchiectasis, cystic fibrosis. Infections of the		

	respiratory system – upper respiratory tract infections, pneumonia, tuberculosis, fungal lung infections, lung abscess, empyema, pulmonary T.B., assessment. Hematology and immune system. Pulmonary vascular diseases – venous thromboembolism, pulmonary hypertension, Pulmonary Diagnostics: ABG's; • Bronchoscopy; Chest X-Ray; VQ Scans; MRI; CT Angiography for PE. Respiratory failure – type I and II , evaluation for ventilatory strategies		
4.	**Unit- IV : Cardiothoracic Surgical Disorders & clinical reasoning for Cardiovascular & pulmonary PT**		
	• Introduction, epidemiology of disease pattern, pathophysiology, Clinical presentation, differential diagnosis, conservative, surgical management & complications of the following clinical conditions: • Anesthesia for cardiopulmonary cases and complications, role of PT. • Cardiopulmonary bypass and complications, role of PT. • Rheumatic heart disease reasoning for pre and post-operative PT Congenital heart diseases reasoning for pre and post-operative PT • Closed Vs Open heart surgery reasoning for pre and post-operative PT		
5.	**Unit-V : Technological advancements for cardiovascular and pulmonary PT assessment**		
	• Telemonitoring, telehealth & clinical reasoning for Cardiovascular and pulmonary PT • Doppler & ECHO for clinical reasoning • PDA for clinical reasoning. • BLS, ACLS and AED and other live saving procedures and protocols.		

References:-

1. Zipes Douglas, Braunwald Eugene Braunwald's Heart Disease W B Saunders
2. Davidson A Textbook of Medicine Churchill Livingstone
3. Fishman Alfred P Pulmonary Rehabilitation Marcel Dekker
4. Cheriak Neils, Murray D. Altose, Ikuo Homma Rehabilitation of the Patient with Respiratory Disease McGraw-Hill Companies
5. Hillegass & Sadowsey Essentials of Cardio Pulmonary Physical therapy W.B. Saunders Company, 2nd Edition
6. Tecklin, S. J. (ed) (2004) Cardiopulmonary physical therapy: a guide to practice. (4th

edition).St Louis, Mosby. Pryor, J.A. and Prasad, S.A. (eds.) (2008)

Course Outcomes:-

CO1 Understand the Anatomy and Physiology of the Cardiopulmonary System
CO2 Identify Pathophysiological Changes in Cardiopulmonary Conditions
CO3 Perform Cardiopulmonary Assessment Techniques
CO4 Design and Implement Cardiopulmonary Rehabilitation Programs
CO5 Educate Patients and Communities on Cardiopulmonary Health

CO-PO Mapping:-

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	2	3	3	-	-
CO2	3	-	-	3	3	2	3	3	-	-	-	-
CO3	3	-	2	3	3	3	3	3	2	3	-	-
CO4	3	3	3	3	2	3	3	3	-	3	-	-
CO5	3	-	3	3	3	3	3	-	3	2	-	-

Course Title: **Elective Based Physiotherapeutic- I (Cardiopulmonary)**	Course Code: MP 219
Semester : **III**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 4:0:2	Credits 4
Type of course: **Lecture + Assignments**	Total Contact Hours : 48 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives :

- Comprehend the detailed anatomy and physiology of the heart, lungs, and circulatory system.
- Gain knowledge of common cardiopulmonary diseases and conditions, such as coronary artery disease
- Develop skills in interpreting diagnostic test results to identify abnormalities.
- Expertise in conducting cardiopulmonary exercise testing (CPET) and understanding its applications in clinical practice.
- Develop skills in basic and advanced life support (BLS and ALS)

Course Prerequisites :

- Foundational courses in human anatomy, physiology, kinesiology, and biomechanics
- Basic knowledge of cardiopulmonary disorders
- Knowledge of physiotherapy subjects

Course content :

Unit: I Breathing maneuvers & Bronchial Hygiene Therapy	**20% Weightage**	

Breathing – applied therapeutic aspects. • Ventillatory patterns • Procedures for general comfort and safety of the patient • Clinical indications and differential diagnosis of cardio thoracic conditions. • ACBT & AD • Advanced coughing techniques		

Unit 2: Breathing Patterns		
Atlectasis types and causes • Diaphragmatic breathing exercises, Pursed Lip Breathing, Segmental breathing ex • Respiratory muscle training using devices • Incentive spirometry of various types • Intermittent positive pressure breathing • Devices PEP mask, Acapella etc • Flute, Flutter and other adjuncts • Physiotherapy in neonatal ICU • Physiotherapy for the conditions taught in cardiopulmonary disorder • Mechanical insufflator exsufflator • IMT-inspiratory muscle trainer • Mechanical vibrator		
Unit III: Pulmonary Rehabilitation		
principles and prescription of pulmonary rehabilitation • Outcomes of pulmonary rehabilitation		
Unit IV: Cardiac Rehabilitation		

principles and prescription of cardiac rehabilitation • Home care of patients with cardio-respiratory disorders • Functional adaptations to rehabilitation • Physiotherapy in immunosuppressive and deficiency disorders • Physiotherapy for pediatric population • Physiotherapy for geriatric population • Communication, counseling and health education • Guidelines for Cardiac Rehabilitation		
Unit V :Vascular PT & Health Promotion		
Physiotherapy for vascular disorders arterial & venous • Raynaud's Phenomenon & PT • Physiotherapy in terminal care • Phyoga, • Preventive approach to cardiovascular and pulmonary disorders • Health promotion & metabolic diseases/disorders like Obesity, DM-II • Modalities in Cardiopulmonary PT • Actinotherapy for Cardiopulmonary PT		
• Prevention of morbidity and mortality with the use of physical aids • Sleep Apnea & PT		

References:-

1. Zipes Douglas, Braunwald Eugene Braunwald's Heart Disease W B Saunders
2. Davidson A Textbook of Medicine Churchill Livingstone
3. Fishman Alfred P Pulmonary Rehabilitation Marcel Dekker
4. Cheriak Neils, Murray D. Altose, Ikuo Homma Rehabilitation of the Patient with Respiratory Disease McGraw-Hill Companies
5. Hillegass & Sadowsey Essentials of Cardio Pulmonary Physical therapy W.B. Saunders Company, 2nd Edition
6. Tecklin, S. J. (ed) (2004) Cardiopulmonary physical therapy: a guide to practice. (4th[

Course Outcomes:-

CO1 Understanding Cardiopulmonary Anatomy and Physiology
CO2 Assessment and Diagnosis of Cardiopulmonary Conditions
CO3 Designing and Implementing Cardiopulmonary Rehabilitation Programs

CO4 Evidence-Based Practice in Cardiopulmonary Physiotherapy
CO5 Professionalism and Ethical Practice in Cardiopulmonary Physiotherapy

CO-PO Mapping:-

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	-	3	3	3	3	2	3	3	-	-
CO2	3	3	-	3	3	2	3	3	3	2	-	-
CO3	3	3	2	-	3	3	3	3	2	3	-	-
CO4	3	3	3	3	-	3	3	3	3	3	-	-
CO5	3	3	3	3	3	-	3	-	3	2	-	-

Course Title: **Current Physical & Functional Diagnosis-I**	Course Code : MP 205
Semester: **III**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 3:0:0	Credits: 3
Type of course: **Lecture + Assignments**	Total Contact Hours : 36 hrs
Continuous Internal Evaluation : **30 Marks**	SEE: **70 Marks**

Course Objectives :

- Understand the fundamental principles of physical and functional diagnosis.
- Learn the importance of a systematic approach to patient assessment and diagnosis.
- Develop skills in obtaining a thorough and relevant patient history.
- Understand the principles of functional assessment and its importance in evaluating patients' abilities and limitations.
- Learn to use functional assessment tools and techniques to evaluate activities of daily living (ADLs), mobility, strength, and endurance.

Course Prerequisites :

- Foundational courses in human anatomy, physiology, kinesiology, and biomechanics
- Knowledge of physiotherapy subjects
- Knowledge of the biomechanics of movement and the function of the musculoskeletal system.

Course content :

1	**Unit 1: Assessment performa & Detection of Movement dysfunction**		
	• Assessment performa for physiotherapeutic conditions • Detection of Movement dysfunction with special emphasis on musculoskeletal special tests		
2	**Unit 2: Neuro-developmental assessment & Gait Analysis**		
	• Neuro-developmental assessment and Theories of motor control and learning • Gait Analysis		

3	**Unit 3: Pathological investigation and imaging techniques**			
	• Principles of pathological investigation and imaging techniques in different musculoskeletal & neurological diseases with interpretation			
4	**Unit 4: Electro-diagnosis & Disability diagnosis and evaluation**			
	• EMG, Evoked potentials, Nerve conduction studies Disability diagnosis and evaluation			
5	**Unit 5: Applied neuro-anatomy and principles of Neuro-diagnosis**			

References:

- Brukner, P., & Khan, K. (2017). *Brukner & Khan's Clinical Sports Medicine: Injuries*. McGraw-Hill Education.
- Goodman, C. C., & Fuller, K. S. (2020). *Pathology: Implications for the Physical Therapist* (5th ed.). Elsevier.
- O'Sullivan, S. B., & Schmitz, T. J. (2016). *Physical Rehabilitation* (6th ed.). F.A. Davis Company.
- Magee, D. J. (2013). *Orthopedic Physical Assessment* (6th ed.). Elsevier Saunders.
- Kisner, C., & Colby, L. A. (2017). *Therapeutic Exercise: Foundations and Techniques* (7th ed.). F.A. Davis Company.

Course Outcomes:-

CO1 Students will be able to demonstrate a comprehensive understanding of the principles and techniques of physical and functional diagnosis

CO2 Students will be able to apply evidence-based practice in conducting physical and functional assessments.

CO3 Students will develop the skills necessary to perform accurate clinical assessments of musculoskeletal, neuromuscular, and cardiopulmonary systems, including history-taking, physical examination.

CO4 Students will be able to formulate differential diagnoses based on their clinical assessments, considering both musculoskeletal and non-musculoskeletal causes of dysfunction.

CO5 Students will develop effective communication skills to convey assessment findings, diagnosis, and treatment plans to patients, caregivers, and interprofessional healthcare teams.

CO-PO Mapping:-

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	2	3	3	2	-
CO2	3	3	3	3	3	-	3	3	3	2	-	-
CO3	3	3	2	-	3	3	3	3	2	3	-	-
CO4	3	3	3	3	-	3	3	-	3	3	-	3
CO5	3	3	3	-	3	3	3	-	3	2	2	-

Course Title: **Advanced Physiotherapeutics-I**	Course Code: MP 207
Semester **III**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 3:0:0	Credits 3
Type of course: **Lecture + Assignments**	Total Contact Hours : 36 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives :

- Acquire the updated knowledge of production/biophysics
- Physiological / therapeutics effects (at the cellular levels) of various electrical currents, Thermal agents, ultrasound & electro – magnetic forces & potential risk factors on prolonged exposure.
- Acquire the knowledge about various types of pain
- Acquire knowledge about women's health ,Gynecological conditions and how to deal with them
- To know about the role of physiotherapy in mental health

Course Prerequisites:

- Fundamental knowledge of human anatomy, physiology, and pathophysiology.
- Basic computer skills for operating electrotherapy and electro-diagnostic equipment.
- Basic understanding of therapeutic modalities and patient care.

Course Content:

1	**Unit 1 : Pain**		
	● Definition ● Theories of pain ● Assessment of pain ● Overview of Medical and Surgical management of pain ● Physiotherapeutic management of Pain		
2	**Unit 2 : Women health**		
	● Physiotherapy in Obstetrics ● Physiotherapy in gynecological conditions		
	Unit 3 : Biofeedback & Functional training		

3	• Biofeedback • Respiratory exercises, Feeding, Bladder and Bowel Training.		
4	**Unit 4 : Mental Health**		
	• Physiotherapy and mental health		
5	**Unit 5 Neoplastic Conditions**		
	• Physiotherapy in neoplastic conditions		

References:-

- O'Sullivan, S. (2017). *Physical Therapy Rehabilitation*. Springer.
- Nelson, R. M., & Currier, D. P. (2015). *Clinical Electrotherapy*. McGraw-Hill.
- Polden, M., & Mantle, J. (2018). *Physiotherapy in Obstetrics and Gynaecology*. Jaypee Brothers.
- Braddom, R. L. (2016). *Physical Medicine and Rehabilitation*. Elsevier

Course Outcomes:-

CO1 Students will demonstrate a comprehensive understanding of advanced pathophysiological processes underlying various musculoskeletal, neurological, and cardiopulmonary conditions
CO2 Students will develop advanced assessment and diagnostic skills, including the ability to perform comprehensive physical examinations
CO3 Students will be able to develop evidence-based treatment plans for individuals with complex musculoskeletal, neurological, and cardiopulmonary conditions.
CO4 Students will demonstrate advanced critical thinking and problem-solving skills in the management of complex patient cases
CO5 Students will exhibit professionalism and ethical practice in all aspects of physiotherapeutic care, including maintaining patient confidentiality, respecting cultural and individual differences.

CO-PO Mapping:-

PRACTICAL

	Course Title : **Elective Based Physiotherapeutic I (Cardiopulmonary) (Lab)**							Course Code : MP 261				**PO12**
	Semester: III							Core / Elective : Program Core				
CO1	Teaching Scheme in Hrs (L:T:P) : 0:0:2							Credits : 2				-
CO2	Type of course : Lecture + Assignments							Total Contact Hours : 12 hrs				-
	Continuous Internal Evaluation: 30 Marks							ESE : 70 Marks				
CO3	3	3	2	3	3	3	3	3	2	3	-	-
CO4	3	3	3	3	-	3	3	-	3	-	-	-
CO5	3	3	3	3	3	3	3	-	3	-	-	-

S.No.	Name Of Topic
1	Breathing -Applied aspects -ventilatory patterns
2	Advanced coughing techniques
3	ACBT and AD
4	Breathing Maneuvers -Intermittent pressure,PEP Masks
5	Physiotherapy for pediatric population
6	Raynaud's phenomenon and physiotherapy
7	Actinotherapy for cardiopulmonary physiotherapy
8	Modalities in cardiopulmonary physiotherapy
9	Inspiratory Muscle training
10	Breathing Exercises
Total no. of Practicals	10
Total no.of Hours	12

**Seminar Presentation & Case Study (Details Given on Page no.

**Field Visit (Details Given on Page no.

Semester -4th

MPT IN ORTHOPEDICS

Course Title: **ORTHOPEDICS II**	Course Code: MP 202
Semester: **IV**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 2:0:0	Credits 2
Type of course: **Lecture + Assignments**	Total Contact Hours : 24 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives :

- Analyze the epidemiology, pathophysiology, clinical presentation, and relevant diagnostic tests, differential diagnosis of orthopedic disorders
- Relate the clinical manifestations to the organ of dysfunction of the musculoskeletal system
- Appraise & apply the medical & surgical management of orthopedic disorders
- Create as well as investigate new developments in physiotherapeutic treatment
- Implement Physiotherapy treatment, compare & correlate the outcome of various treatment approaches

Course Prerequisites :

- Knowledge of Medical and Physiotherapy subjects
- Basic understanding of medical terminology, clinical assessment, and general pathology.
- Ability to use clinical assessment tools and equipment.

Course content :

Unit 1 : Soft tissue disorders		

• Soft tissue disorders : Introduction, pathophysiology, clinical presentation, differential diagnosis, conservative management & complications of the following joints: • Shoulder • Elbow • Hand & Wrist • Hip • Knee • Ankle and foot		
Unit 2 : Traumatology		
• Introduction, MOI, clinical presentation, conservative, surgical PT management & complications: • Fractures & dislocations of upper limb • Fractures & dislocations of Lower Limb • Post-operative assessment, training & patient education.		
• **Unit 3 : Hand Disorders** • Introduction, pathophysiology, Clinical presentation, differential diagnosis, conservative, surgical management & complications of the following clinical conditions: • Tendon injuries • Crush injuries • Burns • Spastic hand • Reflex sympathetic dystrophy • Rheumatoid hand		
Unit 4 : Amputations		

• Types and levels • Pre and postoperative rehabilitation & gait deviations • Special Aids: Introduction to prosthesis using artificial intelligence and stump care • External aids, appliances, adaptive self-help devices; prescription, biomechanical compatibility, check-out and training. • Locomotion disability evaluation as per Govt. guidelines for lower limb amputation & trauma		
Unit 5 : Neuro-vascular Diseases		
• Clinical features, evaluation and conservative management of various conditions • Nerve injuries, (general & specific), • Plexus injuries, • Thoracic outlet syndrome • Vascular ailments (Raynaud's, Thromboangiitis obliterans, Frostbite, Diabetic foot).		

References:

- Treatment and Rehabilitation of Fractures by Stanley Hoppenfeld MD, Vasantha L. Murthy MD, et al., 1st Edition, Lippincott Williams & Wilkins
- Orthopaedic Sports Medicine: Principles & Practice by DeLee & Drez's. Second edition, Saunders Publications.
- Myofascial Pain & Fibromyalgia: Trigger Point Management by Edward S. Rachlin & Tsabel S. Rachlin. Second edition, Mosby Publications.
- Hand Rehabilitation – Christine, Churchill, Livingstone, London 1995

Course Outcomes:-

CO1 Analyze the epidemiology, pathophysiology, clinical presentation, and relevant diagnostic tests, differential diagnosis of orthopedic disorders
CO2 Relate the clinical manifestations to the organ of dysfunction of the musculoskeletal system
CO3 Appraise & apply the medical & surgical management of orthopedic disorders
CO4 Create as well as investigate new developments in physiotherapeutic treatment
CO5 Students will be able to demonstrate knowledge and application of clinical evaluation and conservative treatment strategies in neuro-vascular diseases.

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CO-PO Mapping:-

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	2	3	-	-	-
CO2	3	3	3	3	2	3	3	3	-	-	-	-
CO3	3	3	2	3	3	3	3	3	2	-	-	-
CO4	3	3	3	3	2	3	3	3	3	-	-	-
CO5	3	3	3	3	3	3	3	2	-	-	-	-

Course Title: **Elective Based Physiotherapeutic II (Ortho)**	Course Code: MP 204
Semester **IV**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 4:0:2	Credits 4
Type of course: **Lecture + Assignments**	Total Contact Hours : 48 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives :

- Investigate and construct a rationale about various physiotherapy techniques
- Formulate new physiotherapy treatments
- Examine the outcomes of various treatment approaches
- Evaluate recent developments in physiotherapeutic treatment
- Implement Physiotherapy treatment, compare & correlate the outcome of various treatment approaches

Course Prerequisites :

- Basic knowledge of Musculoskeletal disorders
- Basic understanding of medical terminology, clinical assessment, and general pathology.

- Ability to use clinical assessment tools and equipment.

Course content :

1.	**unit 1 : Orthopedic Physiotherapy Approaches**	**25% Weightage**	
	Recent Advances in management of Orthopedic disorders using following techniques: ● Cyriax ● Maitland ● McKenzie ● Kaltenborn ● Combined Movement Therapy ● Mulligan		
2.	**Unit 2 : Myofascial Treatment Approaches**	**25% Weightage**	
	Recent Advances in management of Orthopedic disorders using following techniques: ● Mu Positional Release Technique ● Myofascial Release ● Neuromuscular Taping Techniques ● Neural mobilization (Butler scle Energy Technique		

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3.	**Unit 3: Advanced Therapeutic Approaches**		
	Recent Advances in management of Orthopedic disorders using following techniques: ● Pilates ● Advanced Thera band Training ● Advanced Physio-ball & Medicine ball Training ● Power Yoga ● Plyometric Training		
4.	**Unit 4 : Advanced Diagnostic Techniques**	**15% Weightage**	
	Recent Advances in diagnosis & management of Orthopedics disorders using following: ● Diagnostic Ultrasound ● CT ● MRI ● Radio nucleotide Imaging		
5.	**Unit 5 : Recent Advances in Musculoskeletal Disorders & treatment**	**10% Weightage**	
	● Compare & contrast the outcome of various treatment approaches clinically based on various researches. ● Role of e- health, m-health and telemedicine in management of chronic health conditions. ● Application of Machine learning and Artificial Intelligence in musculoskeletal physiotherapy		

References:

- Maitland's Vertebral Manipulation, Volume 2; Geoffrey Douglas Maitland, Edition - 7, illustrated, reprint Elsevier Butterworth-Heinemann, 2005 - Medical - 499 pages
- Maitland's Peripheral Manipulation, Elly Hengeveld, Kevin Banks, Edition - 4, illustrated, reprint , Elsevier/Butterworth Heinemann, 2005 - Medical - 636 pages

Course Outcomes:-

CO1 Investigate and construct a rationale about various physiotherapy techniques
CO2 Formulate new physiotherapy treatments
CO3 Examine the outcomes of various treatment approaches
CO4 Evaluate recent developments in physiotherapeutic treatment

CO5 Formulate new technique of physiotherapy in different orthopedic conditions

CO-PO Mapping:-

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	2	3	3	-	-
CO2	3	3	-	3	2	3	3	3	3	-	-	-
CO3	3	3	2	3	3	3	3	3	2	-	-	-
CO4	3	3	3	3	-	3	3	3	3	2	-	-
CO5	3	3	-	3	3	3	3	3	-	-	-	-

Course Title: Current Physical & Functional Diagnosis-II	Course Code : MP 206
Semester **IV**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 3:0:0	Credits 3
Type of course: **Lecture + Assignments**	Total Contact Hours : 36 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives :

- To learn about various physiotherapy techniques.
- Implement physiotherapy treatment
- Radiographic studies & Differential diagnosis
- Compare & contrast the outcome of various treatment approaches
- Ability to integrate theoretical knowledge with clinical presentation and do the differential diagnosis

Course Prerequisites :

- Basic Medical Knowledge of cardiopulmonary disorders
- Knowledge of Medical and Physiotherapy subjects
- Basic understanding of medical terminology, clinical assessment, and general pathology.

Course Content :

		Weightage (%)
Unit 1 : Clinical Reasoning		
• Different approaches and their use for achieving a functional diagnosis for interventions		
Unit 2 : Physiotherapy assessment		
• Physiotherapy assessment for extreme survival conditions. High altitude, Extremes of cold and heat for military personnels, mine and underground survival.		

Unit 3: Physiotherapy in aviation		
• Space & Aviation Physiotherapy, Anti-Gravity Treadmill.		
Unit 4: Fitness		
• Anthropometric measurement, physical fitness, and ergonomic assessment.		

Unit 5: Posture		
• Postural and Gait analysis		

References

1. Braddom, R. L. (2016). *Physical Medicine and Rehabilitation*. Elsevier Health Sciences.
2. Goodman, C. C., & Fuller, K. S. (2014). *Pathology: Implications for the Physical Therapist*. Elsevier Health Sciences.
3. Kendall, F. P., McCreary, E. K., Provance, P. G., Rodgers, M. M., & Romani, W. A. (2005). *Muscles: Testing and Function with Posture and Pain*. Lippincott Williams & Wilkins.
4. Kisner, C., & Colby, L. A. (2012). *Therapeutic Exercise: Foundations and Techniques*. F.A. Davis.
5. O'Sullivan, S. B., Schmitz, T. J., & Fulk, G. D. (2019). *Physical Rehabilitation*. F.A. Davis.

Course Outcomes:-

CO1 Students will exhibit an advanced comprehension of physical and functional diagnostic principles, including the ability to interpret complex clinical presentations.
CO2 Students will proficiently apply a wide range of diagnostic techniques, including history taking, physical examination maneuvers, laboratory investigations, and advanced imaging modalities, to accurately assess the health status of patients.
CO3 Students will develop the skills to critically evaluate diagnostic findings, integrating clinical data from various sources to prioritize differential diagnoses
CO4 Students will demonstrate effective communication skills in conveying diagnostic information to patients, families, and interdisciplinary healthcare teams.
CO5 Students will integrate professional ethics, cultural sensitivity, and legal considerations into their diagnostic approach, ensuring respect for patient autonomy, confidentiality.

CO-PO Mapping:-

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	2	3	3	-	-
CO2	3	3	3	3	3	3	-	3	3	-	-	-
CO3	3	3	2	3	-	3	3	3	2	-	-	-
CO4	3	3	2	3	-	3	3	3	3	2	-	-
CO5	3	3	2	3	3	3	3	3	-	-	-	-

Course Title: Advanced PhysioTherapeutics-II	Course Code : MP 208
Semester **IV**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 3:0:0	Credits 2
Type of course: **Lecture + Assignments**	Total Contact Hours : 24 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives :

- To learn about various physiotherapy techniques.
- Implement physiotherapy treatment
- Radiographic studies & Differential diagnosis
- Compare & contrast the outcome of various treatment approaches
- Ability to integrate theoretical knowledge with clinical presentation and do the differential diagnosis

Course Prerequisites :

- Basic Medical Knowledge of Advance Therapy Subjects
- Knowledge of Medical and Physiotherapy subjects
- Basic understanding of medical terminology, clinical assessment, and general pathology.

Course Content :

		Weightage (%)
Unit 1 : Therapeutic currents		
Low frequency currents Medium frequency currents High frequency currents Functional neuromuscular stimulation		

Transcranial direct current stimulation		
Unit 2 : Actinotherapy		
Infra-red radiation therapy Ultraviolet radiation therapy Laser therapy		

Unit 3: Decompression Therapy		
Decompression Traction – Lumbar and cervical spine		
Unit 4: Biofeedback and Magnetotherapy		
Pressure biofeedback Visual biofeedback Repetitive transcranial magnetic stimulation Neurofeedback		
Unit 5: Miscellaneous Therapies		
Tardio Therapy Matrix therapy Pressure therapy Virtual reality		

References

1. Braddom, R. L. (2016). *Physical Medicine and Rehabilitation*. Elsevier Health Sciences.
2. Goodman, C. C., & Fuller, K. S. (2014). *Pathology: Implications for the Physical Therapist*. Elsevier Health Sciences.
3. Kendall, F. P., McCreary, E. K., Provance, P. G., Rodgers, M. M., & Romani, W. A. (2005). *Muscles: Testing and Function with Posture and Pain*. Lippincott Williams & Wilkins.
4. Kisner, C., & Colby, L. A. (2012). *Therapeutic Exercise: Foundations and Techniques*. F.A. Davis.
5. O'Sullivan, S. B., Schmitz, T. J., & Fulk, G. D. (2019). *Physical Rehabilitation*. F.A. Davis.

Course Outcomes:-

CO1 Students will exhibit an advanced comprehension of physical and functional diagnostic principles, including the ability to interpret complex clinical presentations.
CO2 Students will proficiently apply a wide range of diagnostic techniques, including history taking, physical examination maneuvers, laboratory investigations, and advanced imaging modalities, to accurately assess the health status of patients.
CO3 Students will develop the skills to critically evaluate diagnostic findings, integrating clinical data from various sources to prioritize differential diagnoses

CO4 Students will demonstrate effective communication skills in conveying diagnostic information to patients, families, and interdisciplinary healthcare teams.
CO5 Students will integrate professional ethics, cultural sensitivity, and legal considerations into their diagnostic approach, ensuring respect for patient autonomy, confidentiality.

CO-PO Mapping:-

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	-	2	3	3	-	3
CO2	3	3	3	3	3	3	2	3	-	-	-	-
CO3	3	3	2	3	3	3	3	3	2	-	-	-
CO4	3	3	2	3	2	3	3	3	3	2	-	-
CO5	3	3	2	3	3	3	3	2	-	-	2	-

Course Title : **Elective Based Physiotherapeutic II (ortho) (Lab)**	Course Code : MP 254
Semester: IV	Core / Elective : Program Core
Teaching Scheme in Hrs (L:T:P) : 0:0:2	Credits : 2
Type of course : Lecture + Assignments	Total Contact Hours : 12 hrs
Continuous Internal Evaluation: 30 Marks	ESE : 70 Marks

S.No.	Name Of Topic
1	orthopedic physio approaches- cyriax
2	Maitland mobilization
3	Mulligan
4	Mckenzie techniques
5	kaltenborn mobilization
6	Combined movement therapy
7	Positional release techniques
8	Muscle energy technique
9	Neural mobilization
10	Myofascial release
Total no. of Practicals	10
Total no.of Hours	12

MPT IN NEUROLOGY

Semester -4th

Course Title: **Neurology II**	Course Code: MP 212
Semester **IV**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 2:0:0	Credits 2
Type of course: **Lecture + Assignments**	Total Contact Hours : 24 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives :

- Understand the epidemiology, pathophysiology, clinical presentation
- Relevant diagnostic tests, differential diagnosis, medical & surgical management of disorder of neurological system
- Understand and make the relevant diagnosis and differential diagnosis of the disorders of neurological system
- Understand medical, surgical management and plan the physiotherapeutic assessment and management of the disorders of neurological system
- Ability to integrate theoretical knowledge with clinical presentation and do the differential diagnosis

Course Prerequisites :

Basic Medical Knowledge of anatomy ,physiology and neurology

- Knowledge of Medical and Physiotherapy subjects
- Basic understanding of medical terminology, clinical assessment, and general pathology.

Course content :

		Weightage (%)
Unit 1 : Disorders of cerebrum acquired and congenital		

• Introduction, epidemiology of disease pattern, patho-physiology, Clinical presentation, differential diagnosis, conservative management, complications, physiotherapy assessment & management for the following clinical conditions: • Disorders of cerebral circulation • Cerebral Palsy • Other Congenital & hereditary disorders • Cranial nerve dysfunction • Abnormal sensorium and perception • Abnormal speech and language • Bulbar symptoms – dysphagia and dysarthria • Bladder and bowel dysfunction • Personality and memory dysfunction • Complex regional pain syndrome		
Unit 2: Traumatic neurological disorders	**20%**	

• Head injury
  ○ Rancho Los Amigos Levels of Cognitive Functioning
  ○ Assessment and management of mild to moderate head injury
  ○ Assessment and management of severe head injury
• Spinal cord injury
• ASIA impairment scale
• Spinal cord syndromes
• Neurological complications and associated conditions
• Assessment and management of quadriplegia and paraplegia		

Unit 3 : Neurodegenerative diseases	**20%**	

• Introduction, epidemiology of disease pattern, patho-physiology, Clinical presentation, differential diagnosis, conservative management, complications, Physiotherapy assessment & management for the following clinical conditions: • Movement disorders • Ataxia • Tremor disorders • Dystonia • Hemifacial spasm • Motor neuron disease • Spinal muscular atrophy • Disorders of cerebellar function		
Unit 4 : Movement re-education • Neurodevelopmental technique-Bobath • Brunnstrom approach • Motor relearning program • Biofeedback • Computer brain interference	**20%**	
Unit 5 : Neuro-modulation techniques • Rood's Approach • Proprioceptive Neuromuscular Facilitation • Functional electrical stimulation • Neurofeedback • Vojta		

References:-

1. "Bradley's Neurology in Clinical Practice" edited by Robert B. Daroff, Joseph Jankovic, John C. Mazziotta, and Scott L. Pomeroy.
2. "Adams and Victor's Principles of Neurology" edited by Allan H. Ropper and Martin A. Samuels.
3. "Neurology and Neurosurgery Illustrated" by Kenneth W. Lindsay and Ian Bone.
4. "Clinical Neurology" by Roger P. Simon, Michael J. Aminoff, and David A. Greenberg.
5. "Textbook of Clinical Neurology" by Christopher G. Goetz.
6. "Neurology: PreTest Self-Assessment and Review" by David J. Anschel.

Course outcomes:-

CO1 Understand the epidemiology, pathophysiology, clinical presentation, and diagnostic tests of the disorders of neurological system
CO2 Understand and make the relevant diagnosis and differential diagnosis of the disorders of neurological system
CO3 Understand medical management and plan the physiotherapeutic assessment and management of the disorders of neurological system
CO4 Understand and learn proper assessment of the neurological dysfunctions
CO5 Understand surgical management and plan the physiotherapeutic assessment and management of the disorders of neurological system

CO-PO Mapping:-

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	-	2	3	3	-	3
CO2	3	3	3	3	-	3	2	3	-	2	-	-
CO3	3	3	2	2	3	3	3	3	2	-	3	-
CO4	3	3	2	3	2	3	3	-	3	2	-	-
CO5	3	3	-	3	3	3	3	2	-	-	2	-

Course Title: **Elective Based Physiotherapeutic II (Neuro)**	Course Code: MP 214
Semester **IV**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 4:0:2	Credits 4
Type of course: **Lecture + Assignments**	Total Contact Hours : 48 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives :

- Understand the epidemiology, pathophysiology, clinical presentation, and relevant diagnostic tests, differential diagnosis, medical & surgical management of disorder of neurological system
- Understand and make the relevant diagnosis and differential diagnosis of the disorders of neurological system
- Understand medical, surgical management and plan the physiotherapeutic assessment and management of the disorders of neurological system
- Ability to integrate theoretical knowledge with clinical presentation and do the differential diagnosis

Course Prerequisites :

- Basic Medical Knowledge of anatomy ,physiology and neurology
- Knowledge of Medical and Physiotherapy subjects
- Basic understanding of medical terminology, clinical assessment, and general pathology.

Course Content :

		Weightage (%)
Unit 1 : Neurosurgical disorders		
• Introduction, epidemiology of disease pattern, patho-physiology, Clinical presentation, differential diagnosis, conservative management, complications, Physiotherapy assessment & management for the following clinical conditions: • General principles of neurosurgery • Cerebral malformations • Spasticity management • Surgical repair of peripheral nerves • Muscle lengthening / Release • Tendon transfers • Psychosurgery • Deep brain stimulation • Epidural stimulation		
Unit 2 : Tumors of the neurological system		**20%**

• Introduction, epidemiology of disease pattern, patho-physiology, Clinical presentation, differential diagnosis, conservative management, complications, Physiotherapy assessment & management for the following clinical conditions: • Tumors of brain and spinal cord • Decompression surgeries for tumors • Stereotactic surgery • Image guided frameless stereotaxy • Pain management		
Unit 3 : Diseases of peripheral nerves • Introduction, epidemiology of disease pattern, patho-physiology, Clinical presentation, differential diagnosis, conservative management, complications, Physiotherapy assessment & management for the following clinical conditions: • Peripheral nerve injuries • Entrapment neuropathy • Polyneuropathy • Guillain–Barré syndrome • Chronic polyneuropathy • Brachial plexopathy • Lumbosacral plexopathy Radiculopathy		**20%**

Unit 4 : Neuromuscular disorders ● Introduction, epidemiology of disease pattern, patho-physiology, Clinical presentation, differential diagnosis, conservative management, complications, Physiotherapy assessment & management for the following clinical conditions: ● Diseases of the neuromuscular junction ● Myasthenia gravis ● Lambert-Eaton myasthenic syndrome ● Other myasthenic syndromes ● Myopathies ● Becker muscular dystrophy ● Congenital muscular dystrophies ● Duchenne muscular dystrophy ● Emery-Dreifuss muscular dystrophy ● Facioscapulohumeral muscular dystrophy ● Limb-girdle muscular dystrophies ● Myotonic dystrophy ● Oculopharyngeal muscular dystrophy ● Other muscular dystrophies	**20%**	
Unit 5 : Evidence based approaches in Neurological conditions ● Constraint induced movement therapy ● Robotics ● Body weight supported treadmill training ● Virtual reality ● Mirror image therapy ● Combined movement therapy ● Muscle energy techniques ● Positional release techniques ● Neural mobilization technique ● Advanced Mobilization Techniques	**20%**	

References :

- Umphred, D. A., & Lazaro, R. T. (2012). *Neurological rehabilitation*. Elsevier Health Sciences.
- O'Sullivan, F.A. Davis. 1994. Physical Rehabilitation: Assessment and Treatment. Philadelphia
- Brain diseases of the Nervous System, Michael Donaghy
- Spillane, J. (2008). *Bickerstaff's neurological examination in clinical practice*. John Wiley & Sons.

Course outcomes:-

CO1 Understand the epidemiology, pathophysiology, clinical presentation, and relevant diagnostic tests, differential diagnosis, medical & surgical management of disorder of neurological system
CO2 Understand and make the relevant diagnosis and differential diagnosis of the disorders of neurological system
CO3 Understand surgical management and plan the physiotherapeutic assessment and management of the disorders of neurological system
CO4 Understand clinical decision-making ability and provide appropriate patient care.
CO5 Understand medical management and plan the physiotherapeutic assessment and management of the disorders of neurological system

CO-PO Mapping:-

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	2	2	3	3	-	-
CO2	3	3	3	3	3	3	2	3	-	2	-	-
CO3	3	3	2	2	3	3	3	3	2	-	-	-
CO4	3	3	2	3	2	3	3	3	3	2	-	-
CO5	3	3	-	3	3	-	3	2	-	-	-	-

Course Title: Current Physical & Functional Diagnosis-II	Course Code : MP 206
Semester **IV**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 3:0:0	Credits 3
Type of course: **Lecture + Assignments**	Total Contact Hours : 36 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives :

- To learn about various physiotherapy techniques.
- Implement physiotherapy treatment
- Radiographic studies & Differential diagnosis
- Compare & contrast the outcome of various treatment approaches
- Ability to integrate theoretical knowledge with clinical presentation and do the differential diagnosis

Course Prerequisites :

- Basic Medical Knowledge of cardiopulmonary disorders
- Knowledge of Medical and Physiotherapy subjects
- Basic understanding of medical terminology, clinical assessment, and general pathology.

Course Content :

		Weightage (%)
Unit 1 : Clinical Reasoning		
• Different approaches and their use for achieving a functional diagnosis for interventions		
Unit 2 : Physiotherapy assessment		
• Physiotherapy assessment for extreme survival conditions. High altitude, Extremes of cold and heat for military personnels, mine and underground survival.		

Unit 3: Physiotherapy in aviation		
• Space & Aviation Physiotherapy, Anti-Gravity Treadmill.		
Unit 4: Fitness		

• Anthropometric measurement, physical fitness, and ergonomic assessment.		
Unit 5: Posture		
• Postural and Gait analysis		

References

6. Braddom, R. L. (2016). *Physical Medicine and Rehabilitation*. Elsevier Health Sciences.
7. Goodman, C. C., & Fuller, K. S. (2014). *Pathology: Implications for the Physical Therapist*. Elsevier Health Sciences.
8. Kendall, F. P., McCreary, E. K., Provance, P. G., Rodgers, M. M., & Romani, W. A. (2005). *Muscles: Testing and Function with Posture and Pain*. Lippincott Williams & Wilkins.
9. Kisner, C., & Colby, L. A. (2012). *Therapeutic Exercise: Foundations and Techniques*. F.A. Davis.
10. O'Sullivan, S. B., Schmitz, T. J., & Fulk, G. D. (2019). *Physical Rehabilitation*. F.A. Davis.

Course Outcomes:-

CO1 Students will exhibit an advanced comprehension of physical and functional diagnostic principles, including the ability to interpret complex clinical presentations.
CO2 Students will proficiently apply a wide range of diagnostic techniques, including history taking, physical examination maneuvers, laboratory investigations, and advanced imaging modalities, to accurately assess the health status of patients.
CO3 Students will develop the skills to critically evaluate diagnostic findings, integrating clinical data from various sources to prioritize differential diagnoses
CO4 Students will demonstrate effective communication skills in conveying diagnostic information to patients, families, and interdisciplinary healthcare teams.
CO5 Students will integrate professional ethics, cultural sensitivity, and legal considerations into their diagnostic approach, ensuring respect for patient autonomy, confidentiality.

CO-PO Mapping:-

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12

CO1	3	3	3	3	3	3	2	2	-	-	-	-
CO2	3	3	3	3	3	3	2	3	-	-	-	-
CO3	3	3	2	2	3	3	3	3	-	-	-	-
CO4	3	3	2	3	2	3	3	3	-	-	-	-
CO5	3	3	3	3	3	3	3	2	-	-	-	-

Course Title: Advanced PhysioTherapeutics-II	Course Code : MP 208
Semester **IV**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 3:0:0	Credits 2
Type of course: **Lecture + Assignments**	Total Contact Hours : 24 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives :

- To learn about various physiotherapy techniques.
- Implement physiotherapy treatment
- Radiographic studies & Differential diagnosis
- Compare & contrast the outcome of various treatment approaches
- Ability to integrate theoretical knowledge with clinical presentation and do the differential diagnosis

Course Prerequisites :

- Basic Medical Knowledge of Advance Therapy Subjects
- Knowledge of Medical and Physiotherapy subjects
- Basic understanding of medical terminology, clinical assessment, and general pathology.

Course Content :

		Weightage (%)
Unit 1 : Therapeutic currents		
Low frequency currents Medium frequency currents High frequency currents		

Functional neuromuscular stimulation Transcranial direct current stimulation		
Unit 2 : Actinotherapy		
Infra-red radiation therapy Ultraviolet radiation therapy Laser therapy		

Unit 3: Decompression Therapy		
Decompression Traction – Lumbar and cervical spine		
Unit 4: Biofeedback and Magnetotherapy		
Pressure biofeedback Visual biofeedback Repetitive transcranial magnetic stimulation Neurofeedback		
Unit 5: Miscellaneous Therapies		
Tardio Therapy Matrix therapy Pressure therapy Virtual reality		

References

1. Braddom, R. L. (2016). *Physical Medicine and Rehabilitation*. Elsevier Health Sciences.
2. Goodman, C. C., & Fuller, K. S. (2014). *Pathology: Implications for the Physical Therapist*. Elsevier Health Sciences.
3. Kendall, F. P., McCreary, E. K., Provance, P. G., Rodgers, M. M., & Romani, W. A. (2005). *Muscles: Testing and Function with Posture and Pain*. Lippincott Williams & Wilkins.
4. Kisner, C., & Colby, L. A. (2012). *Therapeutic Exercise: Foundations and Techniques*. F.A. Davis.
5. O'Sullivan, S. B., Schmitz, T. J., & Fulk, G. D. (2019). *Physical Rehabilitation*. F.A. Davis.

Course Outcomes:-

CO1 Students will exhibit an advanced comprehension of physical and functional diagnostic principles, including the ability to interpret complex clinical presentations.
CO2 Students will proficiently apply a wide range of diagnostic techniques, including history taking, physical examination maneuvers, laboratory investigations, and advanced imaging modalities, to accurately assess the health status of patients.
CO3 Students will develop the skills to critically evaluate diagnostic findings, integrating

clinical data from various sources to prioritize differential diagnoses

CO4 Students will demonstrate effective communication skills in conveying diagnostic information to patients, families, and interdisciplinary healthcare teams.

CO5 Students will integrate professional ethics, cultural sensitivity, and legal considerations into their diagnostic approach, ensuring respect for patient autonomy, confidentiality.

CO-PO Mapping:-

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	2	2	-	3	-	-
CO2	3	3	3	3	3	3	2	3	3	-	-	-
CO3	3	3	2	2	3	3	3	3	-	2	-	-
CO4	3	3	2	3	2	3	3	3	2	-	-	-
CO5	3	3	3	3	3	3	3	2	-	3	-	-

PRACTICAL

Course Title : **Elective Based Physiotherapeutic II (Neurology) (Lab)**	Course Code : MP 256
Semester: IV	Core / Elective : Program Core
Teaching Scheme in Hrs (L:T:P) : 0:0:2	Credits : 2
Type of course : Lecture + Assignments	Total Contact Hours : 12 hrs
Continuous Internal Evaluation: 30 Marks	ESE : 70 Marks

S.No.	Name Of Topic
1	Muscle lengthening and Release
2	Pain Management
3	Physiotherapy assessment of spinal cord disease
4	Muscle energy technique
5	Positional release techniques
6	Neural mobilization technique
7	Advanced mobilization technique
8	Mirror image therapy
9	Constraint induced movement therapy
10	Body weight supported treadmill training
Total no. of Practicals	10
Total no.of Hours	12

MPT IN SPORTS
Semester -4th

Course Title: **Sports II**	Course Code: MP 216
Semester **IV**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 2:0:0	Credits 2
Type of course: **Lecture + Assignments**	Total Contact Hours : 24 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives :

- Biomechanics of various sports.
- Understand the epidemiology, pathophysiology, clinical presentation, and relevant diagnostic tests, differential diagnosis, medical & surgical management of disorder related to sports
- To learn physiotherapy assessment and management of acute and overuse injuries of lower limb
- Implement physiotherapy treatment
- Relate the various principles of rehabilitation to the sports specific athletic injuries
- Strong communication skills for effective interaction with patients and healthcare teams

Course Prerequisites :

- Foundational courses in human anatomy, physiology, kinesiology, and biomechanics
- Basic knowledge of exercise science, including principles of training, conditioning, and performance enhancement.
- Knowledge of physiotherapy subjects

Course content :

1.	**Unit 1 : Biomechanics of various sports (Lower limb and Spine)**	**20% Weightage**	
	• Biomechanics related to contact and non contact sports (Lower limb and Spine):		

	• Track and Field, Running, cycling, long jump, high jump etc.		
2.	**Unit 2: Physiotherapy assessment in sports injuries related to lower limb and gait**	**20% Weightage**	
	• Physiotherapy assessment of lower limb injuries (Lower back, hip thigh, knee, ankle and foot) • Physiotherapy assessment of gait deviations (all the segments)		
3.	**Module III: Acute and overuse injuries related to Lower limb**	**20% Weightage**	
	• Mechanism of injury, clinical presentation, Medical, Surgical and Physiotherapy management of the following conditions: • Injuries to lower limb injuries (Lower back, hip thigh, knee, ankle and foot)		

4.	**Unit 4 : Emergency care and management of other medical conditions in sports**	**20% Weightage**
	• Emergency care and athletic first aid; cardiopulmonary resuscitation, shock management • Internal and external bleeding, splinting, stretcher use handling and transfer • Athlete with epilepsy • Guidelines of Sports for disabled persons (Paralympic athletes) • Guidelines for Veteran Athletes • Hazards of Underwater environment, Sports Diving	
5.	**Unit 5 : Sports Nutrition & Sports Pharmacology**	**20% weightage**
	• Pre-game meal, carbohydrate Loading, food for various athletes of various disciplines • Special aids to athletic performance • Doping in International athletes • Prohibited classes of substances • Prohibited Methods • Therapeutic use of Exemption (TUE)	

	• Drug testing	

References:

- Richard B. Birrer. Sports Medicine for Primary Care Physician. CRC Press
- Torg, Welsh & Shepherd. Current Therapy in Sports Medicine III. Mosby
- Zulunga et al. Sports Physiotherapy. W.B .Saunders
- Reed. Sports Injuries-Assessment and Rehabilitation. W.B. Saunders
- Gould. Orthopedic sports Physical Therapy. Mosby

Course Outcomes:-

CO1 Biomechanics of various sports.
CO2 Understand the epidemiology, pathophysiology, clinical presentation, and relevant diagnostic tests, differential diagnosis, medical & surgical management of disorder related to sports
CO3 To learn physiotherapy assessment and management of acute injuries.
CO4 Implement physiotherapy treatment for various sports injuries.
CO5 To learn physiotherapy assessment and management of overuse injuries of lower limb

CO-PO Mapping:-

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	2	3	-	3	-	-
CO2	3	3	3	3	3	3	2	3	3	-	-	-
CO3	3	3	2	2	3	3	3	3	-	-	-	-
CO4	3	3	2	3	2	-	3	3	2	-	-	-
CO5	3	-	3	3	3	3	3	2	-	3	-	-

Course Title: **Elective Based Physiotherapeutic II (Sports)**	Course Code: MP 218
Semester **IV**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 4:0:2	Credits 4
Type of course: **Lecture + Assignments**	Total Contact Hours : 48 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives :

- To learn about various physiotherapy techniques.
- Implement physiotherapy treatment
- Radiographic studies & Differential diagnosis
- Compare & contrast the outcome of various treatment approaches
- Ability to integrate theoretical knowledge with clinical presentation and do the differential diagnosis

Course Prerequisites :

- Basic Medical Knowledge of anatomy and sports physiology
- Knowledge of Medical and Physiotherapy subjects
- Basic understanding of medical terminology, clinical assessment, and general pathology.

Course Content :

Unit 1 : Manual therapy techniques	
• Introduction to manual therapy techniques, • Joint techniques, manual joint therapy, • Core Muscle training • Deep neck flexor training • Pilates • MET • Basic principles of manipulation for various disorders of the spine and extremities. • Soft tissue mobilization technique used for sports therapy. • Introduction to myofascial release therapy, craniosacral therapy, trigger point therapy and their use in sport physiotherapy.	
Unit 2 : Bandaging & Taping	

• Functional bandages and Orthotic aids: history and use of functional bandages, classification according to the time of application, type of bandages, bandaging techniques and bandaging materials, indication, contraindications, athletic shoes and modification, common Orthotic aids and appliances in sports. • Types of Taping, Bandaging, Protective splinting • Tapping methods and techniques for various joint and injuries in sports • Sports specific Athletic shoes	
Unit 3: Electrotherapy in Sports	
• Principles underlying the application of following modalities with reference to their production, biophysical and therapeutic effects, indication and contraindication and specific use in sports. • Low frequency current; direct current, modified direct current, alternating current, di - dynamic current, Iontophoresis, TENS, HVPGS • Shock wave therapy, Long wave therapy • Radical Shock Wave Therapy, ECSWT, LASER Grade 4 & Combination Therapy • Traction • Medium frequency current; IFT, Russian currents; Microcurrents • High frequency current; SWD, MWD, ultrasound, pulsed electromagnetic energy • Radiations • Recent advancement in electrotherapy, electro diagnosis and its implication in sports	
Unit 4 : Advanced Health Systems	
• E Health, M Health, telemedicine in Sports Rehab	

References:

1. Basmajian, J. V. T. (n.d.). *Therapeutic Exercise: Foundation and Techniques*. F.A. Davis.
2. Thompson, J., Skinner, A., & Piercy, J. (Eds.). (n.d.). *Tidy's Physiotherapy*. Butterworth-Heinemann.
3. Werner, F. (n.d.). *Physical Therapy for Sports*. W.B. Saunders.
4. Bates, A., & Hanson, N. (n.d.). *Aquatic Exercise Therapy*. W.B. Saunders.

Course Outcomes:-

CO1 To learn about various physiotherapy techniques.
CO2 Implement physiotherapy treatment
CO3 Radiographic studies & Differential diagnosis
CO4 Compare & contrast the outcome of various treatment approaches
CO5 Students will be able to learn about various approaches used in field management.

CO-PO Mapping:-

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	2	3	-	3	-	-
CO2	3	3	3	3	3	3	2	3	3	-	-	-
CO3	3	3	2	2	3	3	3	3	-	-	-	-
CO4	3	3	2	3	2	-	3	3	2	-	-	-
CO5	3	-	3	3	3	3	3	2	-	3	-	-

Course Title: Current Physical & Functional Diagnosis-II	Course Code : MP 206
Semester **IV**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 3:0:0	Credits 3
Type of course: **Lecture + Assignments**	Total Contact Hours : 36 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives :

- To learn about various physiotherapy techniques.
- Implement physiotherapy treatment
- Radiographic studies & Differential diagnosis
- Compare & contrast the outcome of various treatment approaches
- Ability to integrate theoretical knowledge with clinical presentation and do the differential diagnosis

Course Prerequisites :

- Basic Medical Knowledge of cardiopulmonary disorders
- Knowledge of Medical and Physiotherapy subjects
- Basic understanding of medical terminology, clinical assessment, and general pathology.

Course Content :

	Weightage (%)
Unit 1 : Clinical Reasoning	
• Different approaches and their use for achieving a functional diagnosis for interventions	
Unit 2 : Physiotherapy assessment	
• Physiotherapy assessment for extreme survival conditions. High altitude, Extremes of cold and heat for military personnels, mine and underground survival.	
Unit 3: Physiotherapy in aviation	
• Space & Aviation Physiotherapy, Anti-Gravity Treadmill.	
Unit 4: Fitness	
• Anthropometric measurement, physical fitness, and ergonomic assessment.	
Unit 5: Posture	
• Postural and Gait analysis	

References

1. Braddom, R. L. (2016). *Physical Medicine and Rehabilitation*. Elsevier Health Sciences.
2. Goodman, C. C., & Fuller, K. S. (2014). *Pathology: Implications for the Physical Therapist*. Elsevier Health Sciences.
3. Kendall, F. P., McCreary, E. K., Provance, P. G., Rodgers, M. M., & Romani, W. A. (2005).

Muscles: Testing and Function with Posture and Pain. Lippincott Williams & Wilkins.
4. Kisner, C., & Colby, L. A. (2012). *Therapeutic Exercise: Foundations and Techniques*. F.A. Davis.
5. O'Sullivan, S. B., Schmitz, T. J., & Fulk, G. D. (2019). *Physical Rehabilitation*. F.A. Davis.

Course Outcomes:-

CO1 Students will exhibit an advanced comprehension of physical and functional diagnostic principles, including the ability to interpret complex clinical presentations.
CO2 Students will proficiently apply a wide range of diagnostic techniques, including history taking, physical examination maneuvers, laboratory investigations, and advanced imaging modalities, to accurately assess the health status of patients.
CO3 Students will develop the skills to critically evaluate diagnostic findings, integrating clinical data from various sources to prioritize differential diagnoses
CO4 Students will demonstrate effective communication skills in conveying diagnostic information to patients, families, and interdisciplinary healthcare teams.
CO5 Students will integrate professional ethics, cultural sensitivity, and legal considerations into their diagnostic approach, ensuring respect for patient autonomy, confidentiality.

CO-PO Mapping:-

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	2	3	-	-	-	-
CO2	3	3	3	3	3	3	2	3	3	-	-	-
CO3	3	3	2	2	3	-	3	3	-	-	-	-
CO4	3	3	2	3	2	2	3	3	2	-	-	-
CO5	3	3	3	3	3	3	3	2	-	-	-	-

Course Title: Advanced PhysioTherapeutics-II	Course Code : MP 208
Semester **IV**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 3:0:0	Credits 2
Type of course: **Lecture + Assignments**	Total Contact Hours : 24 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives :

- To learn about various physiotherapy techniques.
- Implement physiotherapy treatment
- Radiographic studies & Differential diagnosis
- Compare & contrast the outcome of various treatment approaches
- Ability to integrate theoretical knowledge with clinical presentation and do the differential diagnosis

Course Prerequisites :

- Basic Medical Knowledge of Advance Therapy Subjects
- Knowledge of Medical and Physiotherapy subjects
- Basic understanding of medical terminology, clinical assessment, and general pathology.

Course Content :

	Weightage (%)
Unit 1 : Therapeutic currents	
Low frequency currents Medium frequency currents High frequency currents Functional neuromuscular stimulation Transcranial direct current stimulation	
Unit 2 : Actinotherapy	
Infra-red radiation therapy Ultraviolet radiation therapy Laser therapy	

Unit 3: Decompression Therapy	
Decompression Traction – Lumbar and cervical spine	
Unit 4: Biofeedback and Magnetotherapy	
Pressure biofeedback Visual biofeedback Repetitive transcranial magnetic stimulation Neurofeedback	
Unit 5: Miscellaneous Therapies	
Tardio Therapy Matrix therapy Pressure therapy Virtual reality	

References

6. Braddom, R. L. (2016). *Physical Medicine and Rehabilitation*. Elsevier Health Sciences.
7. Goodman, C. C., & Fuller, K. S. (2014). *Pathology: Implications for the Physical Therapist*. Elsevier Health Sciences.
8. Kendall, F. P., McCreary, E. K., Provance, P. G., Rodgers, M. M., & Romani, W. A. (2005). *Muscles: Testing and Function with Posture and Pain*. Lippincott Williams & Wilkins.
9. Kisner, C., & Colby, L. A. (2012). *Therapeutic Exercise: Foundations and Techniques*. F.A. Davis.
10. O'Sullivan, S. B., Schmitz, T. J., & Fulk, G. D. (2019). *Physical Rehabilitation*. F.A. Davis.

Course Outcomes:-

CO1 Students will exhibit an advanced comprehension of physical and functional diagnostic principles, including the ability to interpret complex clinical presentations.

CO2 Students will proficiently apply a wide range of diagnostic techniques, including history taking, physical examination maneuvers, laboratory investigations, and advanced imaging modalities, to accurately assess the health status of patients.

CO3 Students will develop the skills to critically evaluate diagnostic findings, integrating clinical data from various sources to prioritize differential diagnoses

CO4 Students will demonstrate effective communication skills in conveying diagnostic information to patients, families, and interdisciplinary healthcare teams.

CO5 Students will integrate professional ethics, cultural sensitivity, and legal considerations into their diagnostic approach, ensuring respect for patient autonomy, confidentiality.

CO-PO Mapping:-

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	2	3	2	-	-	-
CO2	3	3	-	3	3	3	2	3	3	-	-	-
CO3	3	3	2	2	3	3	3	3	-	-	-	-
CO4	3	3	3	3	2	2	3	3	2	-	-	-
CO5	3	3	3	3	3	3	3	2	3	-	-	-

Course Title : **Elective Based Physiotherapeutic I (Sports) (Lab)**	Course Code : MP 258
Semester: IV	Core / Elective : Program Core
Teaching Scheme in Hrs (L:T:P) : 0:0:2	Credits : 1
Type of course : Lecture + Assignments	Total Contact Hours : 12 hrs
Continuous Internal Evaluation: 30 Marks	ESE : 70 Marks

S.No.	Name Of Topic
1	MET
2	Core Muscle training
3	Manual joint therapy
4	Soft tissue mobilization techniques used for sports
5	Functional bandages

6	Taping methods
7	Myofascial release
8	craniosacral therapy
9	Manipulation of various disorders of the spine
10	Manipulation of various disorders of extremities
Total no. of Practicals	10
Total no.of Hours	12

MPT IN CARDIOPULMONARY
Semester -4th

Course Title: **Elective Based Physiotherapeutic II (Cardiopulmonary)**	Course Code: MP 222
Semester **IV**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 4:0:0	Credits 4
Type of course: **Lecture + Assignments**	Total Contact Hours : 48 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives :

- To learn about various physiotherapy techniques.
- Implement physiotherapy treatment
- Radiographic studies & Differential diagnosis
- Compare & contrast the outcome of various treatment approaches
- Ability to integrate theoretical knowledge with clinical presentation and do the differential diagnosis

Course Prerequisites :

- Basic Medical Knowledge of cardiopulmonary disorders
- Knowledge of Medical and Physiotherapy subjects
- Basic understanding of medical terminology, clinical assessment, and general pathology.

Course Content :

Unit 1: Chest PT and advanced techniques	
• Postural Drainage Percussion & Vibration • Closed versus Open suction systems • T Piece Ambu • Airway restoration • Intubations & Extubation • Broncho-alveolar lavage • Undesirable effects, precautions and contraindications of chest physiotherapy Psychological counseling • Strategies for early oxygen and ventilatory including mobilization.	

Unit 2: Instruments and cardiovascular & pulmonary techniques in ICU.	
• Inhalation therapy, • Oxygen therapy Humidification and aerosol therapy • Physiotherapy in the intensive care unit • Instrumentation: ventilators, humidifiers, nebulizers, CVP, PFT, suction Mechanical Ventilation: history, types and use Hyperventilation PT Techniques in neonatal ICU Relaxation techniques • ICU Acquired Weakness & Myopathy • DVT risk stratification & prevention High Risk lung infections and PT considerations (SARS, MERS, COVID-19 etc)	
Unit 3: Patient management adjuncts for cardiovascular & pulmonary PT. • Cardiopulmonary patients & electrotherapy modalities • Pain Management • Stress management • Lifestyle management • Patient & family education • Biofeedback • Hydrotherapy Changes with immobility and methods of mobilization	

Unit 4: Exercise testing, training for cardiovascular and pulmonary cases.
• Exercise testing and exercise training (and exercises prescription - strengthening, conditioning and endurance) Hypertension and Exercise prescription • Orthostatic Hypotension and exercise prescription Obesity and exercise prescription, Diabetes Mellitus type-II and exercise prescription Hormonal disorders and exercise prescription • Physiotherapy in home setting Counseling of the Patient • Critical analysis of exercise & followup
Unit 5 :Technological Advancements in cardiovascular & pulmonary PT management interventions.
• online patients PT records management • Block chain management • Artificial intelligence in cardiopulmonary PT • Sustainability for disruptive environments in cardiopulmonary PT

References:-

1. DeTurk, W. E., & Cahalin, L. P. (2017). *Cardiovascular and Pulmonary Physical Therapy: An Evidence-Based Approach*. McGraw-Hill Education.
2. Frownfelter, D., & Dean, E. (2015). *Cardiovascular and Pulmonary Physical Therapy: Evidence to Practice*. Elsevier Health Sciences.
3. Clini, E., Ambrosino, N., & Goldstein, R. (2008). *Pulmonary Rehabilitation*. European Respiratory Society.
4. Gosselink, R., Decramer, M., & Demeyer, H. (2017). *Respiratory Muscle Training: Theory and Practice*. Elsevier Health Sciences.
5. Hodgkin, J. E., Celli, B. R., & Connors, G. L. (2009). *Pulmonary Rehabilitation: Guidelines to Success*. Mosby

Course Outcomes:-

CO1 The subjects provide the knowledge about Orthopedic conditions the therapist would encounter in their practice
CO2 Acquire the knowledge in skeletal system that is required to be practiced in community and at all levels of the healthcare system.
CO3 Demonstrate comprehensive understanding of skeletal system including bones and joint
CO4 Understand relevant investigations which will help to know about the important medical conditions.
CO5 Understand relevant investigations which will help to know about the important cardiac problem.

CO-PO Mapping:-

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	2	3	-	-	-	-
CO2	3	3	-	3	3	3	2	3	-	-	-	-
CO3	3	3	2	2	3	-	3	3	-	-	-	-
CO4	3	3	3	3	2	3	3	3	2	-	-	-
CO5	3	3	3	3	3	3	3	2	3	-	-	-

Course Title: **Cardiopulmonary II**	Course Code: MP 220
Semester **IV**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 2:0:0	Credits 2
Type of course: **Lecture + Assignments**	Total Contact Hours : 24 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives :

- Comprehend the detailed anatomy and physiology of the heart, lungs, and circulatory system.
- Gain knowledge of common cardiopulmonary diseases and conditions, such as coronary artery disease
- Develop skills in interpreting diagnostic test results to identify abnormalities.
- Expertise in conducting cardiopulmonary exercise testing (CPET) and understanding its applications in clinical practice.
- Develop skills in basic and advanced life support (BLS and ALS)

Course Prerequisites :

- Foundational courses in human anatomy, physiology, kinesiology, and biomechanics
- Basic knowledge of cardiopulmonary disorders
- Knowledge of physiotherapy subjects

Course content :

1.	**Unit1: Cardiovascular & pulmonary mechanics**	
	• Cardiac mechanics including that of myocardium and valves. • Vascular mechanics of arterial and venous systems. • Pulmonary mechanics including airways and pleura.	
2.	**Unit 2: Cardiac disorders and clinical skills of Cardiovascular PT**	
	• Goal planning and physiotherapeutic management as per the assessment and clinical reasoning for various cardiovascular conditions- • Disorders of cardiac rate, rhythm and conduction – electrocardiography, sinus rhythms, atrial tachyarrhythmias, supraventricular tachycardia, ventricular tachyarrhythmias, sinoatrial disease, A-V	

	• Bundle branch block, anti- arrhythmic therapy, alternative therapy for arrhythmias • Atherosclerotic vascular diseases – Pathophysiology, risk factors, prevention, drug therapy, lifestyle modifications. • Cardiac arrest Cardiac failure Cardiogenic Shock Rheumatic fever	
3.	**Unit3: Pulmonary disorders and clinical skills of pulmonary PT**	
	• Obstructive pulmonary diseases – COPD, asthma, bronchiectasis, cystic fibrosis • Infections of the respiratory system – upper respiratory tract infections, pneumonia, tuberculosis, fungal lung infections, lung abscess, empyema, pulmonary T.B., • Pulmonary vascular diseases – venous thromboembolism, pulmonary hypertension, DVT Respiratory failure – type I and II • Supplemental oxygen and oxygen delivery devices in chronic respiratory disease • Neuromuscular and skeletal disorders leading to global alveolar hypoventilation: myopathies, spinal muscular atrophies, poliomyelitis, motor neuron disease, kyphoscoliosis, pectus carinatum, pectus excavatum	

4.	**Unit 4 : Physiotherapeutic Clinical skills for CTVS**	
	• Different incisions • CAD-CABG, PTCA etc • Rheumatic heart disease • Preoperative assessment of patients • Pre and post-operative blood gas exchange Haemodynamic performance of CTVS patients Emergencies in CTVS	
5.	**Unit 5** : **Technological advances and their implications for skill enhancement for Cardiovascular & pulmonary PT.**	
	• Introduction to disruptive technology • Technological advancements in assessment of cardiopulmonary disorders • Technical Surgical advancements and PT implications in cardiopulmonary surgery Display and advertising using WWW, eHealth, telemedicine, digital marketing Cardiac and pulmonary monitoring and training using technology in sports.	

References:-

Course Outcomes:-

CO1 The objective of this course is that the student will be able to demonstrate and understand cardiopulmonary-conditions causing disability.
CO2 Demonstrate comprehensive understanding of skeletal system including bones and joint
CO3 Acquire the knowledge in skeletal system that is required to be practiced in community and at all levels of health care system.
CO4 Understand relevant investigations which will help to know about the important medical conditions.
CO5 Understand the etiology, clinical features and methods of investigations and medical management

CO-PO Mapping:-

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	2	3	3	-	-	-
CO2	3	3	3	3	3	3	2	3	-	-	-	-
CO3	3	3	2	2	3	3	3	3	2	-	-	-
CO4	3	3	3	3	2	3	3	3	2	-	-	-
CO5	3	3	3	3	3	3	3	2	3	-	-	-

Course Title: Current Physical & Functional Diagnosis-II	Course Code : MP 206
Semester **IV**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 3:0:0	Credits 3
Type of course: **Lecture + Assignments**	Total Contact Hours : 36 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives :

- To learn about various physiotherapy techniques.
- Implement physiotherapy treatment
- Radiographic studies & Differential diagnosis
- Compare & contrast the outcome of various treatment approaches
- Ability to integrate theoretical knowledge with clinical presentation and do the differential diagnosis

Course Prerequisites :

- Basic Medical Knowledge of cardiopulmonary disorders
- Knowledge of Medical and Physiotherapy subjects
- Basic understanding of medical terminology, clinical assessment, and general pathology.

Course Content :

	Weightage (%)
Unit 1 : Clinical Reasoning	
• Different approaches and their use for achieving a functional diagnosis for interventions	
Unit 2 : Physiotherapy assessment	

• Physiotherapy assessment for extreme survival conditions. High altitude, Extremes of cold and heat for military personnels, mine and underground survival.	
Unit 3: Physiotherapy in aviation	
• Space & Aviation Physiotherapy, Anti-Gravity Treadmill.	
Unit 4: Fitness	
• Anthropometric measurement, physical fitness, and ergonomic assessment.	
Unit 5: Posture	
• Postural and Gait analysis	

References

11. Braddom, R. L. (2016). *Physical Medicine and Rehabilitation*. Elsevier Health Sciences.
12. Goodman, C. C., & Fuller, K. S. (2014). *Pathology: Implications for the Physical Therapist*. Elsevier Health Sciences.
13. Kendall, F. P., McCreary, E. K., Provance, P. G., Rodgers, M. M., & Romani, W. A. (2005). *Muscles: Testing and Function with Posture and Pain*. Lippincott Williams & Wilkins.
14. Kisner, C., & Colby, L. A. (2012). *Therapeutic Exercise: Foundations and Techniques*. F.A. Davis.
15. O'Sullivan, S. B., Schmitz, T. J., & Fulk, G. D. (2019). *Physical Rehabilitation*. F.A. Davis.

Course Outcomes:-

CO1 Students will exhibit an advanced comprehension of physical and functional diagnostic principles, including the ability to interpret complex clinical presentations.
CO2 Students will proficiently apply a wide range of diagnostic techniques, including history taking, physical examination maneuvers, laboratory investigations, and advanced imaging modalities, to accurately assess the health status of patients.
CO3 Students will develop the skills to critically evaluate diagnostic findings, integrating clinical data from various sources to prioritize differential diagnoses
CO4 Students will demonstrate effective communication skills in conveying diagnostic information to patients, families, and interdisciplinary healthcare teams.

CO5 Students will integrate professional ethics, cultural sensitivity, and legal considerations into their diagnostic approach, ensuring respect for patient autonomy, confidentiality.

CO-PO Mapping:-

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	2	3	3	-	-	-
CO2	3	3	3	3	3	3	2	3	-	-	-	-
CO3	3	3	2	2	3	3	3	3	2	-	-	-
CO4	3	3	3	3	2	3	3	3	2	-	-	-
CO5	3	3	3	3	3	3	3	2	3	-	-	-

Course Title: Advanced PhysioTherapeutics-II	Course Code : MP 208
Semester **IV**	Core / Elective: **Program Core**
Teaching Scheme in Hrs (L:T:P) : 3:0:0	Credits 2
Type of course: **Lecture + Assignments**	Total Contact Hours : 24 hrs
Continuous Internal Evaluation : **30 Marks**	SEE : **70 Marks**

Course Objectives :

- To learn about various physiotherapy techniques.
- Implement physiotherapy treatment
- Radiographic studies & Differential diagnosis
- Compare & contrast the outcome of various treatment approaches
- Ability to integrate theoretical knowledge with clinical presentation and do the differential diagnosis

Course Prerequisites :

- Basic Medical Knowledge of Advance Therapy Subjects
- Knowledge of Medical and Physiotherapy subjects

- Basic understanding of medical terminology, clinical assessment, and general pathology.

Course Content :

	Weightage (%)
Unit 1 : Therapeutic currents	
Low frequency currents Medium frequency currents High frequency currents Functional neuromuscular stimulation Transcranial direct current stimulation	
Unit 2 : Actinotherapy	
Infra-red radiation therapy Ultraviolet radiation therapy Laser therapy	
Unit 3: Decompression Therapy	
Decompression Traction – Lumbar and cervical spine	
Unit 4: Biofeedback and Magnetotherapy	
Pressure biofeedback Visual biofeedback Repetitive transcranial magnetic stimulation Neurofeedback	
Unit 5: Miscellaneous Therapies	
Tardio Therapy Matrix therapy Pressure therapy Virtual reality	

References

11. Braddom, R. L. (2016). *Physical Medicine and Rehabilitation*. Elsevier Health Sciences.
12. Goodman, C. C., & Fuller, K. S. (2014). *Pathology: Implications for the Physical Therapist*. Elsevier Health Sciences.

13. Kendall, F. P., McCreary, E. K., Provance, P. G., Rodgers, M. M., & Romani, W. A. (2005). *Muscles: Testing and Function with Posture and Pain*. Lippincott Williams & Wilkins.
14. Kisner, C., & Colby, L. A. (2012). *Therapeutic Exercise: Foundations and Techniques*. F.A. Davis.
15. O'Sullivan, S. B., Schmitz, T. J., & Fulk, G. D. (2019). *Physical Rehabilitation*. F.A. Davis.

Course Outcomes:-

CO1 Students will exhibit an advanced comprehension of physical and functional diagnostic principles, including the ability to interpret complex clinical presentations.
CO2 Students will proficiently apply a wide range of diagnostic techniques, including history taking, physical examination maneuvers, laboratory investigations, and advanced imaging modalities, to accurately assess the health status of patients.
CO3 Students will develop the skills to critically evaluate diagnostic findings, integrating clinical data from various sources to prioritize differential diagnoses
CO4 Students will demonstrate effective communication skills in conveying diagnostic information to patients, families, and interdisciplinary healthcare teams.
CO5 Students will integrate professional ethics, cultural sensitivity, and legal considerations into their diagnostic approach, ensuring respect for patient autonomy, confidentiality.

CO-PO Mapping:-

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	-	2	3	3	3	-	-
CO2	3	3	3	3	3	3	2	3	3	-	-	-
CO3	3	3	2	2	3	3	3	3	3	-	-	-
CO4	3	3	3	3	2	3	3	3	2	-	-	-
CO5	3	3	3	3	-	3	3	2	3	-	-	-

Course Title : **Elective Based Physiotherapeutic II (Cardiopulmonary) (Lab)**	Course Code : MP 260
Semester: IV	Core / Elective : Program Core
Teaching Scheme in Hrs (L:T:P) : 0:0:2	Credits : 2
Type of course : Lecture + Assignments	Total Contact Hours : 12 hrs
Continuous Internal Evaluation: 30 Marks	ESE : 70 Marks

S.No.	Name Of Topic
1	Chest physiotherapy and advanced techniques-postural drainage and vibration
2	Techniques in neonatal ICU
3	Relaxation techniques
4	Inhalation therapy
5	Exercise testing and training (Strengthening ,conditioning and endurance)
6	Critical analysis of exercise and follow up
7	Artificial intelligence in cardiopulmonary physiotherapy
8	Oxygen therapy humidification and aerosol
9	Mechanical ventilation
10	Strengthen for early oxygen and ventilatory including mobilization and ventilation
Total no. of Practicals	10
Total no.of Hours	12