GURU JAMBHESHWAR UNIVERSITY OF SCIENCE AND TECHNOLOGY, HISAR
(Established by State Legislature Act 17 of 1995)
`A+' Grade, NAAC Accredited State Govt. University

Acad./AC-III/ BOS&R-15/2025/2892
Dated: 03/6/25

To

The Controller of Examinations,
GJUST, Hisar.

Sub. **Approval of scheme of examination and syllabi of following programmes w.e.f. academic session 2024-25 being run in University Teaching Department and affiliated degree Colleges:**

1. **Scheme of examinations and syllabi of Bachelor of Physiotherapy Annual Scheme (1st to 4th year) w.e.f. academic session 2024-25 being run in University Teaching Department.**
2. **Master of Physiotherapy Annual Scheme (1st and 2nd year) w.e.f. academic session 2024-25 being run in University Teaching Department.**

Sir,

I am directed to inform you that the Vice-Chancellor, on the recommendations of Dean, Faculty of Medical Sciences on 20.05.2025, is pleased to approve the Scheme of examinations and syllabi of Bachelor of Physiotherapy Annual Scheme (1st to 4th year) w.e.f. academic session 2024-25 being run in University Teaching Department and Master of Physiotherapy Annual Scheme (1st and 2nd year) w.e.f. academic session 2024-25 being run in University Teaching Department, under Section 11(5) of the University Act, 1995 in anticipation of approval of the Academic Council.

A copy of the scheme of examinations & syllabi of above said programme(s) is enclosed herewith.

You are therefore, requested to take further necessary action accordingly.

Yours faithfully

DA: As above

3/6/25
Assistant Registrar (Academic)
for Registrar

Endst. No. Acad./AC-III/BOS&R-15/2025/2893-96 Dated: 5/6/25

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

1. Dean, Faculty of Medical Sciences, GJUST, Hisar.
2. Chairperson, Department of Physiotherapy, GJUST, Hisar alongwith copy of Scheme of examinations and syllabi of Bachelor of Physiotherapy Annual Scheme (1st to 4th year) w.e.f. academic session 2024-25 being run in University Teaching Department and Master of Physiotherapy Annual Scheme (1st and 2nd year) w.e.f. academic session 2024-25 being run in University Teaching Department. She is requested to arrange to upload the scheme of examinations & syllabi of above said programme(s) on the website of the University.
3. OSD to Vice-Chancellor (for kind information of the Vice-Chancellor), GJUST, Hisar.
4. Secretary O/o the Registrar (for kind information of the Registrar), GJUST, Hisar.

5/6/25
Assistant Registrar (Academic)

HARYANA STATE COUNCIL FOR PHYSIOTHERAPY

REVISED SYLLABUS FOR

MASTER OF PHYSIOTHERAPY (M.P.T.)

TWO YEARS DEGREE COURSE

TO BE IMPLEMENTED FROM: 2024-2025

TABLE OF CONTENTS

PREAMBLE

At the outset it must be mentioned that the present document should best be taken as a guiding framework. In preparing the same we are well aware that in some small pockets in the country, the teaching of Physiotherapy is thriving in creative directions. A few departments are grounded in clinical perspectives, some other in the experimental research and industrial-organizational areas. The Learning Outcome based curriculum framework (LOCF), it is to be better understood as a document to be studied in relation to other advances in the field of Physiotherapy. It intends to offer a broad guideline to reorient the organization of teaching learning processes at the UG and PG level to augment the quality of learning in the context of contemporary challenges of higher education in India. It explores the opportunities to improve class room transaction, teacher preparation and sense of relevance for the learners. In this endeavor it departs from the earlier scheme in a major way and explicitly states the learning outcomes and uses that to organize the diverse teaching-learning processes. In so doing it tries to address the needs of society, groups and the individual.

This scheme considers learning as an experiential and participatory activity with sufficient space for innovation and initiative, building the scientific spirit of objectivity and critical perspective. In this venture teachers and learners are assumed to jointly engage in a creative exercise of knowledge construction and skill building. In the last few decades, the discipline of Physiotherapy has also emerged as a new treatment measure. Its training can empower students asses diagnose and treat various disorders or diseases and mal alignments. Teaching program therefore must include the agenda/ courses which are meaningful to the surrounding society. Educational institutions must reach out to the society. This will give us opportunity to get validation of skill training, knowledge acquisition, research and demonstration of relevance of graduate attributes. In turn, this kind of experience will also help shaping the learning outcomes. The employability gap would also be addressed. Preparing teachers to teach through pedagogies suitable to promote the values given in the LOCF document is an essential condition for the attainment of LOCF. It is perhaps the most daunting challenge in order to fulfill the mandate of LOCF. The diversity maintenance and appreciation, along with standardization of teaching -learning across the nation requires accommodating local realities with an open mind.

Physiotherapy or Physical Therapy (P.T.) is a Movement Science with an established theoretical and scientific base and widespread clinical applications in the Prevention, Restoration and Rehabilitation, Maintenance and Promotion of optimal physical function. 5 Physiotherapists diagnose and manage movement dysfunction and enhance physical and functional abilities. This physical dysfunction may be the sequelae of involvement of any of the systems like Musculoskeletal, Neurological, Cardiovascular, Respiratory or other body systems. These practitioners contribute to society and the profession through practice, teaching, administration and the discovery and application of new knowledge about physiotherapy experiences of sufficient excellence and breadth by research to allow the acquisition and skills and behaviors as applied to the practice of physiotherapy. Learning experiences are provided under the guidance and supervision of competent faculty, in both, classroom as well as in clinic. The designed curriculum will prepare the entry-to-practice physiotherapist (PT) to be an autonomous, effective, safe and compassionate professional, who practices collaboratively in a variety of healthcare set ups such as neonatal to geriatric, from critical care to community fitness to sports training and is responsive to the current and future needs of the health care system.

This holistic approach incorporates a broad range of physical and physiological therapeutic interventions and aids. The core skills used by Physiotherapy include manual therapy, therapeutic exercises and the application of electro-therapeutic modalities.

- Specifically, physiotherapists improve the client's quality of life by:
- Promoting optimal mobility, physical activity, and overall health and wellness;

- Preventing disease, injury, and disability;
- Geriatric care and Rehabilitation;
- Managing acute and chronic conditions, activity limitations and participation restrictions;
- Improving and maintaining optimal functional independence and physical performance;
- Rehabilitating injury and the effects of disease or disability with therapeutic exercise programs and other interventions; and
- Educating and planning maintenance and support programs to prevent re-occurrence, re-injury or functional decline

1. MASTER OF PHYSIOTHERAPY (MPT)

I. INTRODUCTION

The Master of Physiotherapy program shall be under the Faculty of Medicine/Health Sciences (under Department/College/Institution of Physiotherapy).The name of the Degree program shall be Master of Physiotherapy (Master of Physical Therapy) **M.P.T**

Astudentmaybeadmittedtooneofthefollowingfourcoursesleadingtothe Degreeof Master of Physiotherapy (M.P.T.).

i. M.P.T. Orthopaedics

ii. M.P.T. Neurology

iii. M.P.T. Sports

iv. M.P.T. Cardiothoracic & Pulmonary Disorder

These REGULATIONS & CURRICULUM will be applicable from the academic year 2021-22 and thereafter.

II. LEARNING OBJECTIVES OF THE PROGRAMME

a) **COMMUNICATION**

Effective communication and interpersonal skill which are adapted to meet the needs of diverse individuals and groups.

b) **ETHICAL AND LEGAL STANDARDS**

Adherence to safe, ethical and legal standards of current practice (as identified by professional organizations, federal and state law and accrediting bodies).

c) **DIAGNOSIS AND PLAN OF CARE**

i. Development of physiotherapy diagnosis and an individualized plan of care for the management and prevention of movement dysfunction across the lifespan.

ii. Demonstrateeffectivephysiotherapyscreeningofthefollowingsystemsforkeep-referdecisions: Musculoskeletal; Neuromuscular; Cardiovascular and Pulmonary; Integumentary.

iii. Demonstrate effective history taking, examination, evaluation, and re-evaluation that leads to an appropriate physiotherapy diagnosis and prognosis for patients with disorder of the following systems: Musculoskeletal; Neuromuscular; Cardiovascular and Pulmonary; Integumentary

iv. Develop an appropriate plan of care and intervention for patients with disorders of the following systems: Musculoskeletal; Neuromuscular; Cardiovascular and Pulmonary; Integumentary.

v. Assess and address needs of individuals and communities for health promotion and prevention of movement dysfunction.

d) TEAM MEMBER

Effective participation as an intra and inter-professional team member.

e) PRACTICE MANAGEMENT

Effective clinical practice management or delivery of physiotherapy services in diverse settings.

f) TEACHING AND LEARNING PRINCIPLES

Application of teaching and learning principles in educational, practice, and community settings.

g) EVIDENCE-BASED PRACTICE

Application of principles of critical thinking and clinical reasoning to evidence-based physiotherapist practice.

h) PROFESSIONAL RESPONSIBILITY AND COMMITMENT

Responsibility and commitment to the profession and society through life-long learning and involvement in activities beyond the job responsibilities.

III. LEARNING OUTCOMES OF THE COURSE

On completion of this course, the students will be able to:

- Integrate concepts from the biological, physical, behavioral, and clinical sciences into physical therapy services
- Exhibit professional conduct and behaviors that are consistent with the legal and ethical practice of physical therapy
- Demonstrate compassion, caring, integrity, and respect for differences, values, and preferences in all interactions with patients/clients, family members, health care providers, students, other consumers, and payers
- Demonstrate culturally sensitive verbal, nonverbal, and written communications that are effective, accurate, and timely
- Collect and critically evaluate data and published literature to apply in the delivery of care, practice management, and to examine the theoretical and scientific basis for physical therapy
- Screen patients/clients to determine if they are candidates for physical therapy services or if a referral to, or

consultation with, another health care professional or agency is warranted

- Complete a patient/client examination/ re-examination and evaluate and interpret the examination data to determine a physical therapy diagnosis and prognosis
- Employ critical thinking, self-reflection, and evidence-based practice to make clinical decisions about physical therapy services
- Collaborate with patients/clients, care givers, and other health care providers to develop and implement an evidence-based plan of care that coordinates human and financial resources
- Provide services and information related to health promotion, fitness, wellness, health risks, and disease prevention within the scope of physical therapy practice.
- Advocate for patient/client and profession
- Provide consultative services and education to patients/clients, caregivers, health care workers, and the public using culturally sensitive methods that are adapted to the learning needs, content, and context
- Employ effective leadership skills in the context of supervising, delegating, and mentoring within the profession

IV. ELIGIBILITY FOR ADMISSION

A candidate who has passed Bachelor of Physiotherapy from any Indian/Foreign Universities/ Board aggregate55% marks in Bachelor of Physiotherapy or from recognized college and has completed six months of compulsory rotatory internship.

V. COURSE DURATION

The duration of the course of Institution leading to the Degree of Master of Physiotherapy (M.P.T.) shall be two years including compulsory submission of dissertation and clinical practice. M.P.T. first Examination will be held at the end of First academic year, second at the end of second academic year, in the month of April/May on such dates as may be fixed by the Vice Chancellor.

VI. SELECTION CRITERIA FOR ADMISSION

Selection criteria for admission in M.P.T. shall be as per the norms adopted for post graduate selection in physiotherapy under state council/university from time to time.

VII. MEDIUM OF INSTRUCTION:

English shall be the medium of instruction for all the subjects of study and for examination of the course.

VIII. OBTAINING MEMBERSHIP OF HARYANA STATE COUNCIL FOR PHYSIOTHERAPY

Candidates should obtain registration of **Haryana State Council for Physiotherapy** in one month (maximum period) after getting admission in course. In case of foreign nationals the most recent guidelines of state council/university may be followed.

IX. INTAKE OF STUDENTS

The guide to student's ratio shall be 1:3 for admission in first year M.P.T. and cannot be extended in any case. Guide should be of the same post graduate degree. The intake of students to the course shall be at the starting of academic year only. No postgraduate seats left unfilled in an academic year shall be carried forward to the next or subsequent academic years.

X. EXAM

a) SCHEDULE OF EXAMINATION

Final examination will be held at the end of each academic years.

b) ESSENTIALITY TO APPEAR IN EXAM

Student must be having attendance as described.

Dissertation submitted by student must be accepted by authority.

c) DURATION OF EXAMINATION

The duration of the examination shall be 03 Hours.

d) SCHEME OF EXAMINATION

The exam of Master in Physiotherapy will be taken by theory, practical and viva-voce.

- A candidate will be declared pass in the MPT-2nd year examination if he/she has passed all the papers including theory and practical of MPT 1st year and has passed all the papers of MPT-2nd year besides acceptance of research dissertation, passing in viva-voce of research dissertation.
- A candidate is required to pass all MPT-1st year, 2nd year examination within 4 years from the date of admission to M.P.T. 1st year.

XI. EXAMINERS

All examiners shall be recognized post graduate teachers. At least 50% of total examiners shall be externals. (Other

universities)

XII. CRITERIA FOR PASS

A candidate is declared to have passed in university exam if he/she secures minimum 50% marks in Theory and Practical separately.

a) The minimum number of marks required to pass in each examination shall be.

- 50% in theory including written, oral and internal assessment of theory subject
- 50% in the Practical including clinical of each subject and internal assessment.

XIII. SUPPLEMENTARY EXAM

a) A candidate will have to reappear in the whole examination including theory and practical during the supplementary examination.

b) Supplementary examination can be conducted as and when the schedule is notified by the Controller of Examinations, GJUS&T, Hisar for supplementary exams.

c) A candidate is required to pass the re-appear paper (s) within consecutive chances i.e. supplementary and annual examination excluding the chance of main examination, failing which he/she will have to pass the subjects in which he/she still has re-appear even after availing two chances of re-appear excluding main examination. However, he/she has to clear the re-appears within maximum duration of the course.

XIIV. DECLARATION OF CLASS:

Successful candidate who obtained 80% marks or more in any subject shall be declared to have passed with 'Distinction' in that subject provided he passes in all the subjects of the Examination at one and same time.

Classification of Division:

The classification of division will be as under:

- First division with distinction: If percentage of marks is 80 or more in first attempt or through re-evaluation of any answer sheet of main exam
- First division: If percentage of marks is 60 or more
- Second division: If percentage of marks is 50 or more and less than 60

XV. ATTENDANCE

No candidate shall be permitted to appear for the examination unless he/she puts 75% of the training during each

academic year of the post graduate course and produces the necessary certificate of study and attendance from head of the institution.

- 75% of the full course of the Lectures delivered and
- 75% of the full course of practical held separately
- 75% of the full of clinical training held separately.
- Submission of Research dissertation of respective discipline selected in M.P.T. Course

XVI. RE-ADMISSION AFTER BREAK OF STUDY:

All re-admissions of candidates are subject to the approval of the Vice Chancellor of concerned university.

XVII. COMMENCEMENT OF THE COURSE-

The course shall commence as per the notification of Council/University.

XVIII. COURSE OF THE STUDY

The course of the study, subjects and teaching schedule for Ist and IInd year M.P.T. course is shown separately in following tables.

XIX. STUDENT'S ASSESSMENT:

The performance of every student in each course will be evaluated as follows:

Internal evaluation based on continuous assessment, for 20% of the marks of the subject; University examination through written paper and/or practical examination for 80% of the marks of the subject.

Note :- In case of any ambiguity, university rules will be applicable.

MASTER OF PHYSIOTHERAPY SECOND YEAR

MASTER OF PHYSIOTHERAPY (M.P.T.) SECOND YEAR (NEUROLOGY)

Sr. No.	Subject Code	Subjects	Theory	Practical	Total Marks	Credit Hours	Credit
1.	MPT 201	Assessment and diagnosis of Neurological Conditions	80+20*	-	100	4	4
2.	MPT 202	Medical and Surgical Management of Neurological Conditions	80+20*	-	100	4	4
3.	MPT 203	Physiotherapy Management in Neurological Conditions	80+20*	-	100	5	5
4.	MPT 204	Recent Advances in Neuro Physiotherapy	80+20*	-	100	5	5
5.	MPT 205 P	Practical	-	100+50*	150	8	4
6.	MPT 206 P	Seminar/ Case Presentation	-	100*	100	4	2
7.	MPT 207	Dissertation Project work (based on clinical/ case presentation including viva voce)	-	80+20* (Accepted/Rejected)	100 (Accepted/ Rejected)	10	5
Total			**400**	**350**	**750**	**40**	**29**

*Internal Assessment Marks

MASTER OF PHYSIOTHERAPY (M.P.T.) SECOND YEAR (ORTHOPAEDICS)

Sr. No.	Subject Code	Subjects	Theory	Practical	Total Marks	Credit Hours	Credit
1.	MPT 301	Assessment and diagnosis of Musculoskeletal Conditions	80+20*	-	100	4	4
2.	MPT 302	Medical and Surgical Management of Musculoskeletal Conditions	80+20*	-	100	4	4
3.	MPT 303	Physiotherapy Management in Musculoskeletal Conditions	80+20*	-	100	5	5
4.	MPT 304	Recent Advances in Musculoskeletal Physiotherapy	80+20*	-	100	5	5
5.	MPT 305 P	Practical	-	100+50*	150	8	4
6.	MPT 306 P	Seminar/ Case Presentation	-	100*	100	4	2
7.	MPT 307	Dissertation Project work (based on clinical/ case presentation including viva voce)	-	80+20* (Accepted/Rejected)	100 (Accepted/Rejected)	10	5
Total			**400**	**350**	**750**	**40**	**29**

*Internal Assessment Marks

MASTER OF PHYSIOTHERAPY (M.P.T.) SECOND YEAR (CARDIOTHORACIC & PULMONARY DISORDER)

Sr. No.	Subject Code	Subjects	Theory	Practical	Total Marks	Credit Hours	Credit
1.	MPT 401	Assessment and diagnosis of Cardiopulmonary Conditions	80+20*	-	100	4	4
2.	MPT 402	Medical and Surgical Management of Cardiopulmonary Conditions	80+20*	-	100	4	4
3.	MPT 403	Physiotherapy Management in Cardiopulmonary Conditions	80+20*	-	100	5	5
4.	MPT 404	Recent Advances in Cardiopulmonary Physiotherapy	80+20*	-	100	5	5
5.	MPT 405 P	Practical	-	100+50*	150	8	4
6.	MPT 406 P	Seminar/ Case Presentation	-	100*	100	4	2
7.	MPT 407	Dissertation Project work (based on clinical/ case presentation including viva voce)	-	80+20* (Accepted/Rejected)	100 (Accepted/Rejected)	10	5
Total			400	350	750	40	29

*Internal Assessment Marks

MASTER OF PHYSIOTHERAPY (M.P.T.) SECOND YEAR (SPORTS)

Sr. No.	Subject Code	Subjects	Theory	Practical	Total Marks	Credit Hours	Credit
1.	MPT 501	Assessment and diagnosis of Sports Injuries	80+20*	-	100	4	4
2.	MPT 502	Medical and Surgical Management of Sports Injuries	80+20*	-	100	4	4
3.	MPT 503	Physiotherapy Management in Sports Injurics	80+20*	-	100	5	5
4.	MPT 504	Recent Advances in Sports Physiotherapy	80+20*	-	100	5	5
5.	MPT 505 P	Practical	-	100+50*	150	8	4
6.	MPT 506 P	Seminar/ Case Presentation	-	100*	100	4	2
7.	MPT 507	Dissertation Project work (based on clinical/ case presentation including viva voce)	-	80+20* (Accepted/Rejected)	100 (Accepted/Rejected)	10	5
Total			**400**	**350**	**750**	**40**	**29**

*Internal Assessment Marks

XIX. METHOD OF TRAINING

The training of post-graduate for MPT degree shall be on a fulltime pattern with graded responsibilities in the management and treatment of patients entrusted to his/ her care. The participation of all the students in all facets of educational process is essential. Every candidate should take part in Seminar, Journal reviews, Case presentations, teaching skill, Field work etc. Every candidate should be required to participate in training programs of under-graduate students. Training should include the teaching involvement in laboratory and research studies. All the students must maintain log book duly signed by head of clinical posting as well as guide.

XX. DISSERTATION/THESIS

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 results of such a work shall be submitted in the form of dissertation.

The dissertation is aimed to train a post graduate student in research methods and techniques. It includes identification of a problem, formulation of hypothesis, search and review of literature getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, comparison of results and drawing conclusion.

Every candidate shall submit to the registrar (Academic) of the university in the prescribed performa, a synopsis duly approved by the institutes containing particulars of proposed dissertation work within six month from the date of commencement of the course or before the dates notified by the university. The synopsis shall be sent through the proper channel.

The dissertation should be written under the following headings.

1. Introduction
2. Aims or objectives of study
3. Review of literature
4. Need of study
5. Material and methods
6. Results
7. Discussion
8. Conclusion

9. References

10. Annexures

11. Master chart

The written text of dissertation shall not be less than 50 pages and shall not exceed 100 pages excluding references, tables, questionnaires and other annexure. It should be neatly typed in double line spacing on one side of paper (A4 size, 8.27" X 11.69") and bound properly. Text in dissertation should be in Times New Roman Font with 12 size. Spiral binding should be avoided. The guide, head of the department and head of the institution shall certify the dissertation. Four copies of dissertation thus prepared shall be submitted to the Chairperson, six months before final examination or before the dates notified by the university.

The thesis will be sent to all external examiners appointed by the university and evaluation shall be conducted during practical examination of the university. The candidate has to present the dissertation in front of the examiners in the university examination where it will be awarded with the marks and will be graded as accepted/accepted with modification(s). If the dissertation is graded as accepted with modification(s), the candidate has to submit the modified dissertation on or before the date notified by the university.

XXI. GUIDE

a) QUALIFICATION OF GUIDE

The academic qualification and teaching experience required for recognition as guide is 5 years of teaching experience after post-graduation as Lecturer/Assistant Professor. From time to time, guidelines of the state council has to be followed. Students cannot be left without guide for more than 3 months during their post-graduation study. (i.e, in the event of resignation of guide college should appoint the guide within 3 months as per the essential criteria of guide) or as prescribed by University/ Government. Guide should be of the same elective of students.

b) CHANGE OF GUIDE

In the event of registered guide leaving the college for any reason or in the event of death of guide, guide may be changed with prior permission from the university but as per the mentioned guideline here before.

XXII. REVIEW OF ANSWER PAPERS OF FAILED CANDIDATES

As per the regulations prescribed for review of answer papers by the concerned University.

XXIII. DRESS CODE

Professionalism with respect to dressing is encouraged throughout the course. It is each student's responsibility to have appropriate dressing during all class assignments and learning activities. Students are supposed to wear apron compulsorily during practical and clinical hours.

MIGRATION/TRANSFER OF CANDIDATES

The Vice Chancellor shall have the powers to place any migration/transfer he/she is fit for grant of permission for migration/transfer to candidates undergoing course of study in another University as prescribed by university.

Note:- In case of any ambiguity, university rules will be applicable.

M.P.T. First Professional Year

Subject Code	Subject	Study Hours/ Week	Credits
MPT 101	Review of Basic Sciences- I (Anatomy & Physiology)	3	3

Course Assessment Methods- Theory 100 Marks; Practical 100 Marks (Internal: 20; External 80)

Internal evaluation based on continuous assessment, for 20% of the marks of the subject (Theory & Practical each); University examination through theory paper and practical examination for 80% of the marks for the subject.

Instruction for Paper Setters

There will be total of 08 questions out of which students have to attempt 06 questions.

i) **Question no. 1 is compulsory which carries 15 marks.**

ii) **Question no. 2 to 8 will be of 13 marks each.**

Duration of Examination – 03 hours

Course Outcomes:

CO1.	This course provides the student to give a deeper understanding of the basic human Anatomy. This course provides the student to give a deeper understanding of the basic human Physiology.
CO2.	Demonstrate competency in performing surface marking and interpreting the various body parts. Demonstrate competency in interpreting the functioning of various body parts.
CO3.	Demonstrate in understanding clinical anatomy of the various body parts. Understanding the difference between normal and abnormal physiology of different body parts.
CO4.	Examine current approaches to understand the structure of human body. Examine current approaches to understand the functions of human body.

1 Human Anatomy

i) Bone/Joints (Osteo and Arthrology)
ii) Muscle (Myology)
iii) Nervous and Nervous System
iv) Integumentary System

2 Upper Limb and Lower Limb

i) Bone and Joints
ii) Muscles
iii) Nervous and Nervous System
iv) Vascular System

Various regions:

- Upper limb pectoral, axilla, scapular, arm, forearm, a cubital fossa and hand

- Lower limb-thigh, gluteal region, popliteal fossa, leg and foot

Introduction to trunk region

i) Bone and joints (Vertebrae, Ribs and Sternum)
ii) Muscle
iii) Nerve and plexuses
iv) Vascular Structures
v) Various region-
- Thoracic
- Lumbar
- Sacro-coccygeal.

Head & Neck

i. Bone & Joints
ii. Muscles
iii. Nerve and plexuses
iv. Vascular Structures
v. Various regions-
- Head-coronial cavity, orbit, nasal, cavity, oral cavity
- Neck-triangles (anterior & posterior) back of neck
- TMJ

Cardio-Respiratory system

i) Pleura and lungs
ii) Pericardium and heart
iii) Vessels and large Vessels

Neuro-Anatomy

i) Nervous System
- Central Nervous System (Brain and Spinal Cord)
- Somatic Nervous System (Cranial and Spinal Nervous)
- Autonomic Nervous System

ii) Meanings and Ventricular System of C.N.S.
iii) Blood Supply to C.N.S.

Human Physiology

*A Review of clinical and applied Physiology

I) **Cardiovascular System**
i) Structure and Properties of heart.
ii) Cardiac Cycle.
iii) The regulation of Heart's performance/circulation during Exercise
iv) Cardiac Output
v) The Arterial Blood Pressure
vi) The Physiology of Vascular System
vii) Lymphatic Circulation
viii) Protection from Coronary Heart Disease

ix) Sudden Cardiac Death of Sports

2) **Respiratory System**

i) Ventilation and Control of Ventilation
ii) Alveolar air
iii) Regulation of Breathing/Respiration during Exercise
iv) Pulmonary Function test
v) Air Conditioning
vi) Second Wind
vii) Oxygen Debt
viii) Breath holding and scuba diving. Health Pressure Ventilation.

3) **Muscle Physiology**

i) Electrical properties of Neuron
ii) Classification of Nerve Injury
iii) Effects of Nerve Injury
iv) Structure of Skeletal Muscle
v) Electrical properties of Skeletal Muscle
vi) The contractile Mechanism
vii) Length-Tension Relationship
viii) Fast and slow Muscles
ix) Skeletal Muscle metabolism
x) Growth and Exercise
xi) Repair and Adaptation during exercise
xii) Training for Muscular Strength and Endurance
xiii) Muscle tissue fiber typing and its significance

4) **Exercise Physiology**

Muscle & its contraction- Architecture of skeletal muscles, sliding filament theory, types of muscle fibers, mechanical efficiency of muscle contraction, force-velocity, motor unit, muscle fatigue- blood supply, **prolonged exercise.**

Blood & Circulation

Cardiac cycle – pressure during cardiac cycle, Homo dynamics mechanical work and pressure hydrostatic pressure, flow and resistance, venous – capillary structure and transport mechanisms, filtration & osmosis, visualization of skeletal muscles, regulation circulation during exercise, cardiac output &O2updates- stroke volume, blood pressure.

i) **Respiration**

Lung compliance air way resistance, pulmonary ventilation rest and ruing exercise, diffusion in lung tissues, gas pressure-ventilation & perfusion-Regulation of berating – Exercise, high air pressure- Breath holding diving.

ii) **Physical Performance**

Aerobic process intensity & duration of exercise, prolonged exercise, muscular stress involved in Exercise

Anaerobic Process: Power & Capacity of high energy breakdown.

Lactate: Production – Distribution & Disappearance, effect of metabolism on tissue & blood, PH, Anaerobic, oxygen uptake in various sports.
Evaluation of anaerobic power exercise electrocardiogram.

iii) **Physical Training:**
Training Principles, continuous vs. Intermittent exercise training methods & biological longterm effects of training. Disuse, isometric strength training, dynamic strength training. Training of aerobic training, Endurance training , retaining, recovery after exercise, Mechanical efficiency technique, body composition, stretching, psychological aspects muscular soreness, ischemic heart diseases, contra indication to physical training.

iv) **Applied work Physiology:**
Factors affecting sustained Physical work, assessment of work load relation to work capacity, Assessment of maximal aerobic power measurement of oxygen uptake in a typical work situation, Assessment of load exerted on specific muscles, classification of work, Daily rates of energy expenditure, energy expenditure during specific activities like sleeping, sedentary, work house work, light industry, manual labour.

v) **Fatigue**
General Physical fatigue, local muscular fatigue, cardiac rhythm in humans, shift work, effect of menstruation.

vi) **Nutrition &Physical Performance:**
Nutrition in general digestion, energy metabolism & factors governing the selection of fuel for muscular exercises, food for the athlete, energy balance, regulation of food intake, ideal weight obesity, slimming diets, optional supply of Nutrients.

vii) **Factors Affecting Performance:**
High altitude- limited factors, oxygen transport, adaptation of high altitude, high gas pressure, pressure effects, nitrogen, oxygen, carbon dioxide metabolism in sports, tobacco smoking-circulatory effects, reparatory effects, metabolic effects, smoking habits among athletes, alcohol & exercise –Neuromuscular function, aerobic & anaerobic alcohol power, metabolic effects, caffeine, Doping and "THE WILL TO WIN"

5) **Gastro intestinal tract & Endocrine**

i) Effect of sports on G.I.T. and liver
ii) Hormone regulation fluid and electrolytes during Exercise
iii) Exercise and Menstrual Cycle
iv) Stress Hormones in Exercise
v) Effects of Exercise on various Hormones in the body
vi) Opiods, Runner's high

6) **Nervous System**

i) Elementary Neuro-anatomy
ii) Neurons and Neuralgia
iii) Properties of nerve fivers, synapse
iv) Spinal cord
v) Cerebral cortex
vi) Pyramidal and extra Pyramidal system
vii) The cerebellum
viii) Autonomic nervous system
ix) Cerebrospinal fluid

x) Cranial nerves

Reference books

- Mominn's Color Human Anatomy/Abrahams, Peter H.
- Cunningham's Manual of practical Anatomy/ by G. J. Romanes.
- Textbook of human Neuroanatomy/ Singh, Inderbir.
- Clinical Anatomy for medical students./Snell, Richard S.
- Essential clinical anatomy/ More, Keith L.
- Human Anatomy: Regional and applied/ by B. D. Chaurasia.
- Principles of exercise physiology/ Axen, Kenneth.
- Physiology of sport and exercise by Wilmore, Jack M
- Textbook of practical physiology/ Ghai, C. L.
- Concise medical physiology/Chaudhry Surjit K.
- Human physiology/ by N. M Muthaya/ Muthaya, M. N.
- Textbook medical physiology/ Guyton, Arthur C.
- Textbook of physiology/ by A. K. Jain.

Subject Code.	Subject	Study Hours/ Week	Credits
MPT 102	Review of Basic Sciences- II (Pathology & Pharmacology)	3	3

Course Assessment Methods- Theory 100 Marks; Practical 100 Marks (Internal: 20; External 80)

Internal evaluation based on continuous assessment, for 20% of the marks of the subject (Theory & Practical each); University examination through theory paper and practical examination for 80% of the marks for the subject.

Instruction for Paper Setters

There will be total of 08 questions out of which students have to attempt 06 questions.

i) **Question no. 1 is compulsory which carries 15 marks.**

ii) **Question no. 2 to 8 will be of 13 marks each.**

Duration of Examination – 03 hours

Course Outcomes:

S. No.	At the end of the semester, students will be able to:
CO1	To understand the concept of cell injury, the change produced thereby, in the different tissues and organs and the body capacity for healing. Understand the basic pharmacology of common drugs used, their importance in the overall treatment including Physiotherapy
CO2	To understand the etiopathogenesis, the pathological effects and the clinic-pathological correlation of common infectious and non-infectious disease. Understand the general principles of drug action and the handling of drugs by the body on various system
CO3	Correlate normal and altered morphology of different organ systems in different diseases to the extent needed of understanding of the disease processes and their significance. Understand the contribution of both drug and physiotherapy factors in the outcome of treatment.
CO4	Have an knowledge of the various neurological, musculoskeletal and cardiovascular disorders commonly treated by physiotherapy and their effects on human system.

Pathology

1. **General Pathology** (cell injury, inflammation, Repair, immune system)
2. **Geriatric**
   - *i)* Theories of aging

ii) Pathological & Physiological changes of aging

3. **General body systems**

A. **Nervous System**

i) Infection
- Meningitis
- Encephalitis

ii) Vascular Disease
- Ischemic encephalopathy
- Cerebral infarction
- Intra cranial infarction
- Intra cranial hemorrhage

iii) Degenerative disease
- Alzheimer's disease
- Huntington's disease
- Parkinson's disease
- Motor neuron disease

iv) Demyelinating disease
- Multiple sclerosis

v) The peripheral nervous system
- Peripheral neuropathy
- Acute idiopathic polyneuropathy
- Diabetic neuropathy

B. **Musculoskeletal System**

i) Bones
- Hereditary and metabolic disease (Osteoporosis. rickets, osteomalacia, osteitis fibrosa cystica, renal osteodystrophy)
- Infection (Osteomyelitis and tuberculosis)

ii) Joints
- Degenerative joint disease
- Bursitis

C. **Skeletal muscles**
- Muscle atrophy
- Myositis
- Myasthenia

D. **Cardiovascular system**

i) Rheumatic heart disease

ii) Myocardial infarction
iii) Atherosclerosis
iv) Congenital heart disease

Pharmacology

i) Drugs used in pain
ii) Local anesthetics
iii) Steroids
iv) Muscle relaxants
v) Drug acting upon central and Automatic nervous system
vi) Topically acting upon Cardio Respiratory system
vii) Drugs acting upon Musculoskeletal System

Reference books

- Text of Pathology/ Mohan, Harsh
- Pathology illustrated/ by Peter S. Macfarlane, Robin
- Pathology: implication for the physical therapist/ by Catherine Cavallaro D Goodmann and Willams G. Boissonn
- Essential of medical Pharmacology/ K. D. Tripathy
- Pharmacology drug action & reaction
- Text of Pharmacology, Seth, S D

Subject Code.	Subject	Study Hours/ Week	Credits
MPT 103	Applied Physiotherapy (Theory)	4	4

Course Assessment Methods- Theory 100 Marks; Practical 100 Marks (Internal: 20; External 80)

Internal evaluation based on continuous assessment, for 20% of the marks of the subject (Theory & Practical each); University examination through theory paper and practical examination for 80% of the marks for the subject.

Instruction for Paper Setters

There will be total of 08 questions out of which students have to attempt 06 questions.

i) **Question no. 1 is compulsory which carries 15 marks.**

ii) **Question no. 2 to 8 will be of 13 marks each.**

Duration of Examination – 03 hours

Course Outcomes :

CO1.	This course provides the student to understand role of Electrotherapy by using theoretical and practical knowledge for rehabilitation in clinical judgment.
CO2.	This course provides the student to understand role of Exercise therapy techniques by using theoretical and practical knowledge for rehabilitation in clinical judgment.
CO3.	Review of various mobilization techniques for rehabilitation.
CO4.	Examine current approaches to exercise therapy and electro therapy.
CO5.	Evidence based clinical practice in rehabilitation.

1) **Exercise Therapy**

i. Assessment techniques: Manual Muscle Testing and Goniometry.
ii. Stretching and Mobilization.
iii. Re-education and strengthening.
iv. Balance and Coordination Ex.
v. Gait Analysis and Training (Both Normal and Pathological Gaits)
vi. Relaxation and soft Tissue Manipulations.
vii. Posture.
viii. PNF and Neuromuscular Coordination
ix. Hydrotherapy.
x. Joint Mobilization

2) **Electro-Therapy**

i. General Review of Low, Medium, and high currents and their modifications like Di-dynamic and Russian Currents etc.
ii. Laser
iii. Cryotherapy

iv. UVR and IRR

v. Other thermal modalities like SWD, MWD, Hydro Collator, Waxtherapy Fluido-therapy.

Clinical responsing & Evidence Based Physiotherapy for the above Exercise Therapy, Electrotherapy and Advanced Therapeutics Via means of Seminars presentation, Journal presentation, Case presentation, Recent advances discussion cum presentation.

Reference books

- The principles of exercise therapy/ Gardniner, M Dena.
- Therapeutic exercise: foundations and techniques/by
- Carolyn Kisner and Lynn Allen Col by/ Kisner,
- Practical exercise therapy/ by Margaret Hollis & Phyl Fletcher-Cook
- Electrotherapy explained: principles and practice/ by John low, Ann Reed and Mary Dyson/ low, John Clayton's electrotherapy / edited by Sheila Kitchen and Sarah Bazin/ Kitchen, Sheila
- Muscles testing and function/ by Florence Peterson Kendall (et, al)/ Kendall, Florence Peterson
- Therapeutic modalities for physical therapists/ by William E. Prentice, William Quillen and Frank Underwood / Prentice, William E.
- Therapeutic exercise moving toward Function / by Carric M. Hall and Lori Thein Brody/ Hall, Carrie M.
- Daniels and worthingham's muscle testing techniques of manual examination/by Helen J. Hislopand Jacqueline Montgomery / Hislop, Helen J.

Subject Code.	Subject	Study Hours/ Week	Credits
MPT 103 P	Applied Physiotherapy (Practical)	4	2

Course Assessment Methods- Practical 100 Marks (Internal: 20; External 80)

Internal evaluation based on continuous assessment, for 20% of the marks of the subject (Theory & Practical each); University examination through theory paper and practical examination for 80% of the marks for the subject.

Course Outcomes :

CO1.	This course provides the student to understand role of Electrotherapy by using theoretical and practical knowledge for rehabilitation in clinical judgment.
CO2.	This course provides the student to understand role of Exercise therapy techniques by using theoretical and practical knowledge for rehabilitation in clinical judgment.
CO3.	Review of various mobilization techniques for rehabilitation.
CO4.	Examine current approaches to exercise therapy and electro therapy.
CO5.	Evidence based clinical practice in rehabilitation.

Practicals:-

1) **Exercise Therapy:**

i. Muscular skeleton and Neurological Assessment
ii. Strengthening techniques
iii. Soft tissue stretching and mobilization
iv. Gait analysis and training
v. Postural assessment and re-education
vi. Balance and coordination
vii. Hydrotherapy

2) **Electrotherapy**

B. **All types of low and medium frequency currents**

- Faradic
- Galvanic
- High Voltage Current
- Russian
- Interferential Therapy
- Tens
- Microcurrents

C. All types of high frequency currents and modalities

- Cryotherapy
- UVR
- IRR
- LASER
- Other thermal modalities like Hydro-Collator, Wax therapy, Fluid therapy.

Reference books

- The principles of exercise therapy/ Gardiner, M Dena.
- Therapeutic exercise: foundations and techniques/by
- Carolyn Kisner and Lynn Allen Col by/ Kisner,
- Practical exercise therapy/ by Margaret Hollis & Phyl Fletcher-Cook
- Electrotherapy explained: principles and practice/ by John low, Ann Reed and Mary Dyson/ low, John Clayton's electrotherapy / edited by Sheila Kitchen and Sarah Bazin/ Kitchen, Sheila
- Muscles testing and function/ by Florence Peterson Kendall (et, al)/ Kendall, Florence Peterson
- Therapeutic modalities for physical therapists/ by William E. Prentice, William Quillen and Frank Underwood / Prentice, William E.
- Therapeutic exercise moving toward Function / by Carrie M. Hall and Lori Thein Brody/ Hall, Carrie M.
- Daniels and worthingham's muscle testing techniques of manual examination/by Helen J. Hislopand Jacqueline Montgomery / Hislop, Helen J.

Subject Code.	Subject	Study Hours/ Week	Credits
MPT 104	Applied Biomechanics & Ergonomics	4	4

Course Assessment Methods- Theory 100 Marks; Practical 100 Marks (Internal: 20; External 80)

Internal evaluation based on continuous assessment, for 20% of the marks of the subject (Theory & Practical each); University examination through theory paper and practical examination for 80% of the marks for the subject.

Instruction for Paper Setters

There will be total of 08 questions out of which students have to attempt 06 questions.

i) **Question no. 1 is compulsory which carries 15 marks.**

ii) **Question no. 2 to 8 will be of 13 marks each.**

Duration of Examination – 03 hours

Course Outcomes :

CO1.	This course provides the student to understand role of biomechanics in rehabilitation by using theoretical and practical knowledge in clinical judgment. Understand the basic concept of ergonomics and their physiological and bio-mechanical risk factor.
CO2.	This course provides the student to understand role of applied biomechanics by using theoretical and practical knowledge for rehabilitation in clinical judgment. Understand importance of ergonomics, diagnose work related disorders, manage them and modify the work station accordingly
CO3.	Review of biomechanics in movement and mobilization techniques for rehabilitation. Understand the need to provide advice about creation of healthy work environment, work station exercises, and home exercises for all and children &computer operators
CO4.	Current approaches in applied biomechanics.
CO5.	Evidence based clinical practice in rehabilitation.

Students will be able to identify and apply principles of Biomechanics while setting up individualized treatment protocols.

1. **Fundamental Mechanics**

- Forces; composition and resolution of forces; force systems
- Force of gravity and COG
- Stability
- Reaction forces
- Friction
- Moments
- Newton's laws
- Equilibrium: static and dynamic
- Simple machines: Levers, pulleys and wheel and axle
- Segmental dimensions

- Poisson's effect
- Static and cyclic load behaviors
- Load: Load sharing and load transfer

2. **Kinematics**

   i. Motion: types, location, magnitude and Direction
   ii. Angular motion and its various parameters
   iii. Linear motion and its various parameters
   iv. Projectile motion

3. **Muscle Mechanics**

   i. Structure and composition of muscle
   ii. Fiber length and cross-section areas
   iii. Mechanical properties
   iv. EMG changes during fatigue
   v. Changes in mechanical properties because of aging, exercise and immobilized of immobilization
   vi. Clinical application

4. **Ligament and Tendon mechanics:**

   - Structure, composition and mechanical properties
   - Cross-sectional area measurement
   - Muscle tendon properties
   - Temperature sensitivity
   - Changes in mechanical properties because of ageing, exercise and immobilization
   - Mechanoreceptors
   - Clinical application

5. **Bone Mechanics:**

   - Structure and composition of bone
   - Stress
   - Strain
   - Modulus of Rigidity & Modulus of elasticity
   - Mechanical properties of Trabecular system
   - Mechanical properties of cortical bone
   - Bone Remodeling
   - Response of bone to aging & exercise & immobilization
   - Mechanics to prevent fracture in bone
   - Clinical application

6. **Joint Mechanics of all Joints**

   - Joint design
   - Joint categories
   - Joint Functions: Arthrokinematics, Osteokinematics and kinematics chains
   - Joint forces, equilibrium and distribution of these forces

- ❖ Degenerative changes in weight bearing joints and compensatory actions
- ❖ Joint stability and mechanisms
- ❖ Clinical applications

7. **Measurement Instruments**

- ❖ Photo-optical devices
- ❖ Pressure transducers and Force Plates
- ❖ Gait Analyzer
- ❖ Isokinetic device
- ❖ EMG (Electrophysiology of muscle contraction, recording, processing)
- ❖ Relationship between EMG and Biomechanical Variables

8. **Mechanical energy, Work and power**

- Definitions
- Positive and negative muscles work
- Muscle mechanical power
- Causes of inefficient, movement co-contractions, Isometric contractions, against gravity jerky movement, energy generation at one joint and absorption at another, energy flow.
- Energy Storage

9. **Gait**

- ❖ Gait parameter: kinetic, kinematics, time-space
- ❖ Pathological gait
- ❖ Running
- ❖ Stair climbing Changes in gait following various surgeries/ diseases/ disorders

10. **Pathomechanics**

Bone and joint Patho-mechanics Neural Patho-mechanics
Cardio Patho–mechanics Pulmonary Patho-mechanics Vascular Patho-mechanics

11. **Ergonomics**

- ❖ Definitions
- ❖ Physiological and bio-mechanical risk factors
- ❖ Job design
- ❖ Developing and implementing work site programme

- ❖ Ergonomics in home, child care and leisure activities
- ❖ Addressing problems at computer work station

Practical in applied Biomechanics

This course will enable the students to apply their knowledge of biomechanics and ergonomics in practical situation on their patients.

- ❖ Evaluation and assessment of joint motion (planes, axes, etc)

- ❖ Evaluation and assessment of posture
- ❖ Evaluation and assessment of Gait
- ❖ Practical usage of all examination and assessment devices

Reference books

- Introduction to kinesiology/ Hoffman,Shirf
- Kinesiology: the Mechanics & Pathomechanics of human
- Movement/ by Carol A.Oatis./ Oatis,Carol A.
- Joint Structure and Function Cynthia Norkins
- Joint Structure and Function: a comprehensive Analysis /Levangie, Pamela K
- Fundamentals of Biomechanics, Orkaya,N
- Ergonomics for therapists: Karen Jacobs Carl M. Bettencourt
- Hand book of human Factors and ergonomics: Gavriel Salvendy
- Ergonomics: How to design for ease and efficiency: K. H. E. Kroemer .H. B. Kroemer, K. E. Kroemer-Elbert
- Ergonomics,Work, and Health: Pheasant, Stephen

Subject Code.	Subject	Study Hours/ Week	Credits
MPT 105	Biostatistics and Research Methodology	3	3

Course Assessment Methods- Theory 100 Marks; Practical 100 Marks (Internal: 20; External 80)

Internal evaluation based on continuous assessment, for 20% of the marks of the subject (Theory & Practical each); University examination through theory paper and practical examination for 80% of the marks for the subject.

Instruction for Paper Setters

There will be total of 08 questions out of which students have to attempt 06 questions.

i) **Question no. 1 is compulsory which carries 15 marks.**

ii) **Question no. 2 to 8 will be of 13 marks each.**

Duration of Examination – 03 hours

Course Outcomes

CO1.	This course provides the student to understand the statistical measures used analysis and interpretation of research data.
CO2.	Able to apply the information on research design and their implementation.
CO3.	Identify to read critique research articles and understand and apply the principles of research to perform a guided research.
CO4.	Recognize the importance of data collection and its role in determining scope of inference; Demonstrate a solid understanding of interval estimation and hypothesis testing
CO5.	Analyze and undertake data for research purpose and its documentation for long life learning in physiotherapy.

1) **Research Methodology**

i. How to read and critique research
ii. Introduction to research: Framework, levels of measurements, variables
iii. Basic research concepts: Validity and reliability
iv. Design instrumentation and analysis of qualitative research
v. Design instrumentation and analysis of Quantitative research
vi. How to write a research proposal
vii. The use and protection of human and animals subjects

2) **Biostatistics**

i. Introduction
Description and interferential statistics
Methods of collection, classification, Tabulation and presentation of data
ii. Central Tendency:
Mean, Median, Mode and Standard deviation

iii. Co-relation and Regression
Karl Pearson's co-relation method Rank co-relation method Regression and co efficient sampling and hypothesis and testing Data collection
Types of sampling Tests
iv. Probability, Binomial distribution, poison distribution, Normal distribution
v. One way ANOVA, Two Way ANOVA
vi. Test of significance (t, chi square, f, z)
vii. Non parametric tests
viii. Simple statistical analysis using available software

Reference books

- Research methods in physical activity: Thomas, J
- Bio-Statistics. Prof. S. C. Gakhar
- Clinical research: a guide for therapists. /French, Sally
- Rehabilitation Research: Principles and applications: Elizabeth Domholdt
- Methods in biostatistics for medical students and research workers. Mahajan, B. K.
- Manual of Biostatistics: Baride, JP

Subject Code.	Subject	Study Hours/ Week	Credits
MPT 106	Professional Development &Ethics	4	4

Course Assessment Methods- Theory 100 Marks; Practical 100 Marks (Internal: 20; External 80)

Internal evaluation based on continuous assessment, for 20% of the marks of the subject (Theory & Practical each); University examination through theory paper and practical examination for 80% of the marks for the subject.

Instruction for Paper Setters

There will be total of 08 questions out of which students have to attempt 06 questions.

i) **Question no. 1 is compulsory which carries 15 marks.**

ii) **Question no. 2 to 8 will be of 13 marks each.**

Duration of Examination – 03 hours

Course Outcomes

S.No.	At the end of the semester, students will be able to:
CO1	Understand concept of teaching, learning and curriculum. Understand various method and techniques of teaching, teaching aids and planning for teaching, measurement and evaluation
CO2	Understand meaning and concepts of guidance & counseling and awareness regarding clinical education
CO3	Understand principles of management in personal management, time management and administration including budgeting
CO4	Understand the ethical principles of physiotherapy profession

This course will provide students information on improving their teaching skills in the classroom and clinical setting, basic issue of management to assist the practitioner in efficiently addressing issue related to the organization and administration of the physiotherapy department.

1. Concepts of Teaching and Learning
   - i) Meaning and Scope of Educational Psychology
   - ii) Meaningand Relationship betweenTeaching and Learning
   - i) LearningTheories
   - ii) Dynamics of Behavior
   - iii) Individual Differences

2. Curriculum
   - i) Meaning and Concepts
   - ii) Basis of Curriculum Formulation Development
   - iii) Framing Objectives for Curriculum
   - iv) Process of Curriculum Development and FactorsAffecting Curriculum Development
   - v) Evaluation of Curriculum

3. Method and Techniques of Teaching
    i) Lecture, Demonstration, Discussion, Seminar, Assignment, Project and Case Study

4. Planning for Teaching
    i) Bloom's Taxonomy of Instructional Objectives,Writing Instructional
    ii) Unit planning and Lesson planning

5. Teaching Aides
    i) Types of Teaching Aides
    II) Principles of Selection, Preparation & Use of Audio-Visual aids.

6. Measurements and Evaluation
    i) Natureof Educational Measurement;Meaning, Process and Types of Tests
    ii) Construction of Achievement Test and its Analysis Standardized Test
    iii) Introduction of some Standardized tool. Important of Intelligenee, Aptitude Personality.

7. Guidance and Counseling
    i) Meaning and Concepts of Guidance and Counseling
    ii) Principles
    iii) Guidance and Counseling Services for Students and Faculty members
    iv) Faculty Development and Development of Personnel for physiotherapy Services

8. Clinical education

    i) Awareness and guidance to the common people about health diseases and available professional services
    ii) Patient education
    iii) Education of the practitioners

9. Functions of management

10. Management process: planning, organization, direction, controlling, and decision-making

11. Personal management: staffing, recruitments election performance appraisal,collective bargaining, discipline, and job satisfaction.

12. Quantitative methods of management: relevance of statistical and/ or techniques in management.

13. Marketing: marketing segmentation, marketing research production, planning pricing, and channels of distribution, consumer behavior and licenser.

14. Total Quality Management: basis of quality management, quality assurance program in hospitals, medical addit and international quality system.

15. Hospital as an organization: functions and types of hospitals selected, clinical supportive and

ancillary staff of the hospital, emergency department, nursing, physical medicine and rehabilitation, clinical laboratory, pharmacy and dietary department.

16. Roles of Physiotherapy Director, Physiotherapy Supervisor, Physiotherapy Assistant, Physiotherapy, Occupational therapist, Home Health Aide and Volunteer.

17. Direct acre and referral relationships and confidentiality.

18. Physiotherapy: Definition and Development.

19. Implications and conformation to the Rules of Professional Conduct.

20. Legal responsibility for their action in the professional context and understanding the Physiotherapist's liability and obligations in the case of medico-legal action.

21. Code of Ethics: wider knowledge of ethics relating to current social and medical policy in the provision of health care.

22. Function of relevant professional associations education body and trade union

23. Role of the International Health agencies such as theWorld Health Organization
24. Standards of practice for Physiotherapy

25. Current Issues

26. Basic of Computer- Hardware and Software

27. Basic Computer Applications- Windows, MS Word, Excel, Power Point, etc.

Reference books

- Educational Technology, Dr. S. C. Gakhar
- Fox pro 2.5 made simple for DOS & Windows, Taxali, RK.
- Computers and common sense, Hunt, R & Shely, J
- Health Studies: an Introduction, Naidoo,

Subject Code.	Subject	Study Hours/ Week	Credits
MPT 107P	Seminar/Case Presentation	4	2

Course Assessment Methods (Internal: 100)

The Internal evaluation will consist of 5 seminars of 20 marks each with a total of 100 marks.

Course Outcomes:

CO1.	This will serve as platform for students to integrate various components of patient management and debate contentious issues on the efficacy of physiotherapy techniques.
CO2.	Students will able to review the physical therapy documentation including the goals, and objectives; identifying major indications, contraindication, precautions and safety issues and identifying patient goals and outcomes in the documents
CO3.	Students will describe safe environments, appropriate risk management strategies, and emergency responses/support activities to take when the safety of self, patient or others is at risk in the clinical setting with evidences.
CO4.	Students will be able to learn communication processes and presentations of different cases.
CO5.	Evidence based clinical practice in rehabilitation.

Seminar/Case Presentation

These will serve as platform for students to integrate various components of patient management and debate contentious issues on the efficacy of physiotherapy techniques. Students will give presentations on topic provided to them

Subject Code.	Subject	Study Hours/ Week	Credits
MPT 108	Clinical Training	12	6

Course Assessment Methods: Practical (Internal: 100) (Qualifying)

Internal assessment of 100 marks based on the submission of 5 case studies submitted by the students. The students will have to maintain a log book for the cases/patients seen during the clinical trainings.

Course Outcomes :

CO1.	This course provides the student to develop initial patient contact skills and apply directed components of basic data collection and intervention techniques.
CO2.	Students will able to review the physical therapy documentation including the goals, and objectives; identifying major indications, contraindication, precautions and safety issues and identifying patient goals and outcomes in the documents
CO3.	Students will describe safe environments, appropriate risk management strategies, and emergency responses/support activities to take when the safety of self, patient or others is at risk in the clinical setting.
CO4.	Students will be able to describe communication processes within the clinical arena including referral process, patient delegation, review of records, between health care team members, and methods for reporting patient status.
CO5.	Students will engage in clinical training in hospital based medical and physiotherapy departments/ settings to enhance their clinical skills and apply contemporary knowledge gaining during teaching sessions.

Clinical Training

Students will engage in hospital based medical and physiotherapy departments, settings to enhance their clinical skills and apply contemporary knowledge gained during teaching sessions. viva-voce by examination committee.

M.P.T Second Professional Year (ORTHOPAEDICS)

Subject Code	Subjects	Study Hours/ Week	Credits
MPT 301	Assessment and Diagnosis of Musculoskeletal Conditions	4	4

Course Assessment Methods- Theory 100 Marks; Practical 100 Marks (Internal: 20; External 80)

Internal evaluation based on continuous assessment, for 20% of the marks of the subject (Theory & Practical each); University examination through theory paper and practical examination for 80% of the marks for the subject.

Instruction for Paper Setters

There will be total of 08 questions out of which students have to attempt 06 questions.

i) **Question no. 1 is compulsory which carries 15 marks.**

ii) **Question no. 2 to 8 will be of 13 marks each.**

Duration of Examination – 03 hours

Course Outcomes

Sr. No.	At the end of the semester, the students will be able:
CO 1	To evaluate and to plan the physiotherapy management of a patient having musculoskeletal disorder
CO 2	To assess the regional areas such as cervical, thoracic, lumbar spines and upper extremity regions with special emphasis on special tests
CO 3	To assess the regions in lower extremity such as pelvis region, knee, leg, ankle and foot with special emphasis on special tests
CO 4	To understand and identify the musculoskeletal disorders based on diagnostic procedures such as radiographs, EMG, NCV, arthroscopy, DEXA, Myelography etc.

1. Orthopedic Assessment

- Patient History
- Observation
- Examination-Active and Passive Movements, functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint Play Movements Palpation
- Gait- Definitions, Gait Cycle, Abnormal Gait patterns
- Posture- Normal and Abnormal, Spinal Deformities
- Disability Evaluation

- Assessment of Amputees
- Examination and Assessment of Geriatric patient

2. **Regional Examination with Special Emphasis on Special Test:**

- Head and Face
- Cervical Spine
- Shoulder
- Elbow
- Forearm, Wrist and Hand
- Thoracic Spine
- Lumbar Spine
- Pelvis
- Hip
- Knee
- Lower Leg, Ankle and foot

3. **Orthopedic Diagnosis (for Practical Purposes only)**

- Biomechanical measurements –Limbs and Spine
- Hematology and serology
- Biopsy
- Plain Radiography
- Contrast Radiography
- Myelography
- Radioactive Scanning
- Discography
- Tomography
- Magnetic Resonance Imaging
- Arthroscopy
- Electromyography, Nerve Conduction Velocity, Strength Duration Curve
- BMO- Bone Densiometry- Ultrsound Densitometer and Dual Energy X-ray Absorptiometry (DEXA)

2. Differential Diagnosis in different musculoskeletal conditions.

Reference books

Physical Assessment, David Magee

Orthotics in rehabilitation: splinting the hand and body/ Mckee, Pat Physiotherapy in Orthopedics: a problem – solving approach/ Atkinson, Karen.Examination of Musculoskeletal injuries: Shultz, SJ

Clinical orthopedics rehabilitation. / Brotzman, S. Brent. Orthopedics Physical Therapy: Donatelli, RA & Wooden MJ

Joint Structure and Function: a comprehensive analysis: Levangie, PK & Norkin CC Essentials of orthopedics & applied physiotherapy: Joshi, J & Kotwal, P.

Subject Code	Subjects	Study Hours/ Week	Credits
MPT 302	Medical and Surgical management of Musculoskeletal Conditions	4	4

Course Assessment Methods- Theory 100 Marks; Practical 100 Marks (Internal: 20; External 80)

Internal evaluation based on continuous assessment, for 20% of the marks of the subject (Theory & Practical each); University examination through theory paper and practical examination for 80% of the marks for the subject.

Instruction for Paper Setters

There will be total of 08 questions out of which students have to attempt 06 questions.

i) **Question no. 1 is compulsory which carries 15 marks.**

ii) **Question no. 2 to 8 will be of 13 marks each.**

Duration of Examination – 03 hours

Course Outcomes

Sr. No.	At the end of the semester, the students will be able:
CO 1	To describe various disorders related to bone and joints such as infectious, metabolic, congenital, degenerative, developmental, inflammatory or neuromuscular related etc.
CO 2	To understand and assess the incidence, mechanism, clinical features, complications for a variety of injuries occurring to bones, joints, soft tissues, muscles and nerves including fractures, subluxations, dislocations etc.
CO 3	To explain the commonly used surgical procedures and their rehabilitation in preoperative and postoperative phases
CO 4	To examine and assess the physiological and pathological changes in geriatric population and disorders associated with ageing

Unit-I

General Orthopedics

1. Infection Disorders of the Bones and Joints
2. Metabolic Disorders of the bones and joints

3. Congenital Disorders of the bones and joints
4. Inflammation of the bones and joints
5. Degeneration of the bones and joints
6. Developmental of the bones and joints
7. Connective tissue Disorders
8. Neuromuscular disorders
9. Tumors of bones
10. Complex Regional Pain Syndrome
11. Myopathies
12. Burns

Unit-II

Regional Orthopedics

1. Disorders of Upper Limb
2. Disorder of the Lower Limb
3. Disorder of Spine

Unit-III

Traumatology (Fractures, Subluxations, Dislocations and Soft tissue injury)

1. Trauma of the upper limb
2. Trauma of the lower limb
3. Trauma of the spine
4. Peripheral Nerve Injuries

Unit-IV

Orthopedic Surgeries: -

1. Osteotomy
2. Arthrodesis
3. Arthroplasty
4. Tendon transfers, repairs and grafting
5. Nerve Suturing
6. Soft tissue release
7. Spinal Stabilization
8. Spinal Fusion
9. Discectomy
10. Laminectomy
11. Reattachment of Limbs
12. Illizarou' s technique
13. Meniscectomy

Unit-V

Amputation

1 Types, Level and Proceure
2 Preoperative, operative and Prosthetic Management
3 Prevention and Treatment of complication

Unit –VI
Geriatric Care

1 Examine and assessment of geriatric Patient

2 Disorders specific to ageing

Reference Books

Pediatric Orthopedics: more knowledge in Orthopaedics / Dormans, John P

Clinical Orthopedics Examination / Mcrac, Ronald

Apleys system of Orthopedics and Fractures/ Solomn, Louis

Fractures of the upper extremity. / Ziran, Bruce H. ed.

Musculoskeletal disorders in the workplace: Principles and Practice. / Nordin, Margareta.The Orthopedic physical Examination. / Reider, Bruce

Orthopedic Physical Assessment, David Magee

Essentials of orthopedics for physiotherapist:

Ebnezar, J

Chiropractic care of the older patient. / Gleberzon, Brian J.ed

Orthopaedics Principles of basic and Clinical Science; Bronner, F & Warrell, RV

Burnsides working with olderadults group process and techniques: Haight, B

Subject Code	Subjects	Study Hours/ Week	Credits
MPT 303	Physiotherapy Management in Musculoskeletal Conditions	5	5

Course Assessment Methods- Theory 100 Marks; Practical 100 Marks (Internal: 20; External 80)

Internal evaluation based on continuous assessment, for 20% of the marks of the subject (Theory & Practical each); University examination through theory paper and practical examination for 80% of the marks for the subject.

Instruction for Paper Setters

There will be total of 08 questions out of which students have to attempt 06 questions.

i) **Question no. 1 is compulsory which carries 15 marks.**

ii) **Question no. 2 to 8 will be of 13 marks each.**

Duration of Examination – 03 hours

Course Outcomes

Sr. No	At the end of the semester, the student will be able:
CO 1	To plan tailor made physiotherapy Protocols for various Musculoskeletal Conditions
CO 2	To do Musculoskeletal assessment and examination
CO 3	To develop basic knowledge of Investigative procedures in Musculoskeletal Conditions

Classification, patho physiology, causes, Clinical feature, complication examinations, management physiotherapy treatment including advance techniques.

Unit- I

Congenital deformities :

Upper limb congenital anomalies Lower limb congenital anomalies Spine

Unit-II

Development disorders of the Bones: Cartilage dysplasia

Bony dysplasia

Unit- III

Metabolic conditions affecting bones and joints:

Parathyroid bone diseases (osteoporosis, algo dystrophy, heterotopic classification)

Osteomalacia and Rickets Scurvy

Unit-IV

Infection Disorders of the bones and joints:Osteomyelitis

Infective Arthritis

Tuberculosis

Unit-V

Connective tissue disorders:

Rheumatoid Arthritis Ankylosing Spondylitis Psoriatic arthritis

Scleroderma

Dermatomyositis

Unit-VI

Geriatrics Care:

Examine and assessment of geriatric patient

Disorders specific to ageing

Unit-VII

Bone Tumors:

Benign Tumors Malignant

Tumors Metastatic Tumors

Unit-VIII

Traumatology (Fractures, Subluxation, Dislocations and Soft tissue injury)Trauma of the upper Limb

Trauma of the Lower LimbTrauma of the spine

Peripheral Nerve and Vascular Injuries

Unit-IX

Amputation

Classification

Preoperative and treatment of complications

Unit-X

Neuromuscular Disorders

Poliomyelitis

Muscular dystrophies

Leprosy

Unit-XI

Orthopedic Surgeries: Osteotomy Arthrodesis

Arthroplasty Tendon transfers, repairs and grafting Nerve

Suturing

Soft tissue release Spinal fusion Disectomy Laminectomy Reattachment of limbs Illizarov' s technique Menisectomy

Unit-XII

Regional Orthopaedics : Classification, Clinical Features, pathogenesis, complications and management of Disorders of Upper Limb, Disorder of Lower Limb Disorder of Spine

Unit-XIII

Advance Manual Therapy:

1 Manual Therapy: Introduction, History, Basic Classification Assessment for manipulation, discussion in brief about the concepts of mobilization & Special techniques like Cyriax, Maitland, Mulligan, Buttler, Kaltenborn, Meekenzie.
2 Muscle Energy techniques and positional stretch: The basic concept and application of these techniques.
3 Positional Release Therapy: The basic concept and Application of these techniques.
4 Myofascial Release: Concept and Application.
5 Nerve Conduction Studies and Electromyography: normal, abnormal action potential, its recording protocols analysis, application.
6 Bio-feed back

Reference books

Cash's textbook of orthopaedics and rheumatology for physiotherapists: Downie, PA Physicalrehabilitation in arthritis: Walker,
JM & heleura, A Hand therapy principles and practice: Salter, M & Chishire, L Hand

fractures repair reconstruction & rehabilitation: Freeland, AE

Subject Code	Subjects	Study Hours/ Week	Credits
MPT 304	Recent Advances in Musculoskeletal Physiotherapy	5	5

Course Assessment Methods- Theory 100 Marks; Practical 100 Marks (Internal: 20; External 80)

Internal evaluation based on continuous assessment, for 20% of the marks of the subject (Theory & Practical each); University examination through theory paper and practical examination for 80% of the marks for the subject.

Instruction for Paper Setters

There will be total of 08 questions out of which students have to attempt 06 questions.

i) **Question no. 1 is compulsory which carries 15 marks.**

ii) **Question no. 2 to 8 will be of 13 marks each.**

Duration of Examination – 03 hours

Course Outcomes:

Sr. No.	At the end of the semester, the students will be able to:
CO 1	Understand the basic concept and knowledge of various advanced techniques used in physiotherapy to treat patients
CO 2	Understand the proper positioning, holding and application of various advanced techniques
CO 3	Understand the various special consideration in the field of physiotherapy and enable the students to use this information in planning and tailoring effective, specific and safe physiotherapy treatment programs for various conditions
CO 4	To administer advanced Musculoskeletal Physiotherapy techniques

1. Advanced soft tissue mobilization Techniques

1.1 Myofascial release technique

1.1.1 Principle and technique

1.1.2 Trigger point assessment

1.1.3 Myofascial pain Syndrome

1.1.4 Concept of Myofascial cycle

1.1.5 Myofascial Release technique for various syndrome

1.2 Cyriax concept and technique

1.2.1 Principles of Diagnosis

1.2.2 Principles of Treatment

1.2.3Cyriax techniques for peripheral joints

1.2.4 Cyriax techniques for spine

1.2.5 Capsular stretching

1.2.6 Soft tissue manipulation by cyriax

2. Manual Mobilization Techniques

2.1. Muscle energy technique

2.1.1 Principles of MET

2.1.2 Types of MET

2.1.3 Techniques and application of MET

2.1.4 Lower quarter MET

2.1.5 Upper quarter MET

2.2. Positional release therapy

2.2.1 Principles of PRT

2.2.2 Variations of PRT

2.2.3 Technique and Application of PRT

2.2.4 Integrated Neuromuscular Inhibition technique

3. Neurotherapeutic manual Techniques

4.1 Butler principles and concept

4.1.1 Neurophysiology and neurodynamics

4.1.2 Clinical neurobiomechanics

4.1.3 Neural tension and mobilization-upper limb and lower limb

4.1.4 Different schools of thoughts for neural mobilization techniques

4. Core Stabilization and Pilates

5.1 Segmental Stabilization Concepts of Spine

5.1.1 Muscle function in spinal stabilization

5.1.2 Contribution of various muscles to spinal stabilization

5.1.3 Local Muscle dysfunction in Low back pain.

5.1.4 Principles of clinical management of deep muscle system for

5.1.5 Segmental stabilization

5.1.6 Core stability exercise

5.2 Pilates

5.2.1 Introduction

5.2.2 Principle& Technique

5.2.3 Types of Pilates

5.2.4 Pilates for different sports

Text Books/References Book:

1. J. Maitland, 2001, Spinal manipulation made simple-A manual of soft tissue techniques. 2nd Edition. North Atlantic Books.
2. C. J. Manheim, 2008, The Myofascial Release Manual. 4th Edition. SLACK Incorporated.
3. J. Langendoen, 2014, Kinesiology Taping The Essential Step-By-Step Guide: Taping for Sports, Fitness and Daily Life, 1st Edition, Robert Rose Inc.
4. G. Cook, 2011, Movement: Functional Movement Systems: Screening, Assessment, Corrective Strategies. 2nd Edition. Lotus Publisher.
5. N. Swedan, 2001, Women's Sports Medicine and Rehabilitation, 1st Edition, Aspen Publishers Inc.

Subject Code	Subjects	Study Hours/ Week	Credits
MPT 305 P	Practical	8	4

Course Assessment Methods (Internal: 50; External 100)

Course Outcomes:

Sr. No.	At the end of the semester, the students will be able to:
CO 1	To apply advanced knowledge of clinical skills in problem solving related to assessment and investigation of various musculoskeletal conditions
CO 2	To plan the principles and follow up of physiotherapy management for a variety of musculoskeletal disorders
CO 3	To document a written record of the subjective and objective assessment, examination findings, diagnosis and treatment strategies concerned with patient

The students will be equipped with clinical knowledge. They will be able to apply advanced knowledge of clinical skills in problem solving related to assessments, investigations, and physiotherapy management of all the above conditions. Students will be judged on one elective and one non elective case. They will be expected to assess, diagnose and plan effective treatment plan for both cases.

Related to assessments, investigations and Physiotherapy management of all the above conditions. Students will be judged on elective and non-elective case. They will be expected to assess, Diagnose and plan effective treatment plan for both cases.

(1) Demonstration of following manual Therapy Techniques:-

- Cyriax
- Maitland
- Mulligan
- Butler
- Meckenzie
- Nerve Mobilization

(2) Outline and Practical Knowledge of

- Muscle Energy Techniques
- Positional Stretch
- Myofascial release etc

(3) Demonstration and Practical Knowledge of

- NCV, EMG
- Biofeedback

Reference books

Electrotherapy explained: Principles and practice/ by

John Low, Ann Reed and Mary Dyson. / low, John

Clayton's electrotherapy/ edited by Sheila Kitchen and Sarah Bazin / Kitchen,

Sheila Positional release techniques Deig, D

Muscle Energy Techniques Chaitow L.

Subject Code	Subjects	Study Hours/ Week	Credits
MPT 306P	Seminars/Case Presentation	8	4

Course Assessment Methods: (Internal 100)

The Internal evaluation will consist of 5 seminars of 20 marks each with a total of 100 marks.

Course Outcomes:

Sr. No.	At the end of the semester, the students will be able to:
CO1.	This will serve as platform for students to integrate various components of patient management and debate contentious issues on the efficacy of physiotherapy techniques.
CO2.	Students will able to review the physical therapy documentation including the goals, and objectives; identifying major indications, contraindication, precautions and safety issues and identifying patient goals and outcomes in the documents
CO3.	Students will describe safe environments, appropriate risk management strategies, and emergency responses/support activities to take when the safety of self, patient or others is at risk in the clinical setting with evidences.
CO4.	Students will be able to learn communication processes and presentations of different cases.
CO5.	Evidence based clinical practice in rehabilitation.

Seminars/Case Presentation

These will serve as platform for students to integrate various components of patient management and debate

contentious issues on the efficacy of physiotherapy techniques. Students will give presentations on topic provided to them.

Subject Code	Subjects	Study Hours/ Week	Credits
MPT 307	**Dissertation Project work (based on clinical/case presentation including viva voce)**	**10**	**5**

Course Assessment Methods (Internal: 20; External 80) Internal Assessment of 20 marks based on Pre-Dissertation Submission by the committee constituting Chairperson and Supervisors (all disciples). End semester examination is of maximum 80 marks (External examiner).

Course Outcomes:

Sr. No	At the end of the semester, the student will be able:
CO 1	To establish evidence based physiotherapy protocols
CO 2	To establish research evidence on various aspects of Musculoskeletal-Physiotherapy

As part of their requirement for the Master Degree the Students is required to undertake a research study under the guidance of Guide and Co-guide. Research Study must be selected only from the chosen specialization i.e. Musculoskeletal Conditions or Sports Injuries or Neurological Conditions or Cardiopulmonary Conditions to be studied on patients or normal individuals. Students have to undergo a dissertation viva-voce by examination Committee.

M.P.T. Second Year Professional Year

(NEUROLOGY)

Subject Code	Subject	Study Hours/ Week	Credits
MPT 201	Assessment and diagnosis of Neurological Conditions	4	4

Course Assessment Methods- Theory 100 Marks; Practical 100 Marks (Internal: 20; External 80)

Internal evaluation based on continuous assessment, for 20% of the marks of the subject (Theory & Practical each); University examination through theory paper and practical examination for 80% of the marks for the subject.

Instruction for Paper Setters

There will be total of 08 questions out of which students have to attempt 06 questions.

i) **Question no. 1 is compulsory which carries 15 marks.**

ii) **Question no. 2 to 8 will be of 13 marks each.**

Duration of Examination – 03 hours

Course outcomes:

Sr. No	At the end of the semester, the student will be able:
CO1.	To attain and evaluate in-depth knowledge of the Central Nervous System (CNS) disorder.
CO2.	To assess and differentially diagnose various Neurological disorders
CO3.	To perform pre and post-operative Physiotherapy assessment

Course Content:

1. **Neurological Assessment**

i) Neurological History.
ii) General Observation and order to procedure.
iii) Mental Functions examination, mental status examination
iv) Language and motor speech
v) Central nervous examination
vi) Tone, coordination, abnormal involuntary movement, gait, muscle eyes, Response to muscle percussion examination, reflexes (Superficial and deep, developmental),

posture

vii) Sensory examination.
viii) Autonomic examination
ix) Cerebellar function examination
x) Clinical examination of all Neurological problems

2. **Neurodiagnosis:**

i) Plain roentgenography
ii) Myelography
iii) Cerebral angiography
iv) Computer Tomography
v) MRI
vi) MRI Angiography
vii) Radio nucleotide imaging
viii) Neurophysiology –EEG, EMG and NCV
ix) Examination of CSF
x) Other special techniques

3. Differential diagnosis in Neurological Conditions.

Subject Code	Subject	Study Hours/ Week	Credits
MPT 202	Medical and Surgical Management of Neurological Conditions	4	4

Course Assessment Methods- Theory 100 Marks; Practical 100 Marks (Internal: 20; External 80)

Internal evaluation based on continuous assessment, for 20% of the marks of the subject (Theory & Practical each); University examination through theory paper and practical examination for 80% of the marks for the subject.

Instruction for Paper Setters

There will be total of 08 questions out of which students have to attempt 06 questions.

i) **Question no. 1 is compulsory which carries 15 marks.**

ii) **Question no. 2 to 8 will be of 13 marks each.**

Duration of Examination – 03 hours

Course outcomes:

Sr. No	At the end of the semester, the student will be able:
CO1.	Overview of Medical and surgical Management of Neurological disorders
CO2.	To assess and differentially diagnose various Neurological disorders
CO3.	To administer recent advances in medical & surgical procedure for various Neurological disorders

This Course provides the student with information on the epidemiology, Pathophysiology, clinical presentation and medical and surgical management in neurological conditions. Students will be able to use this information in planning and tailoring effective, specific, safe physiotherapy treatment programmes and in-depth knowledge of the central nervous system (CNS) and condition caused by damage of the CNS such as stroke, MS, Parkinson, cerebral palsy, spina bifida and mental retardation.

- Improved skills in assessing, treating and evaluating patients with CNS Disorders
- Ability to analyze the patient's problems according to the ICF
- Ability to analyze ethical dilemmas
- Ability to find, understand and report result from research related to the field.

1 **Congenital and hereditary disorders**

2 **Head Injury**

i) Comatose patient
ii) Closed skull fractures
iii) Hematomas, subdural, epidural and intracerebral
iv) Open cranio- cerebral injuries
v) Reconstruction operations in head injuries

3 **Disorders of spinal cord and cauda equine**

- Acute traumatic injuries
- Haematomyelia and acute central cervical cord injuries
- Slow progressive compression of the spinal cord
- Syringomyelia
- Ischemia and infraction of the spinal cord and cauda
- Spina bafida

4 **Disorders of cranial nerves**

5 **Disorders of peripheral nerves**

- Peripheral Neuropathies
- Causalgia
- Reflex sympathetic dystrophy
- Irradiation neuropathy
- Peripheral nerves tumors
- Traumatic, compressive and ischemic neuropathy
- Spinal radiculitis and radiculopathy
- Hereditary motor and sensory neuropathy
- Acute idiopathic polyneuritis/chronic
- Neuropathy due infections
- Vasculomotor Neuropathy due to systemic medical disorders
- Drug induced neuropathy

6 **Disorders of Muscle**

- The myotonic disorders
- Inflammatory disorders of the muscle
- Myasthenia gravis
- Endocrine and Metabolic Myopathies
- Muscular dystrophies

7 **Cerebellar disorders**

- Ataxia
- Motor neuron disease

8 **Demyelinating disorders**

- Multiple sclerosis
- Diffuse sclerosis

9 **Deficiency and nutritional disorders**

- Deficiency of vitamins and related disorders
- Other Nutritional neuropathies

10 **Disorders of cerebral circulation**-Stroke

11 **Infectious disorders**

- Meningitis
- Encephalitis
- Brain abscess
- Syphilis
- Herpes simplex
- Chorea
- Poliomyelitis
- Tuberculosis
- Transverse myelitis

12 **Disorders of vestibular system**

13 **Extra pyramidal disorders**

Parkinsonism Balance disorders

14 **Epilepsy, Dementia, Alzheimer's disease**

15 **Development of Child-** weight, height, circumference measurement related to age in normal child, developmental milestones, neonatal reflexes. factors, influencing growth and development, types of body built, physical examination of the child, growth patterns

16 **Nutrition and immunization of a normal child-** normal nutrition requirement of a child,infant feeding, prevention of nutrition disorders, immunization

17 General principles of neurosurgery

18 Tumors

- Tumors of cranial bones
- Meningiomas
- Tumors in spinal
- Intra- cranial tumors
- Other space-occupying lesions

19 Intracranial abscess

20 Vascular disease of the brain

- Aneurysms
- Thrombosis

21 Stereo tactic surgeries.

22 Cerebral malformations

23 Operations of the discs – cervical and lumber disc operation

24 Malformations of the spine and spinal cord

25 Lumbar and cisternal punctures technique and complication

26 General rules of surgical repair of the peripheral nerves

27 Muscle lengthening/ release operations

28 Spasticity reductions

29 Intensive Care Unit management of the neurologically Impaired Patient.

Subject Code	Subject	Study Hours/ Week	Credits
MPT 203	Physiotherapy Management in Neurological Conditions	5	5

Course Assessment Methods- Theory 100 Marks; Practical 100 Marks (Internal: 20; External 80)

Internal evaluation based on continuous assessment, for 20% of the marks of the subject (Theory & Practical each); University examination through theory paper and practical examination for 80% of the marks for the subject.

Instruction for Paper Setters

There will be total of 08 questions out of which students have to attempt 06 questions.

i) **Question no. 1 is compulsory which carries 15 marks.**

ii) **Question no. 2 to 8 will be of 13 marks each.**

Duration of Examination – 03 hours

Course outcomes:

S .No	At the end of the semester, the student will be able:
CO1.	To administer advanced Neuro-physiotherapy protocols in Neurological condition
CO2.	To understand Neurological assessment and examination and pre and post-operative physiotherapy assessment and treatment in Neurological condition
CO3.	To plan tailor made physiotherapy protocols for various Neurological disorders

This course provides the student with information on the epidemiology, pathophysiology, Clinical presentation and medical and surgical management in neurological conditions. Students will be able to use this information in planning and tailoring effective, specific, safe physiotherapy treatment programmes and in-depth knowledge of the central nervous system (CNS) and condition caused by damage of the CNS such as stroke, MS, Parkinson, Cerebral Palsy, spina bifida and mental retardation.

- **Improved skills in assessing, treatment and evaluating patient with CNS disorders.**
- **Ability to analyze the patient's problems according to the ICF.**
- **Ability to analyze ethical dilemmas.**
- **Ability to find, understand and report results from research related to the field**

1. **Congenital and hereditary disorders**
   - Hydrocephalus
2. **Head Injury.**
   - Comatose patient.
   - Closed skull fractures
   - Hematomas, subdural, epidural and intracerebral
   - Open cranio- cerebral injuries
   - Reconstruction operations in head injuries
3. **Disorders of spinal cord and cauda equina**
   - Acute traumatic injuries
   - Haematomyelia and acute central cervical cord injuries
   - Slow progressive compression of the spinal cord
   - Syringomyelia
   - Ischemia and infarction of the spinal cord and cauda
   - Spina bifida
4. **Disorders of cranial nerves**
5. **Disorders of peripheral nerves**
   - Peripheral neuropathies
   - Causalgia
   - Reflex sympathetic dystrophy Irradiation neuropathy
   - Traumatic, compressive and ischemic neuropathy
   - Spinal radiculitis and radiculopathy
   - Hereditary motor and sensory neuropathy
   - Acute idiopathic polyneuritis/ chronic
   - Neuropathy due to infections
   - Vasculomotor neuropathy
   - Neuropathy due to systemic medical disorders

- Drug induced neuropathy
- Traumatic neuropathy
- Peripheral nerve tumors

6. **Disorders of muscle**
   - The myotonic disorders
   - Inflammatory disorders of the muscle
   - Myasthenia gravis
   - Endocrine and metabolic myopathies
   - Muscular dystrophies
7. **Cerebellar disorders**
   - Ataxia
   - Motor neuron disease
8. **Demyelinating disorders**
   - Multiple sclerosis
   - Diffuse sclerosis
9. **Deficiency and nutritional disorders**
   - Deficiency of vitamins and related disorders
   - Other nutrition neuropathy
10. **Disorders of cerebral circulation- Stroke**
11. **Infectious disorders**
    - Meningitis
    - Encephalitis
    - Brain abscess
    - Syphilis
    - Herpes simplex
    - Chorea
    - Poliomyelitis

- Tuberculosis
- Transverse myelitis

12 Disorders of vestibular system

13 Extra pyramidal disorders

- Parkinsonism
- Balance disorders

14 Epilepsy, Dementia, Alzheimer's disease

15 Development of Child- weight, height, circumference measurement related to age in normal child, developmental milestones, neonatal reflexes, factors, influencing growth and development, types of body built, physical examination of the child, growth patterns

16 Nutrition and immunization of a normal child- normal nutrition requirement of a child,infant feeding, prevention of nutrition disorders, immunization

17 General principles of neurosurgery

18 Tumors

- Tumors of cranial bones
- Meningiomas
- Tumors in spinal
- Intra- cranial tumors
- Other space-occupying lesions

19 Vascular disease of the brain

- Aneurysm
- Thrombosis

20 Spinal Surgeries

- Disc operations- cervical, thoracic, lumbar and sarco-coccygeal.
- Stenosis
- Edema, abscess
- Lumbar puncture, cisternal, punctures technique and complication

21 Neuromuscular disorders

- Cerebral Palsy
- Poliomyelitis
- Surgeries in leprosy

22 Neuro- development techniques

23 Principles and techniques of MRP

24 Principles and techniques of PNF

25 Motor control and learning

26 Balance and coordination

27 Assessment and pain management Stereo tactic surgery

28 Cerebral malformations

29 Malformations of the spine and spinal cord

30 General rule of surgical repair of the peripheral nerves

31 Muscle lengthening/release operations

32 Spasticity reductions

33 Intensive Care Unit management of the neurologically Impaired Patient.

34 Group exercise

35 Physiotherapy in home setting

36 Biofeedback

37 Usage and critical analysis of exercises and electrotherapeutic modalities\

38 Disability evaluation

Subject Code	Subject	Study Hours/ Week	Credits
MPT 204	Recent Advances in Neuro Physiotherapy	5	5

Course Assessment Methods- Theory 100 Marks; Practical 100 Marks (Internal: 20; External 80)

Internal evaluation based on continuous assessment, for 20% of the marks of the subject (Theory & Practical each); University examination through theory paper and practical examination for 80% of the marks for the subject.

Instruction for Paper Setters

There will be total of 08 questions out of which students have to attempt 06 questions.

i) **Question no. 1 is compulsory which carries 15 marks.**

ii) **Question no. 2 to 8 will be of 13 marks each.**

Duration of Examination – 03 hours

Course outcomes:

Sr. No	At the end of the semester, the student will be able:
CO1.	To do Neurological assessment and examination, understand and implement practical aspects of Neuro-Rehabilitation
CO2.	To develop basic knowledge of Investigative procedures in Neurological Disorders
CO3.	To administer advanced Neuro-Physiotherapy techniques like Roods, NDT, Neural Mobilization, MRP, PNF etc

Course content:

1. **Neuro-psychological Therapies**
   - 1.1 Cognitive rehabilitation
   - 1.2 Behavioral Therapy
   - 1.3 Stress management strategies
   - 1.4 Functional and Remedial Techniques

2. **Advanced soft tissue mobilization Technique**
   - 2.1 Myofascial release technique
     - 2.1.1 Principle and technique
     - 2.1.2 Trigger point assessment

2.1.3 Myofascial pain Syndrome
2.1.4 Concept of Myofascial cycle
2.1.5 Myofascial Release technique for various syndrome

2.2 Cyriax concept and technique

2.2.1 Principles of Diagnosis
2.2.2 Principles of Treatment
2.2.3 Cyriax techniques for peripheral joints
2.2.4 Cyriax techniques for spine
2.2.5 Capsular stretching
2.2.6 Soft tissue manipulation by cyriax

3. Virtual Reality and Robotics in Neuro-rehabilitation

3.1 Virtual Reality - Medical Games, Immersive approaches
3.2 Robotics and Haptics -simulation -- understanding motivational aspects of rehabilitation
3.3 Concept and Principle of Lumosity

4. Core Stabilization and Pilates

4.1 Segmental Stabilization Concepts of Spine
4.1 Muscle function in spinal stabilization
4.2 Contribution of various muscles to spinal stabilization
4.3 Local Muscle dysfunction in Low back pain
4.4 Principles of clinical management of deep muscle system for
4.5 segmental stabilization
4.6 Core stability exercise

4.2 Pilates
4.2.1 Introduction
4.2.2 Principle& Technique
4.2.3 Types of Pilates
4.2.4 Pilates for different sports

5. Neurotherapeutic manual Techniques

5.1 Butler principles and concept
5.1.1 Neurophysiology and neurodynamics
5.1.2 Clinical neurobiomechanics
5.1.3 Neural tension and mobilization-upper limb and lower limb
5.1.4 Different schools of thoughts for neural mobilization techniques

Recommended books:

1. J. Maitland, 2001,Spinal manipulation made simple-A manual of soft tissue techniques. 1st Edition. North Atlantic Books.
2 E. Cara, A. MacRae, 2004, Psychosocial Occupational Therapy: A Clinical Practice.2nd Edition. Delmar Cengage learning
3 C. Manheim, 2008, The Myofascial Release Manual. 4th Edition. SLACK Incorporated
4 M. Sohlberg, 2001, Cognitive Rehabilitation: An Integrative Neuropsychological Approach.2nd Edition. Guilford Press.
5 E.C. Haskins, L.E. Trexler, A.Shapiro-Rosenbaum, K.Dams-O'Connor, R. Eberle, 2012, Cognitive Rehabilitation Manual: Translating Evidence-Based Recommendations into Practice.1st Edition.ACRM Publishing

Subject Code	Subject	Study Hours/ Week	Credits
MPT 205 P	Practical	8	4

Course Assessment Methods (Internal: 50; External 100)

Course Outcomes:

Sr. No	At the end of the semester, the student will be able:
CO1.	To rationally implement students practical knowledge into clinical skills and learn new techniques related to assessments, investigations and Physiotherapy management of neurological conditions
CO2.	To assess patients and provide Physiotherapy interventions to patients with neurological conditions
CO3.	To enhance students clinical skills and apply contemporary knowledge gained during teaching sessions.

Related of assessments, investigations and Physiotherapy management of all the above condition Students will be judged on one elective and one non- elective case. They will be expected to asses, diagnose and plan effective treatment plan for both cases.

Subject Code	Subject	Study Hours/ Week	Credits
MPT 206 P	Seminar/Case Presentation	4	2

Course Assessment Methods (Internal: 100)

The Internal evaluation will consist of 5 seminars of 20 marks each with a total of 100 marks.

Course Outcomes:

Sr. No	At the end of the semester, the student will be able:
CO1.	To integrate theory and practical knowledge of various components of patient management
CO2.	To critically apply these skills into clinical aspects and debate contentious issues on the efficacy of physiotherapy techniques
CO3.	To present detail assessment, examination and treatment plan of patients with neurological conditions in seminar

Seminar / Case Presentations

There will serve as platform for students to integrate various components of patient management and debate contentious issues on the efficacy of Physiotherapy techniques. Students will give presentations on topic provided to them.

Subject Code	Subject	Study Hours/ Week	Credits
MPT 207	Dissertation Project work (based on clinical/case presentation including viva voce)	10	5

Course Assessment Methods (Internal: 20, External: 80) Internal Assessment of 20 marks based on Pre-Dissertation Submission by the committee constituting Chairperson and Supervisors (all disciples). End semester examination is of maximum 80 marks (External examiner).

Course Outcomes:

Sr. No	At the end of the semester, the student will be able:
CO1.	To establish evidence based physiotherapy protocols for various neurological disease and neuro- rehabilitaion through research study
CO2.	To establish research evidence on various aspects of neuro-physiotherapy in neurological disease or normal individuals
CO3.	To understand and conduct professional and ethic based research activities

As part of their requirement for the Master Degree the Students is required to undertake a research study under the guidance of Guide and Co-guide. Research Study must be selected only from the chosen specialization i.e. Musculoskeletal Conditions or Sports Injuries or Neurological Conditions or Cardiopulmonary Conditions to be studied on patients or normal individuals. Students have to undergo a dissertation viva-voce by examination Committee.

M.P.T SECOND PROFESSIONAL YEAR

(CARDIOTHORACIC & PULMONARY DISORDERS)

Subject Code	Subjects	Study Hours/ Week	Credits
MPT 401	Assessment and diagnosis of Cardiopulmonary Conditions	4	4

Course Assessment Methods- Theory 100 Marks; Practical 100 Marks (Internal: 20; External 80)

Internal evaluation based on continuous assessment, for 20% of the marks of the subject (Theory & Practical each); University examination through theory paper and practical examination for 80% of the marks for the subject.

Instruction for Paper Setters

There will be total of 08 questions out of which students have to attempt 06 questions.

i) **Question no. 1 is compulsory which carries 15 marks.**

ii) **Question no. 2 to 8 will be of 13 marks each.**

Duration of Examination – 03 hours

Course outcomes:

S. No.	At the end of the semester, students will be able to:
CO1	Understand the methods of assessment of the various regions of the body to diagnose the conditions specific to the region
CO2	Assess and understand various conditions of the specific region
CO3	Examine, diagnose and plan treatment of various Cardiopulmonary Conditions

Course content:

This course provides the students within formation on assessment procedures and relevant diagnostic tests in cardio-pulmonary conditions, which the students will use in planning and tailoring effective specific safe physiotherapy treatment programme.

1. **Cardio-pulmonaryassessment**
   - i) History taking
   - ii) Observation
   - iii) Palpation
   - iv) Auscultation
   - v) Percussion
   - vi) Functionalability
2. **Relevantdiagnosistests(forpracticalknowledgeonly)**
   - i) Hematology
   - ii) ABG analysis

iii) Spirometry
iv) InvasiveandNon-invasive techniques
v) ECG
vi) Echocardiography
vii) Imaging
- PlainX-ray
- ComputedTomography
- Magnetic resonance imaging

viii) Cardiac catheterization
ix) Radio nuclide Scanning
x) Stress testing
xi) Lung FunctionTesting
xii) Bio feedback
xiii) Humidification and AerosolTherapy

3. **Differential Diagnosis in different cardiopulmonary conditions.**

Reference

Principal and practiceof Cardiopulmonary Physiotherapy,Donnafrownfelter
Case textbook of general medical and surgical condition
Brompton guide to chest PT
Cardiopulmonary PT Irwinn&Technin Mosby
Cardiovascular (Respiratory PT) Smith&ball, Mosby
Chest PT in ICU Meckenzie et al. William and Wilkins
ACSM guidelines for exercise testing and prescription ACSM Williams and Wilkins
Cardiopulmonary Physiotherapy M. Jonas F. Moffat

Subject Code	Subjects	Study Hours/ Week	Credits
MPT 402	Medical and Surgical Management of Cardiopulmonary Conditions	4	4

Course Assessment Methods- Theory 100 Marks; Practical 100 Marks (Internal: 20; External 80)

Internal evaluation based on continuous assessment, for 20% of the marks of the subject (Theory & Practical each); University examination through theory paper and practical examination for 80% of the marks for the subject.

Instruction for Paper Setters

There will be total of 08 questions out of which students have to attempt 06 questions.

i) **Question no. 1 is compulsory which carries 15 marks.**

ii) **Question no. 2 to 8 will be of 13 marks each.**

Duration of Examination – 03 hours

Course outcomes:

S. No.	At the end of the semester, students will be able to:
CO1	Understand the epidemiology, pathophysiology and clinical presentation of various cardiopulmonary conditions
CO2	Enhance knowledge about medical and surgical management of various cardiopulmonary conditions
CO3	Explain concepts of mechanical ventilation, their physiological effects and their complication
CO4	Enhance knowledge about different cardiopulmonary surgeries.

Course content:

This course provides the students with information on the epidemiology, pathomechanics, clinical presentation and medical and surgical management in disorders of the cardiovascular system. Students will be able to use this information in planning and tailoring effective, specific, safe physiotherapy treatment programme.

CARDIOLOGY

a) Assessment of system of heart disease.
b) Disorders of cardiac rate rhythm and conduction
c) Cardiac Arrest
d) Shock
e) Rheumatic fever
f) Congenital Heart Diseases
g) Disease of Heart Valves
h) Infective endocarditis

i) Ischemic heart disease
j) Hypertension
k) Orthostatic hypertension
l) CPR
m) Pericarditis
n) Heart disease in pregnancy
o) Degenerative arterial Disease
p) Inflammatory arterial Disease
q) Raynaud's Disease
r) Venous Thrombosis
s) Peripheral Vascular Disease
t) Cardiomyopathy
u) Disease of the pericardium

PULMONOLOGY

a) Obstructive Pulmonary Disease
b) Infection of the respiratory System
c) Interstitial and Infiltrative Pulmonary Disease
d) Pulmonary Disease due to Exposure to Organic and Inorganic Pollutants
e) Pulmonary Disorders due to Systemic Inflammatory disease
f) Pulmonary Vascular disease
g) Disease of the Pleura
h) Respiratory Failure
i) Supplementary Oxygen and Oxygen Delivery Devices in chronic Respiratory disease
j) Neuromuscular and Skeletal Disorder leading to Global alveolar Hypoventilation, Myopathics, Spinal muscular Atrophics, Poliomyelitis, Motor Neuron Disease, Kyphoscoliosis, Pectus carinatum Pectus Excavatum.
k) Pathphysiology of Paralytic-Restrictive Pulmonary Syndromes
l) Conventional Approaches to Managing Neuromuscular Ventilatory Failure
m) Mechanical Ventilation: Concepts, Physiological effects and Complications.

CARIO THORACIC SURGERIES

a) Closed versus Open Heart Surgeries
b) Incisions
c) Preoperative Assessment of Patients
d) Pre and Post operative Blood Gas Exchange
e) Haemodynamics Performances of CTVS Patient
f) Emergencies in CTVS
g) AV Shunts
h) Heart Transplant
i) Left Ventricular Assistive Devices
j) Procedure on Sternum, Chest Wall, Diaphragm, Mediastinum and Esophagus
k) Cardiopulmonary Bypass
l) Maintaining and Removing Artifical Airway
m) All Pulmonary Surgeries like Labectomy, Pneumonectomy, Pleurectomy, Thoracotomy, etc.

References

Practice in general medicine, M. Davidson
Practice in general surgery, S Das Basu
Essential of cardiopulmonary PT, Sadowskyw B Saunder
Physiotherapy for Respiratory and Cardiac problems, Jennifer A Pryor, Barbara A Webber
Cash textbook of general medical and surgical condition
Cardiovascular(Respiratory PT), Smith & ball, Mosby
ACSM guidelines for exercise testing and prescription, ACSM William and
Wilkins Multi skilled respiratory therapist a competitive based approach, David W.
Chang Textbook of medicine, Harrison

Subject Code	Subjects	Study Hours/ Week	Credits
MPT 403	**Physiotherapy Management in Cardiopulmonary Conditions**	5	5

Course Assessment Methods- Theory 100 Marks; Practical 100 Marks (Internal: 20; External 80)

Internal evaluation based on continuous assessment, for 20% of the marks of the subject (Theory & Practical each); University examination through theory paper and practical examination for 80% of the marks for the subject.

Instruction for Paper Setters

There will be total of 08 questions out of which students have to attempt 06 questions.

i) **Question no. 1 is compulsory which carries 15 marks.**
ii) **Question no. 2 to 8 will be of 13 marks each.**

Duration of Examination – 03 hours

Course outcomes:

S. No.	At the end of the semester, students will be able to:
CO1	Learn Subjective and objective assessment of cardiopulmonary conditions
CO2	Understand various Physiotherapeutic techniques used in the treatment of cardiopulmonary impairments
CO3	Understand Pre and post-operative Physiotherapeutic management of cardiac and Pulmonary surgeries
CO4	Understand the pre-operative and post-operative assessment and the rehabilitation

Course content:

This course provides students with information on the management of the following conditions using the principle of management.

CARDIOLOGY

i) Assessment of system of heart disease
ii) Disorders of cardiac rate rhythm and conduction
iii) Cardiac Arrest
iv) Shock
v) Rheumatic fever
vi) Congenital Heart Values
vii) Disease of Heart Values

viii) Infective endocarditis
ix) Ischemic heart disease
x) Hypertension
xi) Orthostatic hypertension
xii) C.P.R
xiii) Pericarditis
xiv) Heart disease in pregnancy
xv) Inflammatory arterial disease
xvi) Raynaud's Disease
xvii) Venous Thrombosis
xviii) Peripheral Vascular Disease
xix) Cardiomyopathy
xx) Disease of the pericardium

PULMONOLOGY

i. Obstructive Pulmonary Disease
ii. Infections of the respiratory System
iii. Interstitial and Infiltrative Pulmonary Diseases.
iv. Pulmonary Disease due to Exposure to Organic an Inorganic Pollutants
v. Pulmonary Disorders due to Systemic Inflammatory disease
vi. Pulmonary Vascular disease
vii. Disease of the Pleura
viii. Respiratory Failure
ix. Supplementary Oxygen and Oxygen Delivery in chronic Respiratory disease
x. Neuromuscular Atrophic, Poliomyelitis, Motor Neuron Disease, Kyphoscoliosis Pectus carinatum, Pectus Excavatum
xi. Pathophysiology of Paralytic-Restrictive Pulmonary Syndromes
xii. Conventional Approaches to Managing Neuromuscular Ventilatory Failure
xiii. Mechanical Ventilation:Concepts, Physiological effects and Complications

CARDIO THORACIC SURGERIES

1. Closed versus open Heart Surgeries
2 Incisions
3 Preoperative Assessment of Patients
4 Pre and Post-Operative Blood Exchange
5 Hemodynamics Performance of Patient
6 Emergencies in CTVS
7 AV Shunts
8 Heart Transplant
9 Left Ventricular Assistive Devises
10 Procedure on Sternum, Chest wall Diaphragm, Mediastinum and Esophagus
11 Cardiopulmonary Bypass
12 Maintaining and Removing Artificial always
13 All Pulmonary Surgeries like Lobectomy, Pneumonectomy Pleurectomy, Thoracotomy etc.

References

Principle and practice of Cardiopulmonary Physiotherapy, Donnafrownfelter
Essential of cardiopulmonary PT, Sadowskyw, B. saunder
Physiotherapy for Respiratory and cardiac problem, Jennifer A Pryor, S Ammani
Prasad Physiotherapy for Respiratory and cardiac problem, Jenniger A Pryor, Barbara
A Webber Cash text book of general medical and surgical condition Brompton guide to
chest PT Cardiopulmonary PT, Irwinn & Technin, Mosby
Chest PT in ICU, Meckenzie et al, William and Wilkins

ACSM guidelines for exercise testing and prescribtion, ACMS William and Eilkins Cardiopulmonary physiotherapy, M. Jones, F. Moffat
Heart disease and rehabilitation, Michal I polloack, Donald H. Schtmleit
Multi skilled respiratory therapist a competitive based approach, David Wchang

Subject Code	Subjects	Study Hours/ Week	Credits
MPT 404	**Recent Advances in Cardiopulmonary Physiotherapy**	5	5

Course Assessment Methods- Theory 100 Marks; Practical 100 Marks (Internal: 20; External 80)

Internal evaluation based on continuous assessment, for 20% of the marks of the subject (Theory & Practical each); University examination through theory paper and practical examination for 80% of the marks for the subject.

Instruction for Paper Setters

There will be total of 08 questions out of which students have to attempt 06 questions.

i) **Question no. 1 is compulsory which carries 15 marks.**
ii) **Question no. 2 to 8 will be of 13 marks each.**

Duration of Examination – 03 hours

Course outcomes:

S. No.	At the end of the semester, students will be able to:
CO1	Understand the recent advancement in the treatment procedures related to Cardiopulmonary conditions
CO2	Effective and tailored treatment approaches in various Cardiopulmonary conditions
CO3	Application of the new treatment interventions for holistic improvement in various Cardiopulmonary conditions

Course content:

1. Exercise Testing and prescription

1.1. Principle and technique

1.2. Patient assessment

1.3. Protocols

1.4. Exercise testing for special group

2. Precision heart rate training

2.1 Heart rate monitoring and training

2.2 Training in heart zones

2.3 Precision heart rate training for specific sports

2.4 Multi Activity training

2.5 Monitoring of training effects

3. Neuro physiological facilitation of respiration

3.1 Chest Mobilization

3.2 Muscle lengthening technique

3.3 Postural retraining

4. Prioceptive Neuromuscular Facilitation

4.1. Basic of chest PNF

4.2. Technique of chest PNF

4.3. Pilates for different sports

5. Cardiopulmonary manual Techniques

Cardiopulmonary technique in acute condition

5.1 Techniques in pneumothorax 5.2.Pleural surgeries and techniques

Text Books/References Book:

1. J. Maitland, 2001, Spinal manipulation made simple- A manual of soft tissue techniques. 2nd Edition. North Atlantic Books.
2. C. J. Manheim, 2008, The Myofascial Release Manual. 4th Edition. SLACK Incorporated.
3. J. Langendoen, 2014, Kinesiology Taping The Essential Step-By-Step Guide: Taping for Sports, Fitness and Daily Life, 1st Edition, Robert Rose Inc.
4. G. Cook, 2011, Movement: Functional Movement Systems: Screening, Assessment, Corrective Strategies. 2nd Edition. Lotus Publisher.
5. N. Swedan, 2001, Women's Sports Medicine and Rehabilitation, 1st Edition, Aspen Publishers Inc.

Subject Code	Sub
MPT 405 P	Pra

Course Assessment M

Course outcomes:

S. No.	At the enc
CO1	To assess
CO2	To underst
CO3	Practical a

Related to assessments, will be judged on one el effective treatment plant

Subject Code	Subjects	Study Hours
MPT 407	**Dissertation Project Work (based on clinical/case presentation including viva voce)**	10

Course Assessment Methods (Internal: 20; External 80) Internal Asses Pre-Dissertation Submission by the committee constituting Chairperson and Sup semester examination is of maximum 80 marks (External examiner).

Course outcomes:

S. No.	At the end of the semester, students will be able to:
CO1	Learn to search and locate the literature related to the topic
CO2	Orient themselves towards the recent researches in the field
CO3	Learn research methodology and its implementation
CO4	Gain insight about the topic of dissertation in detail

As part of their requirement for the Master Degree the Students is required to under the guidance of Guide and Co-guide. Research Study must be selec specialization i.e. Musculoskeletal Conditions or Sports Injuries or Ne Cardiopulmonary Conditions to be studied on patients or normal individuals. S dissertation viva-voce by examination Committee.

Subject Code	Subjects	Study Hours/ Week	Credits
MPT 406 P	Seminar/Case Presentation	4	2

Course Assessment Methods: (Internal 100)

The Internal evaluation will consist of 5 seminars of 20 marks each with a total of 100 marks.

Course outcomes:

Sr. No	At the end of the semester, the student will be able:
CO1.	Review the physical therapy documentation including the goals, and objectives; identifying major indications, contraindication, precautions and safety issues and identifying patient goals and outcomes in the documents
CO2.	Describe safe environments, appropriate risk management strategies, and emergency responses/support activities to take when the safety of self, patient or others is at risk in the clinical setting with evidences.
CO3.	Learn communication processes and presentations of different cases.
CO4.	Learn Evidence based clinical practice in rehabilitation.

Seminar/ Case Presentation

These will serve as platform for student to integrate various components of patient management and debate contentious issue on the efficacy of physiotherapy techniques students will give presentation on topic provided on them.

Subject Code	Subjects	Study Hours/ Week	Credits
MPT 407	**Dissertation Project Work (based on clinical/case presentation including viva voce)**	10	5

Course Assessment Methods (Internal: 20; External 80) Internal Assessment of 20 marks based on Pre-Dissertation Submission by the committee constituting Chairperson and Supervisors (all disciples). End semester examination is of maximum 80 marks (External examiner).

Course outcomes:

S. No.	At the end of the semester, students will be able to:
CO1	Learn to search and locate the literature related to the topic
CO2	Orient themselves towards the recent researches in the field
CO3	Learn research methodology and its implementation
CO4	Gain insight about the topic of dissertation in detail

As part of their requirement for the Master Degree the Students is required to undertake a research study under the guidance of Guide and Co-guide. Research Study must be selected only from the chosen specialization i.e. Musculoskeletal Conditions or Sports Injuries or Neurological Conditions or Cardiopulmonary Conditions to be studied on patients or normal individuals. Students have to undergo a dissertation viva-voce by examination Committee.

M.P.T SECOND PROFESSIONAL YEAR
SPORTS

Subject Code	Subjects	Study Hours/ Week	Credits
MPT 501	Assessment and Diagnosis of Sports Injuries	4	4

Course Assessment Methods- Theory 100 Marks; Practical 100 Marks (Internal: 20; External 80)

Internal evaluation based on continuous assessment, for 20% of the marks of the subject (Theory & Practical each); University examination through theory paper and practical examination for 80% of the marks for the subject.

Instruction for Paper Setters

There will be total of 08 questions out of which students have to attempt 06 questions.

i) **Question no. 1 is compulsory which carries 15 marks.**
ii) **Question no. 2 to 8 will be of 13 marks each.**

Duration of Examination – 03 hours

Course outcomes:

S. No.	At the end of the semester, students will be able to:
CO1	Understand the methods of assessment of the various regions of the body to diagnose the conditions specific to the region
CO2	Assess and understand various conditions of the specific region
CO3	Examine, diagnose and plan treatment of various sports related injuries

Course content:

1. **Assessment**
   - i) Patient History
   - ii) Observation
   - iii) Examination-Active and Passive Movements, functional Assessment, Special Tests, Reflexes and Cutaneous Distribution, Joint Play Movements Palpation.
   - iv) Assessment, special test, reflexes and cutaneous distribution, joint play movements, palpation.
   - v) Immediately after injury.
   - vi) Acute stage.
   - vii) Chronic Stage.
   - viii) Rehabilitation stage.
   - ix) Emergency sports evaluation
   - x) Biomechanics of running and jumping

2. **Regional examination with special emphasis on special tests**
   - i) Head and face
   - ii) Cervical spine

iii) Shoulder
iv) Elbow
v) Forearm, wrist and hand
vi) Thoracic spine.
vii) Lumber spine
viii) Pelvis
ix) Hip
x) Knee
xi) Lowerleg, ankle and foot.

3. **Sports medicines diagnosis (for practical purpose only)**
   i) Biomechanical measurement-limbs and spine
   ii) Serology
   iii) Biopsy
   iv) Plain radiography
   v) Contrast radiography
   vi) Myelography
   vii) Radioactive scanning
   viii) Discography
   ix) Tomography
   x) MRI
   xi) Arthroscopy
   xii) EMG, NCV and SD curve
   xiii) BMO–Bone Densitometry, ultrasound densitometry and DEXA

4. **Differential diagnosis of common sports injuries**

Reference Books:

Orthotics in rehabilitation – splining the hand and body MCKEE, PAT
Physiotherapy in orthopedics–a problem solving approach, Atkinson.
Karem Examination of Musculo skeletal injuries. Shultz SJ
Clinical orthopedic rehabilitation. Brotzman. S. Brent
Orthopedic physical therapy-Donatelli.RA and Wooden. MJ
Joint Structure and function- a comprehensive analysis. Levengie PK and Norkin.CC.
Essential of orthopedics and applied physiotherapy. Joshi J and Kotwal

Subject Code	Subjects	Study Hours/Week	Credits
MPT 502	Medical and Surgical Management of Sports Injuries	4	4

Course Assessment Methods- Theory 100 Marks; Practical 100 Marks (Internal: 20; External 80)

Internal evaluation based on continuous assessment, for 20% of the marks of the subject (Theory & Practical each); University examination through theory paper and practical examination for 80% of the marks for the subject.

Instruction for Paper Setters

There will be total of 08 questions out of which students have to attempt 06 questions.

i) **Question no. 1 is compulsory which carries 15 marks.**
ii) **Question no. 2 to 8 will be of 13 marks each.**

Duration of Examination – 03 hours

Course Outcomes:

S. No.	At the end of the semester, students will be able to:
CO1	Understand the Definition, Terminologies, Epidemiology, Patho-mechanics, Clinical features of various medical and surgical conditions related to sports
CO2	Understand Prevention of the various medical and surgical management of Sports Injuries
CO3	Understand the various special considerations in sports and enable the students to use this information in Planning and Tailoring Effective, Specific, Safe Physiotherapy treatment programs.

This course provides the study of the definition, terminologies, epidemiology, pathomechanics, clinical features and prevention , medical and surgical management of all sports injuries but not limited to the following. It will also enable the students to use this information in planning and tailoring effective, specific, safe physiotherapy treatment programmes.

Medical Problem

Definition and terminology.
Medical problems of athletes–fungal infections, viral infections, common cold, diarrhea, dysentery, T.B., amoebiasis etc.

Special considerations:

1. Female athletes–sports amenorrhea, injury to female reproductive tract., menstrual asynchrony
2. Adolescent athlete
3. Disabled athlete

Doping amongst athletes
Protective equipment consideration
Emergency care, athletes first aid and cardiopulmonary resuscitation
Weight management

Sports injuries: 1. Frequency and site of injury
2. Etiological factors.

Prevention of injury
Mechanism of injury
Role of teachers and coaches in prevention of injury
Physiology of sports rehabilitation
Sports specific injury pattern
Acute, overuse and traumatic injuries related to cricket
Acute, overuse and traumatic injuries related to judo
Acute, overuse and traumatic injuries related to throw ball
Acute, overuse and traumatic injuries related to basket ball
Acute, overuse and traumatic injuries related to discuss throw
Acute, overuse and traumatic injuries related to football
Acute, overuse and traumatic injuries related to baseball
Acute, overuse and traumatic injuries related to badminton
Acute, overuse and traumatic injuries related to tennis
Acute,overuse and traumatic injuries related to gymnastics
Acute, overuse and traumatic injuries related to javelin
Acute, overuse and traumatic injuries related to judo
Sports injuries of lower limb
Sports injuries of spine
Sports injuries of head and neck
Stroke management
Internal and external bleeding

Reference books

Sports injuries diagnosis and mgmt. Norris. CM
Physical aspects of sports training and performance. Hoffman.
Jay Sports psychology. Yadvindera singh
Sports medicine. Jain. R
Evidence based sports medicine Macually Dand
Best Sports medicine in primary care. Jhomson R
Sports medicine of the lower extremity.Subotmic S
Surgical atlas if sports medicine. Mark D Miller. Richard F Howard and Kevin D Plancher. Mark D Miller.

Subject Code	Subjects	Study Hours/Week	Credits
MPT 503	Physiotherapy Management in Sports Injuries	5	5

Course Assessment Methods- Theory 100 Marks; Practical 100 Marks (Internal: 20; External 80)

Internal evaluation based on continuous assessment, for 20% of the marks of the subject (Theory & Practical each); University examination through theory paper and practical examination for 80% of the marks for the subject.

Instruction for Paper Setters

There will be total of 08 questions out of which students have to attempt 06 questions.

i) **Question no. 1 is compulsory which carries 15 marks.**

ii) **Question no. 2 to 8 will be of 13 marks each.**

Duration of Examination – 03 hours

Course Outcomes:

S. No.	At the end of the semester, students will be able to:
CO1	Understand the various psychological aspects involved in sports
CO2	Understand the relationship of psychology and sports performance and personality development
CO3	Understand the various sports injuries and treatment interventions for sports injuries
CO4	Understand the methods of prevention of sports injuries and effective management of various injuries in sports

Course content:

This course provides the students with information on the sports psychology, sports injuries related miscellaneous issues.This will enable the students to use this information in planning and tailoring effective, specific, safe physiotherapy treatment program.

Sports psychology

1. **Definition and Terminologies**
2. **Role of Sports Psychology in Sports performance**
3. **Instincts–Killer instincts and motivation**
4. **Attention, interests and motivation.**
5. **Personality of sports person-type, dynamic nature, factors affecting personality development, characteristics.**

6. **Role of sports in personality development**

7. **Learning relation to Sports:**
   - i) Nature and meaning of learning and maturation.
   - ii) Characteristics of learning
   - iii) Laws of learning maturation
   - iv) Transfer of Training

8. **Emotions in Sports**
   - i) Characteristics of emotions
   - ii) Controlling and training of emotions
   - iii) Sentiments-types, importance and formations

9. **Mental Health**
   - i) Concepts, Meaning and Importance
   - ii) Characteristic of mentally healthy person/ athlete

10. **Role of Physical Education in promotion of mental health**

11. **Factor affecting growth and development**
   - i) Role of heredity
   - ii) Character of growth
   - iii) Heredity on relation to Environment

12. **Group Behaviors and leadership in Sports**
   - i) Nature of Group Behavior.
   - ii) Type, quality, Training and Functioning of Leader performance

13. **Anxiety, Model Stress and its Functioning of Leader performance**
   - i) Isolate training
   - ii) Sudden Change in Opponent
   - iii) Audience Stress.
   - iv) Strategy change
   - v) Cognitive Stress Modeling

14. **Contemporary Stress Reduction Strategies**
   - i) Bio Feedback
   - ii) Mental Coping Strategies
   - iii) Visual Imagery
   - iv) Meditation and Yoga

15. **Performance Factors**
   - i) Stress and Performance
   - ii) Motivation and performance

16. **Anthropometry**

17. **Protective Equipment Consideration**

18. Emergency Care

19. Sports Techniques

i) Sports Massage and soft tissue manipulation
ii) Splinting, Taping and Bandaging-techniques, indications and contra indications
iii) Balance, co-ordination and PNF Techniques
iv) Hydrotherapy
v) Jacuzzi
vi) Sauna Bath and Spas
vii) Moist Heat Chambers
viii) Hot Showers

20. Health Club and fitness centers – Use and Misuse of Equipment's

21. Instrumentation in sports training and rehabilitation

i) IsoKinetic Exerciser.
ii) Treadmill
iii) Ergometer– Upper and Lower Limb
iv) Body Fate Platform
v) Motion Analyser
vi) Cardio-respiratory evaluation apparatus

22. Prevention and Rehabilitation of heart attack

23. Role of Physiotherapy Exercise in high blood pressure athlete

24. Role of Physiotherapy exercise in diabetic athlete

25. Role of Physiotherapy in different medical conditions

26. Physiotherapy of sports rehabilitation

27. Special Exercise programme for sports person

28. Biomechanical principals for all sports injuries:

i) Biomechanics and injuries related to cricket
ii) Biomechanics and injuries related to Judo
iii) Biomechanics and injuries related to Throw Ball
iv) Biomechanics and injuries related to Basket Ball
v) Biomechanics and injuries related to DiscusThrow
vi) Biomechanics and injuries related to Football
vii) Biomechanics and injures related to BaseBall
viii) Biomechanics and injuries related to Badminton
ix) Biomechanics and injuries related toTennis
x) Biomechanics and injuries related to Gymnastics
xi) Biomechanics and injuries related to Javelin
xii) Biomechanics and injuries related to Swimming
xiii) Biomechanics and injuries related to JumpingSports
xiv) Biomechanics and injuries related to Trackand Field Sports (Atheletics, Soccer, Hockey etc.)
xv) Sports injuries of Upper Limb
xvi) Sports injuries of Lower Limb

xvii) Sports injuries of Lower limb
xviii) Sports injuries of Thorax, Spine
xix) Sports injuries of Head and Neck

29. Advanced Manual Therapy:

i) Manual Therapy–History, Basic Classification, Assessment for manipulation, discussion in brief about the concepts of mobilization and special techniques like cyriax, Maitland, Mulligan, Butler, Kalternborn, Mckenzie.
ii) Muscle energy techniques and positional stretch – Basic concepts and application of techniques.
iii) Positional release therapy –Basic concepts and application of techniques
iv) Myofascial techniques – Basic concepts and application of techniques
v) Nerve conduction studies and electro myography– normal, abnormal, action potential, its recording protocols analysis, applications.
vi) Bio feedback

Reference:

Sports injuries diagnosis and management. Norris, CM.
Physical aspects of sports training and performance. Hoffman.
Jay Evidence based sports medicines. Macauly, D and Best
Sports medicine in primary care. Johnson.
R Sports medicine in primary care. Johnso
R.
Sports atlas if sports medicine. Mark D Miller. Richard F Howard and Kevin D Plancher. Mark D Miller
Positional Release Techniques
Deig. D Muscle energy
techniques. Chaitow. L.

Subject Code	Subjects	Study Hours/ Week	Credits
MPT 504	Recent Advances in Sports Physiotherapy	5	5

Course Assessment Methods- Theory 100 Marks; Practical 100 Marks (Internal: 20; External 80)

Internal evaluation based on continuous assessment, for 20% of the marks of the subject (Theory & Practical each); University examination through theory paper and practical examination for 80% of the marks for the subject.

Instruction for Paper Setters

There will be total of 08 questions out of which students have to attempt 06 questions.

i) **Question no. 1 is compulsory which carries 15 marks.**

ii) **Question no. 2 to 8 will be of 13 marks each.**

Duration of Examination – 03 hours

Course Outcomes:

S. No.	At the end of the semester, students will be able to:
CO1	Understand the recent advancement in the treatment procedures related to sports injuries
CO2	Effective and tailored treatment approaches in various sports injuries
CO3	Application of the new treatment interventions for holistic improvement in various sports conditions

Course content:

1. Advanced soft tissue mobilization Technique

1.1 Myofascial release technique

1.1.1 Principle and technique

1.1.2 Trigger point assessment

1.1.3 Myofascial pain Syndrome

1.1.4 Concept of Myofascial cycle

1.1.5 Myofascial Release technique for various syndrome

1.2 Cyriax concept and technique

1.2.1 Principles of Diagnosis

1.2.2 Principles of Treatment

1.2.3 Cyriax techniques for peripheral joints

1.2.4 Cyriax techniques for spine

1.2.5 Capsular stretching

1.2.6 Soft tissue manipulation by cyriax

2. Precision heart rate training

2.1. Heart rate monitoring and training

2.2. Training in heart zones

2.3. Precision heart rate training for specific Sports

2.4. Multi Activity training
2.5. Monitoring of training effects

3. Adjuncts to Injury Recovery

3.1 Kinesiotaping
3.2 Current Concept and Principles of Wound healing

4. Core Stabilization and Pilates

4.1 Segmental Stabilization Concepts of Spine
4.1.1 Muscle function in spinal stabilization
4.1.2 Contribution of various muscles to spinal stabilization
4.1.3 Local Muscle dysfunction in Low backpain
4.1.4 Principles of clinical management of deep muscle system for
4.1.5 Segmental stabilization
4.1.6 Core stability exercise

4.2 Pilates
4.2.1 Introduction
4.2.2 Principle & Technique
4.2.3 Types of Pilates
4.2.4 Pilates for different sports

5. Neuro therapeutic manual Techniques

5.1 Butler principles and concept
5.1.1 Neuro physiology and neurodynamic
5.1.2 Clinical neurobiomechanics
5.1.3 Neural tension and mobilization-upper limb and lower limb
5.1.4 Different schools of thoughts for neural mobilization techniques

Text Books/References Book:

1. J.Maitland, 2001, Spinal manipulation made simple-A manual of soft tissue techniques. 2nd Edition. North Atlantic Books.
2. C.J.Manheim, 2008, The Myofascial Release Manual. 4th Edition. SLACK Incorporated.
3. J.Langendoen, 2014, Kinesiology Taping The Essential Step-By-Step Guide: Taping for Sports, Fitness and Daily Life, 1st Edition, Robert Rose Inc.
4. G.Cook, 2011, Movement: Functional Movement Systems: Screening, Assessment, Corrective Strategies. 2nd Edition. Lotus Publisher.
5. N.Swedan, 2001, Women's Sports Medicine and Rehabilitation, 1st Edition, Aspen Publishers Inc.

Subject Code	Subjects	Study Hours/ Week	Credits
MPT 505 P	Practical	8	4

Course Assessment Methods (Internal: 50; External 100)

Course outcomes:

S. No.	At the end of the semester, students will be able to:
CO1	Perform assessment and diagnosis of all the conditions related to sports
CO2	Physiotherapy management of various sports conditions
CO3	Assess the various regions of the body
CO4	Practical application of various treatment techniques in sports injuries

Course Content:

Related to assessments, investigations and physiotherapy management of all the above conditions.

Students will be judged on one elective and one non-elective case. They will be expected to asses diagnose and plan effective treatment plan for both cases.

1. **Demonstration of following manual therapy techniques:**
   - i. Cyriex
   - ii. Maitland
   - iii. Mulligan
   - iv. Butler
   - v. Mckenzie
   - vi. Nerve mobilization

2. **Outline and practical knowledge of**
   - i) Muscle energy technique
   - ii) Positional Stretch
   - iii) Myofacial release etc.

3. **Demonstration and practical knowledge of**

i) NCV,
ii) EMG
iii) Biofeedback

Reference Books:

Electrotherapy explained: principal and practice by Jhon Low, Ann Reed and Mary Dyson/Low Jhon
Postional Release Techniques Deig. D
Muscle energy techniques. Chaitow. L
Clayton's electrotherapy edited by Sheela Kichenand Sarah Bazin Kitchen Sheila

Subject Code	Subjects	Study Hours/ Week	Credits
MPT 506 P	Seminar/ Case Presentation	4	2

Course Assessment Methods (Internal: 100)

The Internal evaluation will consist of 5 seminars of 20 marks each with a total of 100 marks.

Course outcomes:

Sr. No	At the end of the semester, the student will be able:
CO1.	Review the physical therapy documentation including the goals, and objectives; identifying major indications, contraindication, precautions and safety issues and identifying patient goals and outcomes in the documents
CO2.	Describe safe environments, appropriate risk management strategies, and emergency responses/support activities to take when the safety of self, patient or others is at risk in the clinical setting with evidences.
CO3.	Learn communication processes and presentations of different cases.
CO4.	Learn Evidence based clinical practice in rehabilitation.

Seminar Case Presentations

These will serve as platform for student to integrate various component of patient management and debate contentious issue on the efficacy of physiotherapy techniques students will give presentation on topic provided to them.

Subject Code	Subject	Study Hours/ Week	Credits
MPT 507	**Dissertation Project Work (based on clinical/case presentation including viva voce)**	10	5

Internal Assessment of 20 marks based on Pre-Dissertation Submission by the committee constituting Chairperson and Supervisors (all disciples). End semester examination is of maximum 80 marks (External examiner).

Course Outcomes:

S. No.	**At the end of the semester, students will be able to:**
CO1	Learn to search and locate the literature related to the topic
CO2	Orient themselves towards the recent researches in the field
CO3	Learn research methodology and its implementation
CO4	Gain insight about the topic of dissertation in detail

As part of their requirement for the Master Degree the Students is required to undertake a research study under the guidance of Guide and Co-guide. Research Study must be selected only from the chosen specialization i.e. Musculoskeletal Conditions or Sports Injuries or Neurological Conditions or Cardiopulmonary Conditions to be studied on patients or normal individuals. Students have to undergo a dissertation viva-voce by examination Committee.