Study & Evaluation Scheme

of

Master of Physiotherapy

[Applicable w.e.f. Academic Session –2019-2020]

[As per CBCS guidelines given by UGC]

TEERTHANKER MAHAVEER UNIVERSITY

N.H.-24, Delhi Road, Moradabad, Uttar Pradesh-244001
Website: www.tmu.ac.in

TEERTHANKER MAHAVEER UNIVERSITY
(Established under Govt. of U.P. Act No. 30, 2008)
Delhi Road, Bagarpur, Moradabad (U.P.)

Study & Evaluation Scheme	
SUMMARY	
Institute Name	*Department of Physiotherapy,TeerthankerMahaveer University, Delhi Road, Moradabad*
Program	*Master of Physiotherapy (MPT)*
Duration	*Two Years full time(Four Semesters)*
Medium	*English*
Minimum Required Attendance	*75%*
Credits	
Maximum Credits	*87*
Minimum Credits Required for Degree	*87*

Assessment:								
Evaluation	**Internal**				**External**			**Total**
Theory	40				60			100
Lab & Clinical Training	50				50			100
	PDS	ATT	EXP/SHC	VV	EXP/LC	SM	VV	
	25	10	05	10	30	10	10	100
(PDS- Performance during session; ATT- Attendance; EXP- Experiment; LC-Long Case; SM- Student Manual; VV-Viva Voce; SHC- Short Case; C- Case)								

VAC	**Internal**	**External**	**Attendance**	**Total**
	40 (Based on 5assessments of 8marks each)	50 (End term Oral Examination)	10	100

Class Test-1	**Class Test-2**	**Class Test-3**	**Assignment(s)**	**Attendance**	**Total**
Best two out of three					
10	10	10	10	10	40

Duration of Examination	**External**	**Internal**
	3 Hours	1.5 Hours

To qualify the program a candidate requires to secure a minimum of 50% marks insemester end examination and teacher's continuous evaluation for each course. The candidate who secures less than 50% of marks in a course shall be deemed to have failed in that course and must secure 50% of marks on an aggregate to clear semester. A student has to pass mandatorily in Theory & Lab separately. If a candidate fails in Theory, he/she will have to reappear in Theory examination, but if one fails in Lab; he/she has to appear in both Theory and Lab of the respective course.

A candidate will be promoted to the second year (third semester) only if s/he has passed all the courses except that s/he has not failed more than 2 (two) courses in first year (cumulatively in first and second semester). A candidate who has failed in more than 2 (two) courses will have to repeat first year (will have year back).

Note: ***For internal assessment purpose, there will be three class tests in a year and best 2 of three tests will be considered for the finalresult****.The candidate shall get maximum of n+2 years to complete the program and be eligible for degree.*

	Question Paper Structure
1	*The question paper shall consist of six questions. All six are compulsory. First question shall be of short answer type (not exceeding 50 words). Question No. 1 shall contain 8 parts representing all units of the syllabus and students shall have to answer any five (weightage 2 marks each).*
2	*Remaining five questions will be one from each unit with internal choice. The student has to answer one of the two in each question. The weightage of Question No. 2 to 6 shall be 10 marks each.*
3	*In case of a course with four units the fifth question can be from any unit or combination of units.*
	IMPORTANT NOTES:
1	*The purpose of examination should be to assess the Course Learning Outcomes (CLO) that will ultimately lead to attainment of Program Specific Outcomes (PSOs). A question paper must assess the following aspects of learning: Remember, Understand, Apply, Analyze, Evaluate & Create (reference to Bloom's Taxonomy).*
2	*Dissertation is essential for every specialization and shall be evaluated at the fourth semester.*

Program Structure-MPT

A. Introduction:

High quality physiotherapy education is essential for this post modern era. People require rehabilitation in different aspects of life. A specialized physiotherapist is well equipped to cater to such needs. The curriculum is designed as such that the student can gain in depth mastery of the academic disciplines and applied functional areas as per the individual requirements of the patient population.

The institute emphasis on the following courses ***balanced with core and elective courses****:* The curriculum of MPT program emphasizes an intensive, flexible physiotherapy education with 17 credits of Core Courses,48 credits of Skill Enhancement courses, 6 credits of Ability Enhancement Compulsory Courses, 6 credits of Research Project Report, 10 credits of Discipline Specific Elective Courses .Total 87 credits are allotted for the MPT degree.

The institute offers MPT with four specializations viz., Musculoskeletal, Cardiorespiratory, Neurosciences, and Sports.The expansion of the hospitals in the present scenario requires candidates with strong professional attitudes. There is a massive demand for candidates who can fit into specified roles with adequate efficiency, and an MPT degree solves this demand-supply gap.

Course handouts for students will be provided in every course. A course handout is a thorough teaching plan of a faculty taking up a course. It is a blueprint which will guide the students about the pedagogical tools being used at different stages of the syllabus coverage and more specifically the topic-wise complete plan of discourse, that is, how the faculty members treat each and every topic from the syllabus and what they want the student to do, as an extra effort, for creating an effective learning. It may be a case study, a role-play, a classroom exercise, an assignment-home or field, or anything else which is relevant and which can enhance their learning about that particular concept or topic. Due to limited availability of time, most relevant topics will have this kind of method in course handout.

MPT : Two-Year (4-Semester) CBCS Program			
Basic Structure: Distribution of Courses			
S.No.	**Type of Course**	**Credit Hours**	**Total Credits**
1	Core Course (CC)	6 Courses of 2-4 credit hours each	17
2	Skill-Enhancement Course (SEC)	6 Courses of 4 to 12 credit hours each	48
3	Program/Discipline Specific Elective Course (DSEC)	16 Courses of 4 or 1 credit hours each	10
4	Ability Enhancement Compulsory Course (AECC)	2 Course of 2 or 4 credit hours each	6
5	Value Added Course (VAC)	2 Courses of 0 credit hours each	0
6.	Research Project Report (RPR)	2 Course of 2 or 4 credit hours each	6
Total Credits			**87**

B. Choice Based Credit System (CBCS)

Choice Based Credit System (CBCS) is a versatile and flexible option for each student to achieve his/her target number of credits as specified by the UGC and adopted by our University.

The following is the course module designed for the MPT program:

Core Course (CC): Core courses of MPT program will provide a holistic approach to physiotherapy education, giving students an overview of the field, a basis to build and specialize upon. These core courses are the strong foundation to establish physiotherapy knowledge and provide broadmulti-disciplined knowledge can be studied further in depth during the elective phase.

The core courses will provide more practical-based knowledge, case-based lessons andcollaborative learning models. It will train the students to analyze, decide, and develop an evidence based rehabilitation program based on the individual needs of the patients with different conditions.

A wide range of core courses provides groundwork in the basic physiotherapy disciplines: musculoskeletal disorders, cardiorespiratory disorders, neurological disorders and sports rehabilitation.

We offer core courses in semester I, II during the MPT program. There will be 17 credits in all for core course offered.

Skill Enhancement Course (SEC):This course provides value-based and/or skill-based knowledge. We offer four SECs- one in each Semester. SEC will carry 48 credits in all.

Value Added Course (VAC):A value added course is a non-credit course which is basically meant to enhance general ability of students in areas like soft skills, quantitative aptitude and reasoning ability - required for the overall development of a student and at the same time crucial for industry/corporate demands and requirements. The student possessing these skills will definitely develop acumen to perform well during the recruitment process of any premier organization and will have the desired confidence to face the interview. Moreover, these skills are also essential in day-to-day life of the medical world. The aim is to nurture every student for making effective communication, developing aptitude and a general reasoning ability for a better performance,as desired in medical world. There shall be one course each in Semester I & Semester II and will carry no credit, however,it will be compulsory for every student to pass these courses with minimum 45% marks to be eligible for the certificate. These marks will not be included in the calculation of CGPI.Students have to specifically be registered in the specific course of the respective semesters.

Program/Discipline Specific Elective Course (DSEC): The discipline specific elective courseis chosen to make students specialist or having specialized knowledge of a specific domain like Cardiorepiratory, neurosciences, musculoskeletal and Sports. It will be covered in two semesters (III&IV) of second year of the program relevant to chosen disciplines of the program. The student will have to choose any one specialization out of the four specialization offered, i.e., Cardiorepiratory, Neurosciences, Musculoskeletal and Sports.. Each student will have to choose four discipline specific elective courses (DSECs) in the specializations chosen; 2 in Semester III and 2 in Semester IV respectively. DSEC will carry 10 credits.

Research Project Report (RPR): In addition to learning research theory there will be mandatory individual research project. It will enable the students to demonstrate skill in conducting research, interpreting and utilizing the findings from health related research which will provide hands on experience in addition to theory in health care settings. It will be assessed and the 6 credits earned will be included for the calculations of the CGPA.

C. Program Specific Outcomes (PSOs)

On completion of the program, the students will be:

PSO – 1	Remembering, retrieving and integrating the information on Musculoskeletal conditions, Neurological disabilities, Cardiorespiratory dysfunctions, sports injuries and other general conditions
PSO – 2	Understanding the professional ethics, functioning of hospital and other clinical setups, use it effectively in clinical practice to become an efficient worker, administrator and manager.
PSO – 3	Applying advanced concepts of physiotherapeutics, electrophysiology and biomechanics to build expertise in area-specific clinical intervention techniques and patient assessment.
PSO – 4	Demonstrating responsibility towards community health rehabilitation and communicate effectively with patients, caretakers, other healthcare professionals and students using important soft skills and clinical reasoning.
PSO – 5	Discovering the relevant physiotherapy research arenas and uphold Evidence Based Practice for further research and clinical work.
PSO – 6	Developing critical and analytical thinking to effectively assess and provisionally diagnose the patient and apply skills of advanced physiotherapy procedure and techniques.

D. Pedagogy & Unique practices adopted: "Pedagogy is the method and practice of teaching, especially for teaching an academic subject or theoretical concept". In addition to conventional time-tested lecture method, the institute will **emphasize on experiential learning:**

1. Induction and orientation program:A fifteen day program by professionals and experts is conducted for the first semester students on a variety of topics like time management, presentation, professionalism, knowledge building and stress coping amongst others. The program is aimed at preparing students for the upcoming years, to practice theoretical concepts, logical thinking, reasoning and evaluation skills in clinical setups.

2. Theory to practical application in Clinical Training:Patient assessment, physical examination, provisional diagnosis and physiotherapeutic treatment are an integral part of physiotherapy practice. The technique to apply the theoretical knowledge onto patients in a hospital setting helps in developing critical and analytical thinking, practical and decision making skills. Students utilize the concepts, principles and techniques for patient evaluation and management in real- life settings of hospital.

***3. Case Based Learning*:**Case based learning enhances student skills at delineating the critical decision dilemmas faced during patient prescription, helps in applying concepts, principles and analytical skills to solve the delineated problems and develops effective templates for formulating effective treatment regimes. Case method of teaching is used as a critical learning tool for effective learning and we encourage it to the fullest.

4. Student seminars and case presentations:Enhancement of communication and practical skills, participation, group discussion and healthy discussion between professionals is promoted among students and with teachers. The case/ topic knowledge, presentation skills, audience interaction and ability to answer queries are the skills promoted by this practice.

5. Educational tours:Potential of future internship and work are explored by visits to prospective cities. Students can decide the institute of choice based on future plans, goals and feasibility.

6. Workshops, conferences and Guest lectures:Educational and motivational content and talks delivered by multiple experts from various fields and professions to inculcate concepts, skills, techniques and research advances among students. Students learn and practice the acquired knowledge and interact with professionals and specialists for overall education and learning experience.

7. Role Play & Simulation:Role-play and simulation are forms of experiential learning. Learners take on different roles, assuming a profile of a character or personality, and interact and participate in diverse and complex learning settings. Role-play and simulation function as learning tools for teams and groups or individuals as they "play" online or face-to-face. They alter the power ratios in teaching and learning relationships between students and educators, as students learn through their explorations and the viewpoints of the character or personality they are articulating in the environment. This student-centered space can enable learner-oriented assessment, where the design of the task is created for active student learning.

8. Video Based Learning (VBL)& Learning through Movies (LTM):These days technology has taken a front seat and classrooms are well equipped with equipment and gadgets. Video-based learning has become an indispensable part of learning. Making students learn few important theoretical concepts through VBL & LTM is a good idea and method. The learning becomes really interesting and easy as videos add life to concepts and make the learning engaging and effective. Therefore, our institute is promoting VBL & LTM,wherever possible.

9. Industrial Visits: Industrial visit are essential to give students hand-on exposure and experience of how things and processes work in industries. Our institute organizes such visits to enhance students' exposure to practical learning and work out for a report of such a visit relating to their specific topic, course or even domain.

10. Student Development Programs (SDP): Harnessing and developing the right talent for the right industry an overall development of a student is required. Apart from the curriculum teaching various student development programs (training programs) relating to soft skills, interview skills, Advanced clinical training etc. that may be required as per the need of the student and industry trends, are conducted across the whole program. Participation in such programs is solicited through volunteering and consensus.

11. Industry Focused programs:Establishing collaborations with various industry partners to deliver the program on sharing basis. The specific courses are to be delivered by industry experts to provide practice based insight to the students.

12. Special assistance program for slow learners & fast learners:The slow as well as the fast learners are identified on the basis of the individual performance in the class tests. Special classes or assignments are undertaken to cater to their respective needs. Fast learners are given special tasks to stimulate their abilities and make the maximum utilization as well as upgradation of their clinical skills**.**

13. Mentoring scheme/ Career & personal counseling: Specific groups of students are under a mentor who shall be responsible for mentoring and counseling students for professional and personal problems. He/she shall keep a tab on all the activities (curricular & extra- curricular) in the mentorship handbook. This handbook shall be maintained from the day of entry of the student till he/she passes out.

14.Extracurricular Activities: Organizing & participation in extracurricular activities will be mandatory to help students develop confidence & face audience with care.

SEMESTER –I

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S.No	Category	Course Name	Course Code	Periods			Credits	Evaluation		
				L	T	P	C	Internal	External	Total
1.	CC-1	**Research Methodology & Biostatistics**	MPT110	**4**	**-**	**-**	**4**	**40**	**60**	**100**
2.	CC-2	**Exercise Physiology**	MPT111	**3**	**-**	**-**	**3**	**40**	**60**	**100**
3.	CC-3	**Electrophysiology**	MPT112	**2**	**-**	**-**	**2**	**40**	**60**	**100**
4.	SEC-1	**Clinical Training**	MPT161	**-**	**-**	**16**	**8**	**50**	**50**	**100**
				9	**-**	**16**	**17**	**170**	**230**	**400**

1.	VAC-1	**Managing Self**	TMUPS101	2	-	-	0	50	50	100

SEMESTER –II

S.No.	Category	Course name	Course Code	Periods			Credits	Evaluation		
				L	T	P	C	Internal	External	Total
1.	CC-4	**Biomechanics**	MPT210	**2**	**-**	**-**	**2**	**40**	**60**	**100**
2.	CC-5	**Physical and functional diagnosis**	MPT211	**3**	**-**	**-**	**3**	**40**	**60**	**100**
3.	CC-6	**Physiotherapeutics**	MPT212	**3**	**-**	**-**	**3**	**40**	**60**	**100**

4.	SEC-2	**Clinical training**	MPT261	**-**	**-**	**16**	**8**	**50**	**50**	**100**
				8	**-**	**16**	**16**	**170**	**230**	**400**

1.	VAC-2	**Managing Work & Others**	TMUPS201	2	-	-	0	50	50	100

SEMESTER - III

S.No.	Category	Course name	Course Code	Periods			Credits	Evaluation		
				L	T	P	C	Internal	External	Total
1.	SEC-3	Clinical training	MPT361	-	-	24	12	50	50	100
2.	AECC-1	Ethics and Pedagogy	MPT314	3	1	-	4	40	60	100
3.	RPR-1	Research Project	MPT369	-	-	4	2	50	50	100
4.	SEC-4	Journal Presentation	MPT362	-	-	8	4	100	-	100
DISCIPLINE SPECIFIC ELECTIVES *(Candidate shall select any one course with corresponding Lab as per the choice of specialization)*										
5.a.	DSEC-1	Cardiorespiratory disorders–I	MPT315	4	-	-	4	40	60	100
5.b.	DSEC-2	Cardiorespiratory disorders–I (Lab)	MPT365	-	-	2	1	50	50	100
6.a.	DSEC-3	Neurological Disorders-I	MPT316	4	-	-	4	40	60	100
6.b.	DSEC-4	Neurological disorders–I (Lab)	MPT366	-	-	2	1	50	50	100
7.a.	DSEC-5	Musculoskeletal Disorders-I	MPT317	4	-	-	4	40	60	100
7.b.	DSEC-6	Musculoskeletal disorders–I (Lab)	MPT367	-	-	2	1	50	50	100
8.a.	DSEC-7	Sport Disorders-I	MPT318	4	-	-	4	40	60	100
8.b.	DSEC-8	Sport disorders–I (Lab)	MPT368	-	-	2	1	50	50	100
				7	1	38	27	330	270	600

SEMESTER – IV

S.No.	Category	Course name	Course Code	Periods			Credits	Evaluation		
				L	T	P	C	Internal	External	Total
1.	AECC-2	**Administration & Management**	MPT410	**2**	**-**	**-**	**2**	**40**	**60**	**100**
2.	SEC-5	**Clinical training**	MPT461	**-**	**-**	**24**	**12**	**50**	**50**	**100**
3.	SEC-6	**Journal Presentation**	MPT462	**-**	**-**	**8**	**4**	**100**	**-**	**100**
4.	RPR-2	**Dissertation**	MPT469	**-**	**-**	**8**	**4**	**50**	**50**	**100**
DISCIPLINE SPECIFIC ELECTIVES ***(The choice of elective shall be same as that chosen in III semester)***										
5.a.	DSEC-9	**Cardiorespiratory disorders-II**	MPT415	**4**	**-**	**-**	**4**	**40**	**60**	**100**
5.b.	DSEC-10	**Cardiorespiratory disorders–II (Lab)**	MPT465	**-**	**-**	**2**	**1**	**50**	**50**	**100**
6.a.	DSEC-11	**Neurological disorders–II**	MPT416	**4**	**-**	**-**	**4**	**40**	**60**	**100**
6.b.	DSEC-12	**Neurological disorders–II (Lab)**	MPT466	**-**	**-**	**2**	**1**	**50**	**50**	**100**
7.a.	DSEC-13	**Musculoskeletal disorders–II**	MPT417	**4**	**-**	**-**	**4**	**40**	**60**	**100**
7.b.	DSEC-14	**Musculoskeletal disorder–II (Lab)**	MPT467	**-**	**-**	**2**	**1**	**50**	**50**	**100**
8.a.	DSEC-15	**Sport disorders–II**	MPT418	**4**	**-**	**-**	**4**	**40**	**60**	**100**
8.b.	DSEC-16	**Sport disorders–II (Lab)**	MPT468	**-**	**-**	**2**	**1**	**50**	**50**	**100**
				6	**-**	**42**	**27**	**330**	**270**	**600**

Note :			
L- Lecture	T- Tutorial	P- Practical	C- Credits
1C = 1 Hour L or T 1C = 2 Hour P			

Course Code: MPT110	**Core Course-1** **MPT- Semester-I** **Research Methodology & Biostatistics**	**L-4** **T-0** **P-0** **C-4**
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding the concepts, terms, approaches and methods of data collection in health care related research.	
CO2.	Applying appropriate design, sampling techniques and statistical tools in health care related research.	
CO3.	Analyzing research data, interpreting and utilizing findings with use of descriptive and inferential statistics to predict results in health care related research.	
CO4.	Evaluating various methods and tools of data collection.	
CO5.	Preparing the research project.	
Course Content:		
Unit-1:	**Research Methodology:** 1. **Introduction to Research methodology**: Meaning of research, objectives of research, Motivation in research, Criteria for goodresearch. 2. **Literature Review** - Importance &Steps.	**10 Hours**
Unit-2:	1. **Measurement & scaling techniques**: Meaning, importance, nominal, ordinal, ratio and interval scales, errors in measurement, **Scaling Techniques**: arbitrary scale, Thurstone differential scale, Likert-scale, Guttman -scale. 2. **Sampling**: Probability sampling methods - Simple random, systematic, stratified, cluster and non-probability sampling methods – purposive, quota, snowball sampling, sampling and non-sampling errors, determining the samplesize. 3. **Methods of data collection**: Primary and secondary sources of information, collection of primary information through questionnaires & schedules, Difference between questionnaires & schedules.	**12 Hours**
Unit-3:	1. **Citing the sources:** plagiarism, writing the references & bibliography, APA, Harvard and Vancouver Style of citation.	**8 Hours**
Unit-4:	**Descriptive statistics:** 1. **Measures of Central Tendency & Dispersion**: Need for measures of central Tendency, Definition and calculation of Mean, Median & Mode in ungrouped and grouped data, standard deviation, variance. Coefficient ofvariation. 2. **Correlation & regression:** Concept of correlation, Karl Pearson‘s correlation coefficient for two variables, Properties of correlation coefficient, Concept of regression, linear regression lines for two	**12 Hours**

	variables, regression coefficients and its properties.	
Unit-5:	**Inferential Statistics:** 1. Testing of Hypotheses Procedure, Null and alternative hypothesis, Level of significance, Degrees of freedom, type I & type II errors. 2. Student t-test: for dependent and independent samples. 3. Chi-square test: Properties, Testing the goodness of fit, independence of two variables. 4. Analysis of variance: Assumptions, applications and procedure of one way & two way ANOVA.	**14 Hours**
Text Books:	1. Rehabilitation research – Elizabeth Domholt. 2. Research for physiotherapist-Carolin Hicks 3. Methods in Bio-Statistics, by B.K. Mahajan,6 Ed. 1997	
Reference Books:	1. Darlene – Documenting functional outcomes in physicaltherapy. 2. Diana-Research for healthprofessionals. 3. Elements of Health Statistics:Rao.N.S.N. 4. An introduction of Biostatistics: Sunder Rao.P.S.S. 5. Research in Physical Therapy- ChristoperE.Bork 6. Nursing Research: Principles and methods- DenisE.Polit *** Latest editions of all the suggested books are recommended.**	

Course Code: MPT111	Core Course – 2 MPT- Semester-I **Exercise Physiology**	L-3 T-0 P-0 C-3
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding the principles and concepts of exercise physiology and exercise prescription.	
CO2.	Applying the concepts of physiology of movement, exercise and training, environmental influence, energy consumption & expenditure, diet & nutrition, fatigue and special aids.	
CO3.	Analyzing the energy expenditure in different situations.	
CO4.	Creating exercise prescription for different groups.	
Course Content:		
Unit-1:	1. Principles of Exercise Physiology a. Sources of Energy, Energy Transfer b. Role of Aerobic and Anaerobic mechanism during exercises. c. Acute effects of High, Burst and Short durationexercises. d. Acute effect of Steady level exercise on following parameters – Blood flow, Heart rate, Blood Pressure, Pulse Rate, Respiration Rate, Acid Base Balance, Body Temperature, Fluid- Electrolyte Balance and SubstrateUtilization.	**9 Hours**
Unit-2:	1. Physiology ofMovement 2. Responses and Adaptations of various systems to Exercise andTraining. 3. Environmental influence onPerformance. 4. Special Aids to Performance andConditioning	**8 Hours**
Unit-3:	1. Energy consumption, nutrition and caloricbalance: a. Body composition assessment, physique, performance, and physicalactivity, b. Over-weight, obesity and weight control. c. Energysources d. RDA by ICMRGuidelines e. Diet for Pediatric, lactating mothers and geriatricpopulation.	**8 Hours**
Unit-4:	1.Considerations of Age and Gender in exercise andtraining. 2.Exercise prescription for health and fitness with special emphasis to cardiovascular disease, Obesity, cancer andDiabetes.	**8 Hours**
Unit-5:	1. Fatigue assessment and scientific organization of work-rest regimes to controlfatigue. 2. EnergyExpenditure: a. Expenditure during rest, confinement during illness and various	**9 Hours**

	levels ofPhysical b. Exercises, factors influencing energy uptake and substrateutilization. c. Measurement of Human energy expenditure, individual differencesand d. Measurement of energycapacities. e. Energy expenditure during walking, jogging, running andswimming. .	
Text Books:	1. Katch: Exercise physiology, energy nutrition and human performance. 2. Scott K Powers: Theory and application to fitness and performance.	
Reference Books:	1. Axen: Illustrated principles of exercise physiology. 2. Frank: Exercise physiology for health care professionals. 3. Tudor Hale: Exercise physiology – a thematic approach. 4. George Brooks: Exercise physiology -Human bioenergetics and its application. *** Latest editions of all the suggested books are recommended.**	

Course Code: MPT112	Core Course – 3 MPT- Semester-I **Electro Physiology**	L-2 T-0 P-0 C-2
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Applying the concepts of Anatomy and Physiology of Action potential, Electrical properties of muscles and nerves.	
CO2.	Utilizing and analyzing clinical Electrophysiological testing, muscle plasticity in response to electrical stimulation and assessing the effect on body systems.	
CO3.	Analyzing the functions, characteristics and components of Electrotherapeutic stimulation system and electrophysiological assessment devices.	
CO4.	Inspecting the concepts of the advanced therapeutic modalities.	
Course Content:		
Unit-1:	1. Anatomy and physiology of Action potential, peripheral nerve, muscle and neuromuscular junction. 2. Electrical properties of muscle andnerve.	**8 Hours**
Unit-2:	1. Characteristics and components of Electro therapeutic stimulation systems and electrophysiological assessment devices. 2. Instrumentation and application of Neuromuscular Electrical Stimulation (NMES).	**8 Hours**
Unit-3:	1. Muscles plasticity in response to electrical stimulation. 2. Electrical stimulation and its effects on various systems. 3. Clinical Electro physiological testing.	**8 Hours**
Unit-4:	1. Recent advances of various therapeutic modalities	**3 Hours**
Text Books:	1. Physical rehabilitation by Susan B, O‘ Sullivan, Thomas J.Schmitz. 2. Electrodiagnosis in disease of nerve and muscles by Kimuraj J, F A Davis,Philadelphia. 3. Guyton : Textbook ofphysiology 4. Chatterjee: Textbook of physiology.	
Reference Books:	4. Principles of anatomy and physiology by Tortora; 8th edition; Harper & Row Pub. 5. Anatomy & Physiology by Ross & Wilson‘s, 8th edition, Churchill Livingston. 6. Robert: Fundamentals of sensory physiology. 7. Melzack and Wall: Text book of pain. 8. Bickerstaff‘s neurological examination in clinical practice. 9. Neurological differential diagnosis – John Patten. *** Latest editions of all the suggested books are recommended.**	

Course Code: MPT161	**Skill Enhancement Course – 1** **MPT- Semester-I** **Clinical Training**	**L-0** **T-0** **P-16** **C-8**
Course Outcomes :	**On completion of the course, the students will be :**	
CO1.	Analyzing the various clinical conditions, investigations, physical examination, diagnosis and differential diagnosis.	
CO2.	Creating the Evidence Based treatment plan.	
CO3.	Justifying the assessment tools and treatment techniques selected.	
Course Content:		
	Clinical training is a mode through which students apply their classroom knowledge; all formal and practical "real-life" learning experiences and skills in clinical environment. Experiences would include those of short and long duration (eg, part-time, full-time, internships) and provide a variety of learning experiences through rotations in different units or departments within the same practice setting or health care system) to include comprehensive care of patients across the life span and relatedactivities. Each student will be under the supervision of a clinical supervisor at clinical education site who shall instruct and supervise students during their clinical posting sessions. Clinical supervisors are responsible for facilitating clinical learning experiences and assessing student's performance in cognitive, psychomotor, and affective domains as related to graduate-level clinical practice and academic and clinical performance expectations. The student shall acquire practical skills mentioned in syllabus for that particular semester during clinical training hours. The students will start their clinical training from the 1st semester and it will go on till their fourth semester. In each semester, they will be posted for a minimum of four months in the departments related to their courses being learned in respective semesters. The student will be formally evaluated at the end of semester through vivavoce examinations by internal and external examiners.	**224 Hours**

Format for Internal Evaluation of Clinical Training (Master of Physiotherapy Program)

Name ofcandidate:

Program:

Semester:

Topic ofPresentation:

Date:

	Parameters	Maximum marks	Obtained marks
1.	Body Language/voice modulation	5	
2.	Knowledge of the Topic/case	5	
3.	Content of the presentation	5	
4.	Confidence & Attitude	5	
5.	Quiz	5	
Total		25	

Evaluator:
Name:
Designation:
Department:

Student shall be evaluated in the above mentioned format by the team of faculty members for case presentation. Student should have the copy of this format which should be provided to each member of the team of evaluators during every presentation. The average marks of each cycle shall be considered for final internal assessment out of twenty five under performance during session; ten marks shall be that of attendance, five marks of short case & ten marks of finalviva.

Course Code: TMUPS101	Value Added Course-1 MPT- Semester-I **Managing Self**	L-2 T-0 P-0 C-0
Course Outcomes :	**On completion of the course, the students will be :**	
CO1.	Utilizing effective verbal and non-verbal communication techniques in formal and informal settings	
CO2.	Understanding and analyzing self and devising a strategy for self growth and development.	
CO3.	Adapting a positive mindset conducive for growth through optimism and constructive thinking.	
CO4.	Utilizing time in the most effective manner and avoiding procrastination.	
CO5.	Making appropriate and responsible decisions through various techniques like SWOT, Simulation and Decision Tree.	
CO6.	Formulating strategies of avoiding time wasters and preparing to-do list to manage priorities and achieve SMART goals.	
Course Content:		
Unit-1:	1. Personal growth and improvement in personality 2. Perception 3. Positive Attitude	**5 Hours**
Unit-2:	1. Values and Morals 2. High self Motivation and Confidence 3. Grooming	**5 Hours**
Unit-3:	1. Goal setting and Action Planning 2. Effective and assertive communication 3. Decision making.	**5 Hours**
Unit-4:	1. Time Management 2. Presentation Skills 3. Happiness, risk taking and facing unknown	**5 Hours**
Unit-5:	1. Resume building 2. Occupational Research 3. Group Discussion (GD) 4. Personal Interviews (PI)	**5 Hours**
References :	1. Robbins, Stephen P., Judge, Timothy A., Vohra, Neharika, Organizational Behaviour (2018), 18th ed., Pearson Education 2. Tracy, Brian, Time Management (2018), Manjul Publishing House 3. Hill, Napolean, Think and grow rich (2014), Amazing Read 4. Scott, S.J., SMART goals made simple (2014), Createspace Independent Pub 5. https://www.hloom.com/resumes/creative-templates/ 6. https://www.mbauniverse.com/group-discussion/topic.php 7. Rathgeber, Holger, Kotter, John, Our Iceberg is melting (2017), Macmillan 8. Burne, Eric, Games People Play (2010), Penguin UK 9.https://www.indeed.com/career-advice/interviewing/job-interview-tips-how-to-make-a-greatimpression	

	*** Latest editions of all the suggested books are recommended.**	

Course Code: MPT210	**Core Course – 4** **MPT- Semester-II** **Biomechanics**	**L-2** **T-0** **P-0** **C-2**
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Recalling and applying the principles of biomechanics	
CO2.	Understanding and applying the knowledge of advanced biomechanics of tissues and structures of musculoskeletal system, posture and gait	
CO3.	Describing and using the tools for biomechanical analysis	
CO4.	Employing the concepts of ergonomics, patient positioning, body mechanics and transfer techniques.	
Course Content:		
Unit-1:	1. Forces, Equilibrium, Levers: laws & mechanicaladvantage. 2. Applied mechanics in the evaluationprocedures.	**3 Hours**
Unit-2:	1. Biomechanics of Tissues and structures of the musculoskeletal system: Material properties of bones and other connective tissue, viscoelasticity, creep and stress relaxation, rate dependent properties, stress and strain curves. 2. Normal and Applied Biomechanics of Spine, Pelvic Girdle, Upper extremity and Lower extremity.	**6 Hours**
Unit-3:	1. Biomechanics of posture & its analysis. 2. Biomechanics of respiration, circulation. 3. Biomechanics of hand function and dexterity.	**5 Hours**
Unit-4:	1. Kinetics and Kinematics of normal and abnormal gait.	**6 Hours**
Unit-5:	1. Tools for biomechanical analysis: a. Isokinetics In Rehabilitation: Introduction to Isokinetic Technology: A global exchange and applications b. Force Platforms and Other Techniques Of Movement Analysis: Introduction and equipment considerations, Experimental Procedures, Electro-goniometry and accelerometry, Use of inclinometers in sports analysis c. Videographic analysis of sports movements: Motion Capture technologies 2. Patient Positioning, Body Mechanics and Transfer Techniques. 3. Ergonomics: a. Workplace capacity analysis and role of physiotherapy b. Industrial setup, job site disability, pre employment screening, worker‘s functional capacity measurement/assessment, work hardening. c. Approach to lifting and handling, workspace and environment	**8 Hours**
Text Books:	1. Joint structure and function- Cynthia Norkins, 4th Edition, Jaypee Publication. 2. Pathomechanics – Steindler	
Reference Books:	1. Biomechanical basis of human movement, Joseph Hamill & Kathleen M.Knutzen, 3rd Edition, LWW Publications. 2. Bio-mechanics of Musculoskeletal System by Nigg, 2nd Edition, John	

	Wiley Publication. 3. Kinesiology by K Wells, 6th Edition; Saunders Publication. 4. Clinical Kinesiology – Brunnstorm, 5th Edition, Jaypee Publication. *** Latest editions of all the suggested books are recommended**	

Course Code: MPT211	**Core Course-5** **MPT- Semester-II** **Physical and Functional Diagnosis**	**L-3** **T-0** **P-0** **C-3**
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding and utilizing the principles of Biophysical measurements, physical fitness assessment, special tests, scales and electro-diagnostic tools used in common disorders.	
CO2.	Applying the principles of patient assessment, clinical examination, pathological investigations, imaging techniques for common disorders	
CO3.	Examining the patient for pain through interview, body charts and clinical assessment.	
CO4.	Analyzing physical disability, its diagnosis, supporting and adaptive functional devices.	
Course Content:		
Unit-1:	1. Pain: a. Historical perspective, Modulation theories of pain, and classification of pain,clinical manifestations. b. Patient interview, body charts, and pathological assessment (Questionnaires andPain RatingScales).	**8 Hours**
Unit-2:	1. ICF & SOAP Format of assessment. 2. Clinical examination in general and detection of movement dysfunction. 3. Principles of pathological investigations and imaging techniques related to neuromuscular, skeletal and cardiopulmonary disorders with interpretation. 4. Developmental screening, motor learning –motor control assessment. 5. Anthropometric measurements.	**12 Hours**
Unit-3:	**1.** Physical fitness assessment by Range of motion, Muscle strength, endurance and skills, Body composition and energy consumption, Fitness test for sports. **2.** Evaluation Methods, Special tests and Scales used in Musculoskeletal, Neurological and Cardiopulmonary disorders. **3.** EMG, Biofeedback, NCV, EEG, Evoked Potentials. **4.** Biophysical measurements, physiotherapy modalities, techniques and approaches.	**12 Hours**
Unit-4:	**1.** Aids and appliances, adaptive functional devices to improve movement dysfunction. **2.** Physical disability evaluation and disability diagnosis. **3.** Gait analysis and diagnosis.	**10 Hours**

	4. Exercise ECG testing and monitoring. **5.** Pulmonary function tests and Spirometry	
Text Books:	**1.** Melzack and Wall: Text book of pain. **2.** Physical therapy for children – Campbell Suzann K, W.B Saunders, Philadelphia 1994	
Reference Books:	1. Physical management of Multiple Handicapped – Freser, William & Wilkins,Baltimore. 2. Orthotics in neurological rehabilitation – Aisen, Demos Publication, New York1992. 3. Manual of nerve condition velocity techniques – De Lisa, Raven press, New York,1982. 4. Electrodiagnosis in diseases of nerve and muscle – Kimura J, F.A Davis,Philadelphia. 5. Gaits analysis – Perry J., Black Thorofare, New Jersy,1992 6. Measurement in physical therapy – Churchill, Livingstone, London1988. 7. Cardiopulmonary symptoms in physiotherapy practice – Cohen M., Churchill,Livingstone, London1988 8. Clinical application of ventilatory support – Kinby Churchill, Livingstone, New York1990 *** Latest editions of all the suggested books are recommended.**	

Course Code: MPT212	**Core Course – 6** **MPT- Semester-II** **Physiotherapeutics**	**L-3** **T-0** **P-0** **C-3**
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Recalling and applying principles of various types of exercises and electrotherapy techniques, their prescription and effects of medications and exercises on human body.	
CO2.	Applying the theories of motor control, motor learning, aging and ergonomic aspects of exercise.	
CO3.	Applying principles of advanced physiotherapy techniques and yogic practice.	
CO4.	Analyzing physiotherapy management in general conditions.	
Course Content:		
Unit-1:	1. Theories of motor control and motorlearning. 2. Theories of aging.	**8 Hours**
Unit-2:	1. Cardiopulmonary medications and their effect on activityperformance. 2. Exercise planning andprescription. 3. Use of Exercise therapy techniques and application on various types ofcases. 4. Application of electrotherapy techniques on patients, monitoring of dosages and windingup procedure. 5. Ergonomic aspects of exercise on oxygen, energy consumption MET value ofvarious exercises andactivity. 6. Physiotherapy in psychiatricconditions.	**12 Hours**
Unit-3:	1. Massage, Mobilization andManipulation 2. Principles of Manual therapy – different schools ofthought 3. Principles of Various Neurologicalapproaches. 4. Yoga: a) Concept of Yogic Practices, Asanas, Pranayama, Meaning & benefits of Bandhaand mudras,Kriyas. **5.** Meaning & concept of Meditation, Yoga and ModernEducation	**12 Hours**
Unit-4:	1. General Guidelines to be followed in Cardiac Rehabilitation, Pulmonary Rehabilitation, Burns Rehabilitation and Cancer Rehabilitation Protocol. 2. CPR, monitoring systems, AEDs and defibrillators and artificial respirators. 3. Physiotherapy in common conditions of skin. 4. Physiotherapy following Plastic Surgery. 5. Maternal and child care and physiotherapy following Obstetric and Gynecological Disorders.	**10 Hours**
Text Books:	1. Yoga Therapy – Kuvalayananda Swami and Vinekar, popular prakashan, Bombya, 1992 2. The Growth chart – WHO, Geneva, 1986 3. Orthotics in neurological rehabilitation – Aisen, Demos Publication, New York 1992	

	4. Manual of nerve condition velocity techniques – De Lisa, Raven press, New York, 1982 5. Electrodiagnosis in diseases of nerve and muscle – Kimura J, F.A Davis, Philadelphia. 6. Mobilization of the extremity joints – Kaltenbore, Harper and Row, Philadelphia.1980 7. Chest physiotherapy in Intensive care unit – Makezie, Willams& Wilkins, Baltimore. 8. Cardiopulmonary symptoms in physiotherapy –Cohen M, Churchil, Livingstone, London- 1988.	
Reference Books:	1. Physical rehabilitation: assessment and treatment – O'Sullivan, F.A Davis, Philadelphia 1994. 2. Neuro-rehabilitation – Farber, W.B Saunders, Philadelphia1982 3. Orthopaedic physical therapy- Donatteli, London Churchill Livingstone,1994. 4. Gaits analysis – Perry J., Black Thorofare, New Jersy,1992 5. Bio – feedback- A practitioners guide - Kerb D, Guifordpress. 6. Cardiac rehabilitation – Amundsen l.R, Churchill, Livingstone, London1988 7. Obstetrics and gynaecologic physical therapy – Wilder Elnine, Churchill,Livingstone, NewYork1994. *** Latest editions of all the suggested books are recommended.**	

Course Code: TMUPS102	**Value Added Course-2** **MPT- Semester-II** **Managing Work and Others**	**L-2 T-0 P-0 C-0**
Course Outcomes :	**On completion of the course, the students will be :**	
CO1.	Communicating effectively in a variety of public and interpersonal settings.	
CO2.	Applying concepts of change management for growth and development by understanding inertia of change and mastering the Laws of Change.	
CO3.	Analyzing scenarios, synthesizing alternatives and thinking critically to negotiate, resolve conflicts and develop cordial interpersonal relationships.	
CO4.	Functioning in a team and enabling other people to act while encouraging growth and creating mutual respect and trust.	
CO5.	Handling difficult situations with grace, style, and professionalism.	
Course Content:		
Unit-1:	**1.** Creativity and Innovation **2.** Understanding Self and Others (Johari Window) **3.** Stress Management	**5 Hours**
Unit-2:	**1.** Managing change for competitive success **2.** Handling feedback and criticism **3.** Conflict Management	**5 Hours**
Unit-3:	1. Development of cordial interpersonal relationships 2. Negotiation **3.** Working in teams	**5 Hours**
Unit-4:	**1.** Manners, Etiquettes and Netiquettes	**5 Hours**
Unit-5:	**1.** Job seeking **2.** Group Discussion **3.** Personal Interview	**5 Hours**
References:	1. Robbins, Stephen P., Judge, Timothy A., Vohra, Neharika, Organizational Behaviour (2018), 18th ed., Pearson Education 2. Burne, Eric, Games People Play (2010), Penguin UK 3. Carnegie, Dale, How to win friends and influence people (2004), RHUK 4. Rathgeber, Holger, Kotter, John, Our Iceberg is melting (2017), Macmillan 5. Steinburg, Scott, Nettiquette Essentials (2013), Lulu.com 6. https://www.hloom.com/resumes/creative-templates/ 7. https://www.mbauniverse.com/group-discussion/topic.php 8. https://www.indeed.com/career-advice/interviewing/job-interview-tips-how-to-make-a-greatimpression *** Latest editions of all the suggested books are recommended.**	

Course Code: MPT261	**Skill Enhancement Course – 2** **MPT- Semester-II** **Clinical Training**	**L-0** **T-0** **P-16** **C-8**
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Analyzing the various clinical conditions, investigations, physical examination, diagnosis and differential diagnosis.	
CO2.	Creating the Evidence Based treatment plan.	
CO3.	Justifying the assessment tools and treatment techniques selected.	
Course Content:		
	Clinical training is a mode through which students apply their classroom knowledge; all formal and practical "real-life" learning experiences and skills clinical environment. Experiences would include those of short and long duration (eg, part-time, full-time, internships) and provide a variety of learning experiences through rotations in different units or departments within the same practice setting or health care system) to include comprehensive care of patients across the life span and related activities. Each student will be under the supervision of a clinical supervisor at clinical education site who shall instruct and supervise students during their clinical posting sessions. Clinical supervisors are responsible for facilitating clinical learning experiences and assessing student's performance in cognitive, psychomotor, and affective domains as related to graduate-level clinical practice and academic and clinical performance expectations. The student shall acquire practical skills mentioned in syllabus for that particular semester during clinical training hours. In each semester, they will be posted for a minimum of four months in the departments related to their courses being learned in respective semesters. The student will be formally evaluated at the end of semester through viva voce examinations by internal and external examiners.	**224 Hours**

Format for Internal Evaluation of Clinical Training (Master of Physiotherapy Program)

Name ofcandidate:

Program:

Semester:

Topic ofPresentation:

Date:

	Parameters	Maximum marks	Obtained marks
1.	Body Language/voice modulation	5	
2.	Knowledge of the Topic/case	5	
3.	Content of the presentation	5	
4.	Confidence & Attitude	5	
5.	Quiz	5	
Total		25	

Evaluator:
Name:
Designation:
Department:

Student shall be evaluated in the above mentioned format by the team of faculty members for case presentation. Student should have the copy of this format which should be provided to each member of the team of evaluators during every presentation. The average marks of each cycle shall be considered for final internal assessment out of twenty five under performance during session; ten marks shall be that of attendance, five marks of short case & ten marks of finalviva.

Course Code: MPT314	**Ability Enhancement Course-1** **MPT- Semester-III** **Ethics and Pedagogy**	**L-3** **T-2** **P-0** **C-4**
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding and applying the principles of ethics, laws, educational objectives, curriculum planning, concepts of teaching- learning and evaluation methods.	
CO2.	Understanding and applying the concepts of quality control in relation to physiotherapy care and service and principles of guidance and counselling.	
Course Content:		
Unit-1:	**1. PT values andethics.** a. Rules of Professional Conduct. b. Concept of Morality and Ethics. c. Communication skills, Client Interest and Satisfaction. d. Inter Disciplinary Relation, Co-Partnership, Mutual Respect, Confidence and Communication, responsibilities of the Physiotherapists, Status of Physiotherapist in Health Care. e. Privatization of education. f. Ethics in practice for patient care **2. Ethics of various organizations** a. Need of Council Act for regulation of Professional Practice, Self-Regulatory role of Professional Association. b. World Confederation of Physical therapists (WCPT). c. Regulation of different governing bodies.	**10 Hours**
Unit-2:	**PT Laws and Legal concepts.** Medico legal aspects of physical therapy, liability, informed consent negligence, malpractice, licensure, consumer protection act. Law of disability & discrimination, Confidentially of the Patient‘s status.	**12 Hours**
Unit-3:	**PEDAGOGY:** **1. Education:** Meaning and scope of Educational Psychology, Meaning and Relationship between teaching and learning, Learning Theories, Dynamics of behavior, Individual Meaning and concept. **2. Curriculum** a. Basis of curriculum formulation, Framing objectives for curriculum, Process of curriculum development and factors involved, Evaluation of curriculum differences. b. Curriculum planning – Integrated teaching, Problem based learning, Evidence based medicine. c. Skill development- Clinical skills, Communication skills, Counseling skills. **3. Principles and Methods of Teaching** a. Bloom‘s taxonomy of instructional objectives. b. Writing instructional objectives in behavioral terms.	**12 Hours**

	c. Unit planning, Lesson planning. d. Lecture, Demonstration Discussion, Seminar, Assignment. e. Types of teaching aids. f. Principles of selection, preparation and use of audio-visual aides. **4. Measurement andEvaluation** a. Nature of educational measurement: meaning, process, types of tests. b. Aptitude and personality Tests. c. Continuous and comprehensive evaluation.	
Unit-4:	**Guidance and counseling and Awareness Program** Meaning, concepts & principles of guidance and counseling of health & diseases.	**12 Hours**
Text Books:	1. Developing a Pedagogy of Teacher education: Understanding teaching and learningabout teaching. 2. Hospital administration and human resource management by R.C.Goyal, 4th edition. 3. Pedagogy in Physiotherapy education by C.S Ram, AITBS, 1st Edition2013	
Reference Books:	1. Physical Therapy Ethics by Donald L.Gabard, Mike W.Martin, F.A. Davis,2003. 2. Physical Therapy Administration & Management by Hick RobertJ. *** Latest editions of all the suggested books are recommended.**	

Course Code: MPT315	**Discipline Specific Elective Course – 1** **Specialization- Cardiorespiratory** **MPT- Semester-III** **Cardiorespiratory Disorders-I**	**L-4** **T-0** **P-0** **C-4**
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Recalling and applying the anatomy, physiology, clinical conditions, evaluation, diagnosis, treatment tools, techniques and management of cardiovascular and respiratory system.	
CO2.	Evaluating general and ventilator dependent patient by cardiorespiratory assessment, preoperative evaluation, diagnostic test and laboratory investigations for cardiorespiratory diseases and surgeries.	
CO3.	Analyzing and creating the various treatment plans for a patient based on recent research advances and Evidence Based Practices.	
Course Content:		
Unit-1:	Overview of Anatomy of Cardiopulmonary System: 1. Development of cardio pulmonary system. 2. Anatomy of upper and lower respiratory tract. 3. Anatomy of bony thorax & chest wall, Heart, Lungs, Pleura, Pericardium, Blood vessels.	**10 Hours**
Unit-2:	Overview of Physiology Of Cardiopulmonary System: 1. Cardiaccycle. 2. Cardiacreflexes. 3. Biomechanics ofrespiration. 4. Regulation of respiration, blood pressure, body temperatureetc. 5. Mechanics of breathing – work of breathing, airway resistance, lungcompliance. 6. Respiratory muscle – efficiency, endurance, training, fatigue,weakness. 7. Ventilation &perfusion. 8. Cough reflex, stretchreflex. .	**10 Hours**
Unit-3:	1. Assessment Of Cardiopulmonary System: a. History & Subjective assessment. b. Inspection of chest wall. c. Palpation of chest wall: Diaphragmatic excursion, work of accessory muscles, Oedema, pain, chest expansion and tracheal deviation. d. Auscultation of chest wall: breathe sounds, heart sounds (normal and abnormal), landmarks, its interpretation e. Evaluation of peripheral vascular disease f. Pre operative Evaluation of cardio pulmonary Diseases and surgeries. 2. Laboratory Investigations: a. Principles, analysis and guidelines for interpretation of ABG, PFT.	**12 Hours**

	b. Principles, analysis and guidelines for interpretation of Treadmill test, Exercise Tolerance test and VO2 max c. ECG, ECHO, angiography, Doppler study, chest radiography, Bacteriological and cytological tests. d. MUGA test. e. Tests for cardio respiratory endurance testing: Maximal; intermediate and sub maximal. 3. Evaluation of Ventilator Dependent Patient: a. Assessment of ventilators. b. Respiratory rate, Respiratory pattern, Pulse rate, Temperature, Blood Pressure. c. Fluid and electrolyte balance. d. Chest tube drainage and fluid collection system. e. Arterial blood gas analysis. f. ECG monitoring – Halter monitoring. g. Electroencephalogram. h. Intra-arterial lines, Pulmonary artery balloon flotation catheter, Intravenous lines, Central venous pressure, Intra aortic balloon counter pulsations, Intra cranial Pressure	
Unit-4:	Principles of chest physiotherapy techniques**:** 1. Lung hygiene, Postural Drainage, ACBT, Autogenic drainage, PNF techniques, Forced expiratory techniques, chest mobility exercise, biofeedback, aerosol therapy,ACAPALA. 2. Incentive spirometry, humidifiers, nebulizers, intermittent positive pressurebreathing, PEEP, BiPAP, CPAP, AMBU bagetc. 3. Cough assistive devices: FlutterDevice.	**12 Hours**
Unit-5:	Clinical conditions: Definitions, path physiology, Clinical features, investigations,medical, surgical and PT management of– a. Pulmonary diseases in premature babies, neonatal distress, birth asphyxia,broncho pulmonary dysphasia, Nickity Wilson syndrome, Meconiumaspiration. b. COPD, Asthma, cystic fibrosis, Immunological deficits, bronchiectasis, lung abscess, pneumonia, interstitial lung diseases, lung cancer, pulmonary tuberculosis,Occupational lung disorders, fracture ribs, pneumothorax, haemothorax, empyema, pleural effusion, pulmonary edema ,pulmonary embolismetc. c. Congenital heart diseases – persistant ductus arteriosus, co-arctation of aorta, atrialseptal defect, ventricular septal defect, transposition of great vessels, tetralogy offallot. d. Coronary artery diseases and its manifestations, CABG, Valvular diseases,Rheumatic heart disease, Diseases of myocardium. e. Peripheral vasculardisease. f. Burns, cardiopulmonary complications inburns.	**12 Hours**

Text Books:	1. Cardiovascular and Pulmonary Physical Therapy By Donna frownfelter& Elizabeth dean. 2. Diagnosis and Management of acute respiratory failure By FarokherachUdawadia. 3. Physiotherapy in Respiratory care By Alexandra Hough. 4. Physiotherapy for Respiratory and cardiac problems – adults and pediatrics By Jenifer Pryor &S.Ammani Prasad. 5. Cardio pulmonary physical therapy by Donna frownfelter. 6. Principles of cardio pulmonary physical therapy by Asbury & Petty. 7. Cardio pulmonary physical therapy by Helen Hillegas, (Saunders). 8. PT for RT & cardiac problems by Weber. 9. Physiotherapy in respiratory care by Hough a Jaypee Publishers, Baltimore 10. Cardiopulmonary symptoms in physiotherapy by Cohen M, Churchill, Livingstone, London 11. Physical rehabilitation: assessment and treatment by O'Sullivan, F.A Davis, Philadelphia 12. Clinical application of ventilatory support by Kinky Churchill, Livingstone, New York	
Reference Books:	1. Cardiopulmonary symptoms in physiotherapy practice – Cohen M.,ChurchillLivingstone, London1988. 2. Pulmonary rehabilitation: guidelines to success by Bodkins, Butterworth,Boston. 3. Cardiac rehabilitation by Amundsen lord, Churchill, Livingstone,London. 4. Physical therapy of the cancer patient by McGaryex Charles, Churchill,Livingstone, NewYork. 5. Multidisciplinary approach to breathing disorder byLeon. 6. Clinical Exercise testing byJones. 7. Pulmonary rehabilitation. The Obstructive and Paralytic Conditions byJohn. 8. Coronary artery disease essentials of prevention and Rehabilitation Program byPeter. 9. Pulmonary Rehabilitation by John Hodgkin(Elsevier). *** Latest editions of all the suggested books are recommended.**	

Course Code: MPT365	**Discipline Specific Elective Course – 2** **Specialization- Cardiorespiratory** **MPT- Semester-III** **Cardiorespiratory Disorders-I (Lab)**	**L-0 T-0 P-2 C-1**
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Applying the cardiorespiratory assessment tool on various patient population and perform assessment of Ventilated patients and weaning	
CO2.	Analyzing the patient's cardiovascular and respiratory status by integrating findings from various clinical & lab tests for ICU and Ventilated patients.	
Course Content:		
	1. Administration of cardiopulmonary assessment tools on patientgroups. 2. Demonstration of various clinical (lab and radiographic) tests performed forcardiovascular and pulmonary functioning with theirinterpretation. 3. Assessment of ventilated patient andweaning. 4. ICU monitoring of patient'sparameters.	**30 Hours**
Text Books:	1. Cardiovascular and Pulmonary Physical Therapy By Donna frownfelter& Elizabethdean. 2. Diagnosis and Management of acute respiratory failure By FarokherachUdawadia. 3. Physiotherapy in Respiratory care By AlexandraHough. 4. Cardio pulmonary physical therapy by Donnafrownfelter. 5. Principles of cardio pulmonary physical therapy by Asbury &Petty. 6. Cardio pulmonary physical therapy by Helen Hillegas,(Saunders). 7. PT for RT & cardiac problems byWeber. 8. Physiotherapy in respiratory care by Hough a Jaypee Publishers,Baltimore 9. Cardiopulmonary symptoms in physiotherapy by Cohen M, Churchill, Livingstone,London 10. Physical rehabilitation: assessment and treatment by O'Sullivan, F.A Davis,Philadelphia 11. Clinical application of ventilatory support by Kinky Churchill, Livingstone, NewYork	
Reference Books:	1. Cardiopulmonary symptoms in physiotherapy practice – Cohen M.,ChurchillLivingstone, London1988. 2. Pulmonary rehabilitation: guidelines to success by Bodkins, Butterworth,Boston. 3. Cardiac rehabilitation by Amundsen lord, Churchill, Livingstone,London. 4. Physical therapy of the cancer patient by McGaryex Charles, Churchill,Livingstone, NewYork. 5. Multidisciplinary approach to breathing disorder byLeon. 6. Clinical Exercise testing byJones. 7. Pulmonary rehabilitation. The Obstructive and Paralytic Conditions byJohn. 8. Coronary artery disease essentials of prevention and Rehabilitation Program byPeter. 9. Pulmonary Rehabilitation by John Hodgkin(Elsevier). *** Latest editions of all the suggested books are recommended.**	

Course Code: MPT316	**Discipline Specific Elective Course – 3** **Specialization- Neurosciences** **MPT- Semester-III** **Neurological Disorders-I**	**L-4** **T-0** **P-0** **C-4**
Course Outcomes :	**On completion of the course, the students will be :**	
CO1.	Recalling neuroanatomy and neurophysiology.	
CO2.	Applying the principles of application of different methods of electrodiagnosis, radiology and interpret them in neurological conditions.	
CO3.	Applying the neurophysiology of balance, co-ordination, locomotion, normal sequential behavioral and physiological changes of the development arc.	
CO4.	Analyzing the concepts of clinical conditions, neurological assessment, various outcome measures, Autonomic dysfunction assessment and pediatric assessment and diagnosis in the physiotherapy management based on Evidence Based Practice for neurological disorders.	
Course Content:		
Unit-1:	1. Review of Neuro-anatomy andphysiology. 2. Normal sequential behavioral and Physiological changes throughout the developmentalarc. 3. Neurophysiology of balance, coordination andlocomotion.	**8 Hours**
Unit-2:	1.Neurological Assessment of: a. Higher mental function, Pain, Cranial nerve, Sensory & Motor assessment, Coordination& Balance, Posture, Gait, Bladder & bowel, Functional, Oromotor, Vestibularassessment. b. Evaluation of ANSdysfunction. c. Neonatal and PediatricAssessment 2. Radiology in neurologicalsciences. 3. Outcome measures used in various disorders.	**12 Hours**
Unit-3:	Clinical symptomatology, Pathophysiology, Principles of clinical neuro diagnosis, investigation and Medical, Surgical and PT management of the neurological disorders: 1. Stroke 2. Spinal Cord injury 3. Head injury 4. Disorders ofPNS 5. Degenerativediseases 6. InfectiousDisorders 7. Tumors of CNS &PNS. 8. Vestibulardisorders	**16 Hours**
Unit-4:	1. Neurophysiology of Nerve conduction studies andElectromyography. 2. Instrumentation of Electrical stimulator, EMG, SFEMG, NCS (Nerve ConductionStudies). 3. Electrical study of reflexes (H- reflex, Axon reflex, F- response, Blink reflex, Jaw jerk, Tonic VibrationReflex).	**14 Hours**

	4. Repetitive nerve stimulation. 5. Evoked potentials (SSEP, MEP, BAERA, and VER). 6. Interpretation of neurophysiologic responses in Neuropathy, myopathy and neuromuscular disorders.	
Unit-5:	Recent Advances in Neurological Rehabilitation	**6 Hours**
Text Books:	1. Physical Rehabilitation by Susan B, O' Sullivan, Thomas J.Schmitz. 2. Electrodiagnosis in disease of nerve and muscles by Kimuraj J, F ADavis,Philadelphia 3. Neurological Rehabilitation: Umphred, Darcy,A	
Reference Books:	1. Neurological Rehabilitation: Taly,A.B. 2. Stroke Therapy: Fisher,Marc. 3. Proprioceptive Neuromuscular Facilitation Knott M & Voss, Harper &Row. 4. Clinical neurophysiology: U.K.Misra,J.Kalita. 5. Motor control Theory and practice: Shumway-cook &Anne. 6. Bickerstaff's neurological examination in clinicalpractice. 7. Neurological differential diagnosis – JohnPatten. *** Latest editions of all the suggested books are recommended.**	

Course Code:	**Discipline Specific Elective Course – 4**	**L-0**

MPT366	Specialization- Neurosciences MPT- Semester-III **Neurological Disorders-I (Lab)**	T-0 P-2 C-1
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Analyzing various clinical, electro-diagnostic and radiographic tests performed for neurological conditions.	
CO2.	Utilizing post- surgical physiotherapy management of various palliative and reconstructive surgeries performed in neurological conditions.	
Course Content:		
	1. Administration of neurological assessment tools on patientgroups. 2. Demonstration of various clinical (lab, electro-diagnostic and radiographic) tests orsurgical procedures performed for Neurologicalconditions. 3. Post surgical management of various palliative and reconstructive surgeries performedin neurologicalconditions.	**30 Hours**
Text Books:	1. Physical rehabilitation by Susan B, O' Sullivan, Thomas J.Schmitz. 2. Electrodiagnosis in disease of nerve and muscles by Kimuraj J, F ADavis,Philadelphia.	
Reference Books:	1. Neurological Rehabilitation: Taly,A.B. 2. Stroke Therapy: Fisher,Marc. 3. Proprioceptive Neuromuscular Facilitation Knott M & Voss, Harper &Row. 4. Clinical neurophysiology: U.K.Misra,J.Kalita. 5. Motor control Theory and practice: Shumway-cook &Anne. 6. Neurological Rehabilitation: Umphred, Darcy,A. 7. Bickerstaff's neurological examination in clinicalpractice. 8. Neurological differential diagnosis – JohnPatten. *** Latest editions of all the suggested books are recommended.**	

Course Code: MPT317	**Discipline Specific Elective Course – 5** **Specialization- Musculoskeletal** **MPT- Semester-III** **Musculoskeletal Disorders-I**	**L-4** **T-0** **P-0** **C-4**
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding musculoskeletal system and its applied anatomy.	
CO2.	Analyzing musculoskeletal conditions, patient assessment, rationale of laboratory investigations, role of radiology and complete management of musculoskeletal disorders	
CO3.	Evaluating disability, orthopaedic implants, functional activities and gait.	
CO4.	Creating an Evidence Based management program for the musculoskeletal conditions.	
Course Content:		
Unit-1:	1. Applied anatomy with emphasis on Biomechanics & Kinesiology of Human motion and Work Physiology	**10 Hours**
Unit-2:	1. Clinical assessment and rationale of Laboratory investigations along withdifferential diagnoses. 2. Clinical Symptomatology, Pathophysiology and Patho-mechanics of musculoskeletal conditions. 3. Detailed neuromusculoskeletal physical assessment with use of various scales to assesspain, disability and activitylimitation. 4. Role of radiology in musculoskeletaldisorders.	**12 Hours**
Unit-3:	1. Medical, Surgical and Physiotherapy management following fractures, dislocations andtheir complications, Amputations, cumulative trauma disorders andBurns. 2. Medical, Surgical and Physiotherapy management in degenerative, inflammatorydisorders and alliedconditions. 3. Medical, Surgical and Physiotherapy in post operative management of metabolic,hormonal, neoplastic and infective conditions of bones andjoints.	**12 Hours**
Unit-4:	1. Peripheral nerve lesions and their Surgical & PT management. 2. Conservative and Surgical management of Pediatric musculoskeletal disorders. 3. Medical, Surgical and Physiotherapy of Regional soft tissue injuries.	**12 Hours**
Unit-5:	1. Orthopaedic implants-designs, materials, indications, post-operative assessment and training. 2. Physiotherapy following arthroplasty, implants and soft tissue repairs. 3. Assessment of locomotor impairments, disabilities and disability evaluation. 4. Kinetic and kinematics analysis for various functional activities and gait. 5. Recent Advances in Musculoskeletal Disorders.	**10 Hours**
Text Books:	1. Outline of Fractures—John Crawford Adams. 2. Orthopaedic Physical Assessment by David Magee. 3. Outline of Orthopedics — John Crawford Adams.	

	4. Orthopaedics – John Ebenezer. 5. Clinical Orthopaedic Rehabilitation 2nd ed ,Brotzman S B. 6. Physical Agents in Rehabilitation: From Research to Practice by Cameron. 7. Measurement in physical therapy – Churchill, Livingstone, London 1988. 8. Melzack and Wall: Text book of pain.	
Reference Books:	1. Apley‘s textbook of orthopedics and fractures by Apley‘s 7th edition B/H publications. 2. Orthopaedics: Principles & Their application by Turek‘s. 3. Physical Therapy of the Shoulder by Donatelli R. 4. Managing low back pain, Kirkaldy- Willis *** Latest editions of all the suggested books are recommended.**	

Course Code: MPT367	**Discipline Specific Elective Course – 6** **Specialization- Musculoskeletal** **MPT- Semester-III** **Musculoskeletal Disorders-I (Lab)**	**L-0** **T-0** **P-2** **C-1**
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Analyzing the patient for assessment, differential diagnosis, diagnosis, patient education, lab and radiographic tests.	
CO2.	Analyzing and creating an Evidence Based rehabilitation program for the musculoskeletal conditions.	
Course Content:		
	1. Administration of musculoskeletal assessment tools on patientgroups. 2. Demonstration of various clinical (lab and radiographic) tests or surgicalprocedures performed for musculoskeletalconditions 3. Assessment of Gait andposture. 4. Post surgical management of various palliative and reconstructive surgeries performedin musculoskeletalconditions.	**30 Hours**
Text Books:	1. Outline of Fractures—John CrawfordAdams. 2. Orthopaedic Physical Assessment by DavidMagee. 3. Outline of Orthopedics — John CrawfordAdams. 4. Orthopaedics – JohnEbenezer. 5. Clinical Orthopaedic Rehabilitation 2nd ed ,Brotzman SB. 6. Physical Agents in Rehabilitation: From Research to Practice byCameron. 7. Measurement in physical therapy – Churchill, Livingstone, London1988. 8. Melzack and Wall: Text book ofpain.	
Reference Books:	1. Apley‘s textbook of orthopedics and fractures by Apley‘s 7th editionB/Hpublications. 2. Orthopaedics: Principles & Their application byTurek‘s. 3. Physical Therapy of the Shoulder by DonatelliR. 4. Managing low back pain, Kirkaldy-Willis *** Latest editions of all the suggested books are recommended.**	

Course Code: MPT318	**Discipline Specific Elective Course – 7** **Specialization- Sports** **MPT- Semester-III** **Sport Disorders-I**	**L-4** **T-0** **P-0** **C-4**
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding and applying the critical assessment and management methodologies for various sports.	
CO2.	Analysing the various biomechanical considerations of sports specific injuries, clinical sports medicine, disorders and pathologies.	
CO3.	Analyzing the core concepts of the recent advances in research and Evidence Based Practice to create a prescription for management.	
Course Content:		
Unit-1:	1. Applied anatomy with emphasis on Biomechanics & Kinesiology of Human motion inSports specificactivities. 2. Assessment of thesportsperson 3. Analysis and classification of sports and sports specific injuries and itsmanagement. 4. Principles of InjuryPrevention 5. Stages of inflammation and repair of various connectivetissues. 6. AppliedPharmacology: a. Basic pharmacokinetics ,Pharmacodynamics, principles of drug action of analgesics,Anti inflammatory (Selelctive, Non Selelctive), Muscle relaxants,Steroids. b. Classification of drugs and methods used for Doping inSports	**12 Hours**
Unit-2:	1. Neurological basis of movement: sensory & motor strategies 2. Skill Acquisition 3. Motor Control	**12 Hours**
Unit-3:	Assessment and management of: 1. Sports Specific Fractures & dislocations of skull, upper limb, Spine, LowerLimb. a. Sports Specific Soft tissue injuries: Upper Limb, Lower Limb,Groin, Face andTrunk. b. Classification of soft tissue injuries: Acute &overuse. 2. Common Hand injuries and Entrapment neuropathies. 3. Acquired deformities insports.	**12 Hours**
Unit-4:	1. Analysis and classification of sports and sports specific injuries and its management. 2. Medico legal issues in sports, Sports Psychology, Sports Nutrition and Sports pharmacology.	**10 Hours**
Unit-5:	1. Functional Bandages and orthotic aids: History, types, materials used. 2. Recent Advances in Sport Disorders	**10 Hours**
Text Books:	1. Textbook of Anatomy by Inderbir Singh; 4th edition; Jaypee Publications. 2. Textbook of Medical Physiology by Guyton & Hall, 11th Edition; Elsevier Publication.	

	3. Essentials of Medical Pharmacology, 6th Edition, KD Tripathi, Jaypee 4. Publications Text book of Pathology - Harsh Mohan - Jaypee publications. 5. Brukner and Khan: Clinical Sports Medicine, McGraw Hill. 6. Reed: Sports Injuries – Assessment and Rehabilitation, W.B. Saunders. 7. Outline of Fractures—John Crawford Adams. 8. Orthopaedic Physical Assessment by David Magee. Saunders; 5th edition 2007. 9. Clinics in Sports Medicine. Peter Brukner, Karim Khan. McGraw-Hill Medical; 4 edition. 2012 10. Principles and practice of athletic training. William Prentice. Lippincott and Williams.2004	
Reference Books:	1. Gray's Anatomy for Students. Richard Drake, A. Wayne Vogl, Adam W. M.Mitchell. Elsevier Health Sciences,2009 2. Clinical Anatomy for Medical Students by Richard Snell, 6th edition,Lippincott. 3. Physiology of Sport and Exercise. W. Larry Kenney, Jack Wilmore, David Costill,Human Kinetics,1999 4. Human Physiology, Chatterjee. Vol: 1&2; 10th Edition; Medical & AlliedAgency. 5. Principles of Anatomy & Physiology, Tortora, 8th Edition; Harper & RowPublication. 6. Pharmacology &Pharmacotherapeutics, 12th Edition, RS Satoshkar, PopulrarPublications 7. Pathology: Implications for Physical Therapists - Goodmann and Boissonnault - W.B. Saunders. 8. Foundations of Sport & Exercise Psychology by Brad Schoenfeld, Human Kinetics,2006. 9. Apley's textbook of orthopedics and fractures by Apley's 7th edition B/Hpublications. 10. Orthopaedics: Principles & Their application byTurek's. *** Latest editions of all the suggested books are recommended.**	

Course Code: MPT368	**Discipline Specific Elective Course – 8** **Specialization- Sports** **MPT- Semester-III** **Sport Disorders-I (Lab)**	**L-0** **T-0** **P-2** **C-1**
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Applying the principles of Kinanthopometry for sports specific demands and competencies	
CO2.	Applying various techniques of bandaging and cryotherapy measures specific to the injury patterns	
CO3.	Analyzing and creating an Evidence based prescription suitable for the sportsperson based on clinical reasoning and decision making.	
Course Content:		
	1. Kinanthropometry. 2. Cryotherapy: Methods of application. 3. Functional Bandages: Uses & techniques. 4. Common Orthotic aids and appliances used in sports. 5. Clinical reasoning & decision making.	**30 Hours**
Text Books:	1. Outline of Fractures—John CrawfordAdams. 2. Orthopaedic Physical Assessment by DavidMagee. 3. Outline of Orthopedics — John Crawford Adams 4. Reed: Sports Injuries – Assessment and Rehabilitation, W.B.Saunders 5. Orthopaedics – JohnEbenezer. 6. Clinical Orthopaedic Rehabilitation 2nd ed ,Brotzman SB. 7. Physical Agents in Rehabilitation: From Research to Practice byCameron. 8. Measurement in physical therapy – Churchill, Livingstone, London1988. 9. Melzack and Wall: Text book ofpain.	
Reference Books:	1. Apley‘s textbook of orthopedics and fractures by Apley‘s 7th edition B/H 2. publications. 3. Orthopaedics: Principles & Their application by Turek‘s. 4. Apley‘s textbook of orthopedics and fractures by Apley‘s 7th edition B/H 5. publications. 6. Physical Therapy of the Shoulder by Donatelli R. 7. Managing low back pain, Kirkaldy- Willis *** Latest editions of all the suggested books are recommended.**	

Course Code: MPT361	**Skill Enhancement Course – 3** **MPT- Semester-III** **Clinical Training**	**L-0** **T-0** **P-24** **C-12**
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Analyzing the various clinical conditions, investigations, physical examination, diagnosis and differential diagnosis.	
CO2.	Creating the Evidence Based treatment plan.	
CO3.	Justifying the assessment tools and treatment techniques selected.	
Course Content:		
	Clinical training is a mode through which students apply their classroom knowledge; all formal and practical "real-life" learning experiences and skills clinical environment. Experiences would include those of short and long duration (eg, part-time, full-time, internships) and provide a variety of learning experiences through rotations in different units or departments within the same practice setting or health care system) to include comprehensive care of patients across the life span and related activities. Each student will be under the supervision of a clinical supervisor at clinical education site who shall instruct and supervise students during their clinical posting sessions. Clinical supervisors are responsible for facilitating clinical learning experiences and assessing student's performance in cognitive, psychomotor, and affective domains as related to graduate-level clinical practice and academic and clinical performance expectations. The student shall acquire practical skills mentioned in syllabus for that particular semester during clinical training hours. In each semester, they will be posted for a minimum of four months in the departments related to their courses being learned in respective semesters. The student will be formally evaluated at the end of semester through viva voce examinations by internal and external examiners. **Format for Internal Evaluation of Clinical Training (Master of Physiotherapy Program)** **Name ofcandidate:** **Program:** **Semester:** **Topic ofPresentation:** **Date:**	**336 Hours**

	Parameters	Maximum marks	Obtained marks
1.	Body Language/voice modulation	5	
2.	Knowledge of the Topic/case	5	
3.	Content of the presentation	5	
4.	Confidence & Attitude	5	
5.	Quiz	5	
Tota l		25	

Evaluator:
Name:
Designation:
Department:

Student shall be evaluated in the above mentioned format by the team of faculty members for case presentation. Student should have the copy of this format which should be provided to each member of the team of evaluators during every presentation. The average marks of each cycle shall be considered for final internal assessment out of twenty five under performance during session; ten marks shall be that of attendance, five marks of short case & ten marks of finalviva.

<table>
<tr><td><u>Course Code: MPT362</u></td><td>Skill Enhancement Course-4
MPT- Semester-III
Journal Presentation-III</td><td>L-0
T-0
P-8
C-4</td></tr>
<tr><td>Course Outcomes:</td><td>On completion of the course, the students will be :</td><td></td></tr>
<tr><td>CO1.</td><td>Explaining the current trends in research and methodology</td><td></td></tr>
<tr><td>CO2.</td><td>Understanding the language, methods, context, and analysis that can be used to generate further research.</td><td></td></tr>
<tr><td>CO3.</td><td>Analyzing the research paper and critique it.</td><td></td></tr>
<tr><td>CO4.</td><td>Creating research problems effectively.</td><td></td></tr>
<tr><td>Course Content:</td><td></td><td></td></tr>
<tr><td></td><td>This course comprises of presentation of research articles of journals by the students. The student shall present at least 10 presentations in a semester. The presentation shall be evaluated by two internal examiners and the guide.

<u>Format for Internal Evaluation of Journal Presentation (Master of Physiotherapy Program)</u>

Name ofcandidate:
Program:
Semester:
Title of research article:
Date:

<table>
<tr><th rowspan="2">S.no.</th><th rowspan="2">Details</th><th colspan="3">Marks</th></tr>
<tr><th>Guide (20)</th><th>Internal Examiner- I (40)</th><th>Internal Examiner- II (40)</th></tr>
<tr><td>1.</td><td>Body Language/voice modulation</td><td></td><td></td><td></td></tr>
<tr><td>2.</td><td>Knowledge of the Topic</td><td></td><td></td><td></td></tr>
<tr><td>3.</td><td>Content of the presentation</td><td></td><td></td><td></td></tr>
<tr><td>4.</td><td>Confidence & Attitude</td><td></td><td></td><td></td></tr>
<tr><td>5.</td><td>Quiz</td><td></td><td></td><td></td></tr>
</table>
Evaluator:
Name:
Designation:
Department:
Student shall be evaluated in the above mentioned format by the team of faculty members and the guide. Student should have the copy of this format which should be provided to each member of the team of evaluators during every presentation. The average marks of each cycle shall be considered for final internal assessment.</td><td>112 Hrs.</td></tr>
</table>

Course Code: MPT369	**Research Project Report-1** **MPT- Semester-III** **Research Based Project**	**L-0** **T-0** **P-4** **C-2**
Course Content:		

The project work is aimed to train a postgraduate candidate in research methods and techniques. It includes identification of a problem, formulation of a hypothesis, and review of literature.

The candidate shall submit the synopsis to the ethical committee of the department in the prescribed performa.

PG Guide:

A PG guide must have at-least 5 years of full time teaching and clinical experience in the core subject area after post-graduation. Notwithstanding the above clause in **a** case of acute shortage of qualified postgraduate guides, A PG teacher with 2 years experience after Masters can be considered.

Co-guide:

The co-guide if required shall be a recognized postgraduate teacher in the core area or faculty from other clinical or non- clinical departments of dental, medical, engineering or pharmacy colleges of TMU or any other research laboratory.

No change in the dissertation topic or guide shall be made without prior approval of the university. Guide will be only a facilitator, advisor of the concept and hold responsible in correctly directing the candidate in the methodology and not responsible for the outcome and results.

In the III Semester, post clearance of the synopsis by the ethical committee, student will work on the selected topic of project work, under supervision and guidance of recognized faculty and will submit the same at the end of the semester.

The project report to be submitted should be written under the following headings.

1. Introduction
2. Research Methodology
3. Review ofliterature

This shall be assessed by two examiners (internal examiner and external examiner) appointed by the university.

EVALUATION SCHEME OF RESEARCH BASED PROJECT

S. No.	CRITERIA	INTERNAL EXAMINER (50)	EXTERNAL EXAMINER (50)	REMARKS
1	Introduction			
2	Statement of Problem			
3	Hypothesis formulation			
4	Research Methodology			
5	Review of Literature			

Course Code: MPT410	Ability Enhancement Course – 2 MPT- Semester-IV **Administration & Management**	L-2 T-0 P-0 C-2

Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understandingprinciples of management process, general administration and hospital administration.	
CO2.	Applying the concepts of personnel management, marketing and total quality management, quantitative methods andrelevance of statistical techniques in management.	
CO3.	Applying the concepts & principles of hospital administration and entrepreneurship skills.	
CO4.	Analyzing Physiotherapy Profession and Staff Roles in rural and Urban areas.	
Course Content:		
Unit-1:	**1. Introduction** a. Management process – planning, organization, direction, controlling.Decision-making. b. Quantitative methods of management**:** relevance of statistical and/ or techniquesin management	**3 Hours**
Unit-2:	**1. PersonnelManagement** a. Staffing Recruitment selection, Performance analysis and appraisal,Collective bargaining. b. Job satisfactionDiscipline. **2. Marketing** a. Market segmentation, Channels ofdistribution. b. Promotion, Consumer behavior, marketing research production,planning. c. Pricinglicenser. **3. Total QualityManagement** a. Basis of quality management, quality assurance program inhospitals. b. Medical audit and international qualitysystem.	**7 Hours**
Unit-3:	1. Hospital Administration a. Introduction: Branches of administration, Nature and scope of administration. b. Principles of hospital administration and its applications to physiotherapy. c. Planningand organization: Planning cycle, Principles of organizational charts, Resource and quality management, Planning change –innovation. d. Financial issues including budget and income generation. e. Hospital administration: Organization, Staffing, Information, Communication, Coordination, Cost of services, Monitoring and evaluation. f. Organization of physiotherapy department: Planning, Space, Manpower, Other basic resources. g. Material management: Pharmacy, Hospital waste disposal. h. Quality assurance: Hospital acquired infection, Quality assurance through record review and medical audit. i. Public relations in hospital and human resource management.	**8 Hours**

Unit-4:	**1. Physiotherapy Profession and StaffRoles** a. Physiotherapy: Definition andDevelopment. b. Physiotherapy practice in India and their demands. c. Physiotherapy services in ruraland urbanareas.	**5 Hours**
Unit-5:	**1. Documentation, Assessment &Interpretation:** a. History taking, assessment, tests, Patient communication, documentation offindings, organization and planning/execution forintervention. b. Documentation of rehabilitation assessment and management using International Classification of Functioning Disability and Health(ICF). c. Standardized tests and scales used in various types of cases for assessmentand interpretation in Physiotherapypractice.	**5 Hours**
Text Books:	1. Hospital administration and human resource management by R.C.Goyal, 4th edition.	
Reference Books:	1. Physical Therapy Ethics by Donald L.Gabard, Mike W.Martin, F.A. Davis,2003. 2. Physical Therapy Administration & Management by Hick RobertJ. *** Latest editions of all the suggested books are recommended.**	

Course Code: MPT415	**Discipline Specific Elective Course –9** **Specialization- Cardiorespiratory** **MPT- Semester-IV** **Cardiorespiratory Disorders-II**	**L-4** **T-0** **P-0** **C-4**
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding and applying the special techniques of cardiorespiratory rehabilitation for various populations and conditions.	
CO2.	Analyzing the recent evidences for creating cardiorespiratory rehabilitation of various clinical conditions.	
CO3.	Applying and analyzing patient cardiorespiratory assessment and tools in ICU and in/outpatient department for various techniques of management and community based rehabilitation.	
CO4.	Justifying the selection and use of appropriate assessment tool and management technique.	
Course Content:		
Unit-1:	1. Cardiacrehabilitation: a. Conservative and post-operativemanagement. b. Disease specificapproaches 2. PulmonaryRehabilitation: a. Conservative and post-operativemanagement. b. Disease specificapproaches.	**10 Hours**
Unit-2:	1. Intensive care therapy and itsprinciples: a. Concept and set up, equipment for advanced methods of resuscitation, monitoring andpatient management with: artificial airways, ventilators, pulse oxymeter,defibrillator b. Pharmacological agents used in ICUs - Bronchodilators, cardiac inotropes, vasodilators, antihypertensive c. Knowledge and Principles of the following equipments& technique of application:- d. Endotracheal tubes, Tracheostomy tubes, Humidifiers, Ryle‘s tube, ICD tube, Suctionpumps and suctioning techniques, Oxygen therapy, positioning and early ambulation in ICU e. Physiotherapy management in IPCU, NICU, Emergency trauma care, ICU, CCU,MICU 2. Cardiopulmonary emergencies and itsmanagement: a. Medication, critical care, indications of surgical interventions, stabilization of vitalfunctions b. Cardio-pulmonary resuscitation - Artificial respiration, BLS, ACLS, AHAguidelines c. Cardiac massage, Defibrillators,etc. 3. Inspiratory Muscletraining.	**20 Hours**

Unit-3:	1. Role of drugs used in cardio respiratory conditions and its impact onexercise: 2. Emergency Drugs, Anti Hypertensives, Bronchodialators, Beta 2 agonists,Corticosteroids etc. 3. Physiotherapy in special age groups andpopulations: a. Pediatric cardiopulmonaryphysiotherapy. b. Common cardio-pulmonary conditions in geriatrics and it`s physiotherapymanagement c. Ergonomics in Cardiovascular & Pulmonary Conditions – at industry, sports,occupation, homeetc d. CBR in cardio-vascular and pulmonaryconditions 2. Approach in specificconditions: a. Effects of aerobic, anaerobic exercises on cardiacfunctions. b. Risk factors in cardio pulmonarybypass. c. Cardiopulmonary complications and physiotherapymanagement. d. Prescription of Postoperative preventive lifestyle. e. Physiotherapeutic interventions for relief of pain in cardio-pulmonaryconditions.	**20 Hours**
Unit-4:	1. Recent advances in cardio respiratory disorders	**6 Hours**
Text Books:	1. Chest physiotherapy in intensive care unit by Mackenzie CF Williams and Wilkins. 2. Cardiovascular and Pulmonary physical therapy by Felter D.F. Mosby. 3. Exercise and the heart by Froelicher V.F. Elsevier. 4. Cardiovascular health and disease in women by Douglas PS. Saunders. 5. Acute care handbook for physical therapist b y Jamie C.Paz Michel P. West. Butterworth Heine Mann 6. Physical therapy for children by Campbell Suzann K, W.B Saunders, Philadelphia 7. Chest physiotherapy in Intensive care unit by Mackenzie, Williams & Wilkins. 8. Pulmonary Rehabilitation by John Hodgkin (Elsevier).	
Reference Books:	1. Cardio pulmonary physical therapy by Joanne Watchie 2. Physiotherapy for respiratory and cardiac problems by Pryor JA; Prasad SA,Elsevier 3. Respiratory ca re – A guide to clinical practice by Burton G.G. & Hodgkin 4. Brompton‘s Chest Physiotherapy 5. Clinical application of mechanical ventilation By David W.Chang 6. ECG by P.J.Mehta *** Latest editions of all the suggested books are recommended**.	

Course Code: MPT465	**Discipline Specific Elective Course –10** **Specialization- Cardiorespiratory** **MPT- Semester-III** **Cardiorespiratory Disorders-II (Lab)**	**L-0** **T-0** **P-2** **C-1**
Course Outcomes :	**On completion of the course, the students will be :**	
CO1.	Applying the treatment strategies for cardiorespiratory patient in ICU and otherwise.	
CO2.	Applying the various tools and techniques for intubated, ventilated and hospitalized patient.	
CO3.	Creating the intervention plan and goals for emergency handling of the patient.	
CO4.	Justifying the selection and use of appropriate assessment tool and management technique.	
Course Content:		
	1. Derive patient's treatment protocol based on the guidelines of cardiac and pulmonary rehabilitation. 2. Handling patient's with emergencies. 3. Application of tools and techniques for improving cardiac, pulmonary and vascular integrity and functioning. 4. ICU monitoring of patient's Parameters.	**30 Hours**
Text Books:	1. Chest physiotherapy in intensive care unit by Mackenzie CF Williams and Wilkins. 2. Cardiovascular and Pulmonary physical therapy by Felter D.F. Mosby. 3. Exercise and the heart by Froelicher V.F. Elsevier. 4. Cardiovascular health and disease in women by Douglas PS. Saunders. 5. Acute care handbook for physical therapist b y Jamie C.Paz Michel P. West. Butterworth Heine Mann 6. Physical therapy for children by Campbell Suzann K, W.B Saunders, Philadelphia 7. Chest physiotherapy in Intensive care unit by Mackenzie, Williams & Wilkins. 8. Pulmonary Rehabilitation by John Hodgkin (Elsevier).	
Reference Books:	1. Cardio pulmonary physical therapy by JoanneWatchie 2. Physiotherapy for respiratory and cardiac problems by Pryor JA; PrasadSA,Elsevier 3. Respiratory ca re – A guide to clinical practice by Burton G.G. &Hodgkin 4. Brompton's ChestPhysiotherapy 5. Clinical application of mechanical ventilation By DavidW.Chang 6. ECG byP.J.Mehta *** Latest editions of all the suggested books are recommended.**	

Course Code: MPT416	**Discipline Specific Elective Course – 11** **Specialization- Neurosciences** **MPT- Semester-IV** **Neurological Disorders-II**	**L-4** **T-0** **P-0** **C-4**
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding the use of drugs, community based rehabilitation, geriatric rehabilitation.	
CO2.	Applying the theories of motor control and learning, principles of neuroplasticity.	
CO3.	Analyzing the clinical condition, diagnosis, investigations, disability evaluation, testing and training of assistive devices in the various neurological disorders and tonal abnormalities.	
CO4.	Analyzing and creating Evidence Based prescription and use of various techniques in neurological conditions.	
CO5.	Justifying the selection and use of appropriate assessment tool and management technique.	
Course Content:		
Unit-1:	1. Theories of motor control, learning and its application in physiotherapy. Principles ofbrain plasticity. 2. Pathophysiology and Management of tonal abnormalities (Spasticity, Rigidity,Hypotonia, andDystonia)	**8 Hours**
Unit-2:	Clinical symptomatology, Pathophysiology, Principles of clinical neuro diagnosis, investigation and Medical, Surgical and PT management of the neurological disorders: 1. Pediatric & Neonataldisorders 2. Cognitive & Perceptualdisorders 3. Geneticdisorders 4. Toxic, metabolic and nutritionaldisorders 5. Motor neuronDiseases.	**14 Hours**
Unit-3:	Clinical symptomatology, Pathophysiology, Principles of clinical neuro diagnosis, investigation and Medical, Surgical and PT management of the neurological disorders: 2. Demylinatingneuropathies. 3. NeuromuscularDisorders 4. Movement Disorders 5. A.N.S disorders	**14 Hours**
Unit-4:	1. Assistive devices and Aids & appliances in neurological disorders: Prescriptions, testing and training. 2. Basic knowledge of drugs used for neurological conditions. 3. Hydrotherapy	**10 Hours**

Unit-5:	1. Community based rehabilitation for neurological dysfunction. 2. Disability evaluation and management. 3. Geriatric rehabilitation. 4. Recent Advances in Neurological Rehabilitation.	**10 Hours**
Text Books:	1. Carr& Shepherd – Neurological rehabilitation: optimizing motor performance 2. Motor control Theory and practice: Anne Shumway-cook 3. Neurological Rehabiliation: Umphred, Darcy, A. 4. Motor learning and performance: a situation based approach: Richard R.Scmidtz 5. Physical rehabilitation by Susan B, O' Sullivan, Thomas J. Schmitz. 6. Electrodiagnosis in disease of nerve and muscles by Kimuraj J, F A Davis, Philadelphia. 7. Neurological differential diagnosis – John Patten.	
Reference Books:	1. Functional neuro rehabilitation: Berner, Julie. 2. Stroke Therapy: Fisher, Marc. 3. Patricia Davies – Right in the middle (trunk activity in hemi). 4. Patricia Davies – Steps to follow (comprehensive treatment for hemi). 5. Sydney Sunderland – Nerves and nerve injuries. 6. Neurological Rehabilitation: Taly, A.B. 7. Neuro rehabilitation by Farber, W.B. Saunders. 8. Clinical neurophysiology: U.K.Misra, J.Kalita. 9. Bickerstaff's neurological examination in clinical practice. *** Latest editions of all the suggested books are recommended.**	

Course Code: MPT466	**Discipline Specific Elective Course – 12** **Specialization- Neurosciences** **MPT- Semester-IV** **Neurological Disorders-II (Lab)**	**L-0 T-0 P-2 C-1**
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Analyzing the patient based on the principles for neurological assessment and various clinical tests.	
CO2.	Analyzing and creating an Evidence Based prescription using various neurological approaches for the management of neurological conditions.	
CO3.	Creating the prescription of appropriate orthotic and prosthetic devices for management of neurological dysfunctions.	
CO4.	Justifying the selection and use of appropriate assessment tool and management technique.	
Course Content:		
	1. Administration of neurological assessment tools on patientgroups. 2. Demonstration of various clinical (lab and radiographic) tests performed for neurologicalconditions. 3. Neurological Approaches from various schools of thoughts. 4. Pediatricassessment. 5. Prescription of appropriate orthotic and prosthetic devices for management ofneurological dysfunctions	**30 Hours**
Text Books:	1. Carr& Shepherd – Neurological rehabilitation: optimizing motor performance 2. Motor control Theory and practice: Anne Shumway-cook 3. Neurological Rehabiliation: Umphred, Darcy, A. 4. Motor learning and performance: a situation based approach: Richard R.Scmidtz 5. Physical rehabilitation by Susan B, O‘ Sullivan, Thomas J. Schmitz. 6. Electrodiagnosis in disease of nerve and muscles by Kimuraj J, F A Davis, Philadelphia. 7. Neurological differential diagnosis – John Patten.	
Reference Books:	1. Functional neuro rehabilitation: Berner,Julie. 2. Stroke Therapy: Fisher, Marc. 3. Patricia Davies – Right in the middle (trunk activity inhemi). 4. Patricia Davies – Steps to follow (comprehensive treatment forhemi). 5. Sydney Sunderland – Nerves and nerveinjuries. 6. Neurological Rehabilitation: Taly,A.B. 7. Proprioceptive Neuromuscular Facilitation Knott M & Voss, Harper &Row. 8. Neuro rehabilitation by Farber, W.B.Saunders. 9. Clinical neurophysiology: U.K.Misra,J.Kalita. 10. Bickerstaff‘s neurologicalexamination *** Latest editions of all the suggested books are recommended.**	

Course Code: MPT417	**Discipline Specific Elective Course – 13** **Specialization- Musculoskeletal** **MPT- Semester-IV** **Musculoskeletal Disorders-II**	**L-4** **T-0** **P-0** **C-4**
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding and applying the concepts of functional assessment and rehabilitation of hand function, gait, posture, activities of daily living, occupational work.	
CO2.	Explaining the concepts and principles of variousadvanced therapeutic techniques and exercises.	
CO3.	Applying the concepts of Rehabilitation of hand, locomotor disorders, Community based rehabilitation and use of external aids in musculoskeletaldisorders.	
CO4.	Creating an evidence based rehabilitation plan of care.	
CO5.	Justifying the selection and use of appropriate assessment tool and management technique.	
Course Content:		
Unit-1:	1. Functional assessment (Hand function, Gait, Posture A.D.L; occupational work)	**8 Hours**
Unit-2:	1. Hand Rehabilitation	**10 Hours**
Unit-3:	1. Physiotherapy management of locomotor disorder, principles of medical and surgical aspects, Neurological complications of locomotor disorders. 2. External aids, appliances, adaptive self-help devices; prescription, biomechanical compatibility, check-out and training.	**12 Hours**
Unit-4:	1. Manual therapy: soft tissue manipulations and mobilization, neuralmobilization, 2. Acupressure or accupuncture.(Cyriax, Maitland, Butler, McKenzie, Kaltenborn, Mulligan, Myofascial Release technique, Positional release technique and Muscle Energytechnique). 3. Advanced therapeutic exercises: Isokinetic training, Plyometrics, Aquatic Therapy, Stress testing, Coretraining. 4. Pilates-school of thought, Chiropractic school of thought, Osteopathic school ofthought 5. Joint manipulation – peripheral joints and vertebraljoints. 6. Neuromuscular TapingTechniques	**14 Hours**
Unit-5:	1. Community based rehabilitation in musculoskeletal disorders:IBR vs CBR, role of members of CBR, Environmental modification, vocational rehab. 2. Recent Advances in Musculoskeletal Disorders.	**12 Hours**
Text Books:	1. Clinical Orthopaedic Rehabilitation 2nd ed ,Brotzman S B. 2. Physical Agents In Rehabilitation : From Research To Practice by Cameron	

Reference Books:	1. Apley‘s textbook of orthopedics and fractures by Apley‘s 7th edition B/H publications. 2. Physical Therapy of the Shoulder by Donatelli R. 3. Managing low back pain, Kirkaldy- Willis. *** Latest editions of all the suggested books are recommended**.	

Course Code: MPT467	**Discipline Specific Elective Course – 14** **Specialization- Musculoskeletal** **MPT- Semester-IV** **Musculoskeletal Disorders-II (Lab)**	**L-0** **T-0** **P-2** **C-1**
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Applying and analyzing musculoskeletal assessment tools and clinical tests.	
CO2.	Applying and analyzing assessment and manipulative techniques on patient groups.	
CO3.	Creating a physiotherapy prescription based on the rehabilitation techniques for musculoskeletal dysfunctions and for post-surgical management.	
CO4.	Justifying the selection and use of appropriate assessment tool and management technique.	
Course Content:		
	1. Administration of musculoskeletal assessment tools on patientgroups. 2. Demonstration of various clinical (lab and radiographic) tests performed for musculoskeletalconditions 3. Assessment of Gait, Hand andposture. 4. Manipulation techniques from various schools of thoughts. 5. Post surgical management of various palliative and reconstructive surgeries performedin musculoskeletalconditions. 6. Prescription of appropriate orthotic and prosthetic devices for managementof musculoskeletaldysfunctions.	**30 Hours**
Text Books:	1. Outline of Fractures—John CrawfordAdams. 2. Orthopaedic Physical Assessment by DavidMagee. 3. Outline of Orthopedics — John CrawfordAdams. 4. Orthopaedics – JohnEbenezer. 5. Clinical Orthopaedic Rehabilitation 2nd ed ,Brotzman SB. 6. Physical Agents in Rehabilitation: From Research to Practice byCameron. 7. Measurement in physical therapy – Churchill, Livingstone, London1988. 8. Melzack and Wall: Text book ofpain.	
Reference Books:	1. Apley‘s textbook of orthopedics and fractures by Apley‘s 7th edition B/Hpublications. 2. Orthopaedics: Principles & Their application by Turek‘s. 3. Physical Therapy of the Shoulder by Donatelli R. 4. Managing low back pain, Kirkaldy- Willis *** Latest editions of all the suggested books are recommended.**	

Course Code:	**Discipline Specific Elective Course – 15**	**L-4**

MPT418	Specialization- Sports MPT- Semester-IV **Sport Disorders-II**	T-0 P-0 C-4
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Understanding biomechanical analysis in sports,sports nutrition, medico legal issues, disability screening and various schools of manual therapy.	
CO2.	Applying sports assessment, exercise prescription, rehabilitation protocols for athletes and special groups.	
CO3.	Analyzing principles of injury prevention, common on-field and off-field injuries, athlete psychology and appropriate intervention specific to regional involvement.	
CO4.	Analyzing and creating prescription based on the advancements in sports disorders and appropriate clinical reasoning.	
CO5.	Justifying the selection and use of appropriate assessment tool and management technique.	
Course Content:		
Unit-1:	1. Overview of Principles of biomechanics and biomechanical analysis insports 2. Sports specific biomechanical analysisof: Biomechanics, its uses and application in rowing, throwing, swimming, jumping, running, Football, base ball pitching, cricket, Racquet sports, track and field, volleyball, Rugby, golf, Hockey, aquatic sports, cycling and gymnastics.	**3 Hours**
Unit-2:	1. SportsPsychology **a.** Introduction to SportsPsychology**:** History, definition and scope of sports psychology**,** methods of studying behavior**,** personality and its relevance in sports **b.** Psychology Of SportsInjuries**:** Psychological Aspects Of Sports Injuries, Goal Setting- Principles and importance in sports, Motivation, group behaviors and leadership, precompetitive anxiety and performance c. Psychological Preparation Of EliteAthletes: Concept of psychological preparation, stress, Arousal and Anxiety: effects on sports and intervention strategies-Concentration training, Biofeedback training, Cognitive stress and somatic stress management techniques, Relaxation training.	**7 Hours**
Unit-3:	1. Pre participation and emergency on field evaluation 2. Off field assessment of an athlete 3. Sports health and fitness testing. 4. Disability screening and evaluation 5. Miscellaneous: a. Assessment of trunk muscles dysfunction. b. Evaluation of Swiss ball exercise prescription for orthopaedic problems. c. Assessments of myofascial trigger point-diagnosis, pressure algometry.	**8 Hours**

	d. Functional Assessment in sports.	
Unit-4:	1. Sport rehabilitation for special groups: Females, Paediatric and geriatric athlete. 2. Principles of training and rehabilitation. 3. Principles of injuryprevention. 4. Manual therapy Approaches andinterventions: a. Introduction to manual therapy techniques: Butler**,** Positional release**,** Myofasial release **,** Muscle energyTechniques b. Introduction to joint techniques: Mckenzie**,** Mulligan **,** Maitland**,**Kaltenborn c. Clinical reasoning for application of manual therapy procedures andtechniques.	**5 Hours**
Unit-5:	1. Medicolegal issues in sports. 2. Sports nutrition 3. Sports for Disabled. 4. Recent Advances in sport Disorders.	**5 Hours**
Text Books:	1. Athletic Injuries & Rehabilitation – Zachazewski James E., Magee DavidJ. 2. Zuluaga et al: Sports Physiotherapy, W.B.Saunders. 3. Brukner and Khan: Clinical Sports Medicine, McGrawHill. 4. Reed: Sports Injuries – Assessment and Rehabilitation, W.B.Saunders. 5. A.G. Sinha, Principle and Practices of Therapeutic Massage. Jaypee Brothers,New 6. Mc Ardle, Katch, Katch: Exercise Physiology EditionIV. 7. Therapeutic Exercise by Kisner& Colby, 4th Edition; JaypeePublication 8. Claytons Electrotherapy 10th Ed. – Sarah &Bazin – W.B.Saunders 9. Joint structure and function- Cynthia Norkins, 4th Edition, JaypeePublication 10. Greenman‘s Principles Of Manual Medicine, Lisa A. DeStefano,D.O. 11. Introduction to Sports Biomechanics: Analysing Human MovementPatterns. Roger Bartlett. Routledge; 3rd edition. 2014 12. The Biomechanics of Sports Techniques. James Hay. Benjamin Cummings;4th edition 1993 13. Fundamentals of Biomechanics. Duane Knudson. Springer; 2nd edition2007. 14. Sport and Exercise Biomechanics (BIOS Instant Notes). P.Grimshawand A.Burden. Taylor & Francis; 1 edition (August 11,2006). 15. Clinics in Sports Medicine. Peter Brukner, Karim Khan. McGraw-Hill Medical; 4 edition. 2012 16. Principles and practice of athletic training. William Prentice. Lippincottand Williams.2004. 17. Bompa and Haff. Periodization-5th Edition- Theory and Methodology oftraining.	
Reference Books:	1. Kuprian: Physical Therapy for Sports, W.B.Saunders. 2. Bates: Aquatic Exercise Therapy, W.B.Saunders. 3. Maitland's Vertebral Manipulation. Geoff Maitland, Elly Hengeveld andKevin Banks Butterworth-Heinemann; 7thedition.2005 4. Maitland's Peripheral Manipulation. Elly Hengeveld and Kevin	

Banks.Butterworth- Heinemann; 4th edition2005.
5. Sports Biomechanics: The Basics: Optimizing Human Performance. AnthonyBlazevisch. A&C Black, 2nd Edition edition 2010.
6. Sports Biomechanics: Reducing Injury Risk and Improving Sports Performance.Routledge; 2nd edition. 2011
7. An Introduction to Biomechanics of Sport and Exercise. James Watkins.Churchill Livingstone; 1 edition (August 10, 2007)
8. Basic Biomechanics of the Musculoskeletal System. Margareta Nordin andVictor H.Frankel. LWW; Fourth North American Edition edition. 2012.
9. Apley‘s textbook of orthopedics and fractures by Apley‘s 7th edition B/Hpublications.
10. Orthopaedics: Principles & Their application by Turek‘s.
11. Essentials of Orthopaedics. John Ebenezer. Jaypee Publishers.2006.
12. Orthopaedic Physical Assessment by David Magee.
13. Pathology and Intervention in Musculoskeletal Rehabilitation. Saunders; Har/Cdr edition, 2008.
14. ACSM's Sports Medicine: A Comprehensive Review.Francis.G.O‘Conner. LippincottWilliams & Wilkins; 1st edition, 2012.
15. Athletic Injuries & Rehabilitation – Zachazewski James E., Magee David J.
16. Baechle and Earle. Essentials of Strength training and conditioning, 3rd Ed. Human Kinetics, 2012.
17. NSCA'S Guide to Program Design (Science of Strength and Conditioning). Human Kinetics; 1 edition, 2012.
18. Greenman‘s Principles Of Manual Medicine, Lisa A. DeStefano, D.O.
19. Maitland's Vertebral Manipulation. Geoff Maitland, Elly Hengeveld and Kevin Banks Butterworth-Heinemann; 7th edition.2005
20. Maitland's Peripheral Manipulation. Elly Hengeveld and Kevin Banks. Butterworth- Heinemann; 4th edition 2005.
21. Manual Therapy: NAGS, SNAGS, MWMS, Brian R. Mulligan Orthopedic Physical Therapy Products; 6th edition 2010.
22. Mobilization of Nervous System-David Butler. Churchill Livingstone; 1st edition 1991.
23. Muscle energy technique. Leon Chatow. Churchill Livingstone; 3rd edition 2006.

*** Latest editions of all the suggested books are recommended.**

Course Code: MPT468	**Discipline Specific Elective Course – 16** **Specialization- Sports** **MPT- Semester-IV** **Sport Disorders-II (Lab)**	**L-0** **T-0** **P-2** **C-1**
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Applying the principles of pre-participation evaluation, fitness testing and clearance.	
CO2.	Utilizing performance enhancing strategies on athletic groups.	
CO3.	Analyzing and testing various components of fitness.	
CO4.	Practicing the advanced therapeutic approaches to promote fitness and lessen injuries in athletes.	
CO5.	Justifying the selection and use of appropriate assessment tool and management technique.	
Course Content:		
	1. Administration of Performance enhancing strategies on athletic groups. 2. Pre participation evaluation & pre and post injury assessment in sports. 3. Fitness testing and fitness clearance. 4. Exercise for growing bones. 5. Effect of physical activity intervention in athletes. 6. Latest advancement in sports medicine: segmental stabilization concepts of spine, emergency medical planning & cover for sports events.	**30 Hours**
Text Books:	1. Athletic Injuries & Rehabilitation – Zachazewski James E., Magee David J. 2. Zuluaga et al: Sports Physiotherapy, W.B. Saunders. 3. Brukner and Khan: Clinical Sports Medicine, McGraw Hill. 4. Reed: Sports Injuries – Assessment and Rehabilitation, W.B. Saunders. 5. A.G. Sinha, Principle and Practices of Therapeutic Massage. Jaypee Brothers, New 6. Therapeutic Exercise by Kisner& Colby, 4th Edition; Jaypee Publication 7. Joint structure and function- Cynthia Norkins, 4th Edition, Jaypee Publication 8. Introduction to Sports Biomechanics: Analysing HumanMovement Patterns. Roger Bartlett. Routledge; 3rd edition. 2014 9. The Biomechanics of Sports Techniques. James Hay. Benjamin Cummings; 4th edition 1993 10. Clinics in Sports Medicine. Peter Brukner, Karim Khan. McGraw-Hill Medical; 4 edition. 2012 11. Principles and practice of athletic training. William Prentice. Lippincott and Williams.2004. 12. Bompa and Haff. Periodization-5th Edition- Theory and Methodology of training.	
Reference Books:	1. Kuprian: Physical Therapy for Sports, W.B.Saunders. 2. Bates: Aquatic Exercise Therapy, W.B.Saunders. 3. Sports Biomechanics: The Basics: Optimizing Human Performance.	

	AnthonyBlazevisch. A&C Black, 2nd Edition2010. 4. Sports Biomechanics: Reducing Injury Risk and Improving SportsPerformance.Routledge; 2nd edition.2011 5. An Introduction to Biomechanics of Sport and Exercise. James Watkins. Churchill Livingstone; 1 edition (August 10,2007) 6. Basic Biomechanics of the Musculoskeletal System. Margareta Nordin and Victor H.Frankel. LWW; Fourth North American Edition edition.2012. 7. Apley‘s textbook of orthopedics and fractures by Apley‘s 7th edition B/Hpublications. 8. Essentials of Orthopaedics. John Ebenezer. JaypeePublishers.2006. 9. Orthopaedic Physical Assessment by DavidMagee. 10. ACSM's Sports Medicine: A Comprehensive Review.Francis.G.O‘Conner.LippincottWilliams & Wilkins; 1st edition, 2012. 11. Athletic Injuries & Rehabilitation – Zachazewski James E., Magee DavidJ. 12. Baechle and Earle. Essentials of Strength training and conditioning, 3rd Ed.Human Kinetics,2012. 13. NSCA'S Guide to Program Design (Science of Strength and Conditioning). Human Kinetics; 1 edition,2012. *** Latest editions of all the suggested books are recommended.**	

Course Code: MPT461	Skill Enhancement Course – 5 MPT- Semester-IV **Clinical Training**	L-0 T-0 P-24 C-12
Course Outcomes:	**On completion of the course, the students will be :**	
CO1.	Identifying the research problem.	
CO2.	Applying the appropriate research methodology and statistical analysis.	
CO3.	Analyzing the various clinical conditions, investigations, physical examination, diagnosis and differential diagnosis.	
CO4.	Creating the Evidence Based treatment plan.	
Course Content:		
	Clinical training is a mode through which students apply their classroom knowledge; all formal and practical "real-life" learning experiences and skills clinical environment. Experiences would include those of short and long duration (eg, part-time, full-time, internships) and provide a variety of learning experiences through rotations in different units or departments within the same practice setting or health care system) to include comprehensive care of patients across the life span and related activities. Each student will be under the supervision of a clinical supervisor at clinical education site who shall instruct and supervise students during their clinical posting sessions. Clinical supervisors are responsible for facilitating clinical learning experiences and assessing student's performance in cognitive, psychomotor, and affective domains as related to graduate-level clinical practice and academic and clinical performance expectations. The student shall acquire practical skills mentioned in syllabus for that particular semester during clinical training hours. In each semester, they will be posted for a minimum of four months in the departments related to their courses being learned in respective semesters. The student will be formally evaluated at the end of semester through viva voce examinations by internal and external examiners.	**336 Hours**

Format for Internal Evaluation of Clinical Training (Master of Physiotherapy Program)

Name ofcandidate:

Program:

Semester:

Topic ofPresentation:

Date:

	Parameters	Maximum marks	Obtained marks
1.	Body Language/voice modulation	5	
2.	Knowledge of the Topic/case	5	
3.	Content of the presentation	5	
4.	Confidence & Attitude	5	
5.	Quiz	5	
Tota l		25	

Evaluator:
Name:
Designation:
Department:

Student shall be evaluated in the above mentioned format by the team of faculty members for case presentation. Student should have the copy of this format which should be provided to each member of the team of evaluators during every presentation. The average marks of each cycle shall be considered for final internal assessment out of twenty five under performance during session; ten marks shall be that of attendance, five marks of short case & ten marks of finalviva.

<table>
<tr><td><u>Course Code: MPT462</u></td><td>Skill Enhancement Course-6
MPT- Semester-IV
Journal Presentation-IV</td><td>L-0
T-0
P-8
C-4</td></tr>
<tr><td>Course Outcomes:</td><td>On completion of the course, the students will be :</td><td></td></tr>
<tr><td>CO1.</td><td>Explaining the current trends in research and methodology</td><td></td></tr>
<tr><td>CO2.</td><td>Understanding the language, methods, context, and analysis that can be used to generate further research.</td><td></td></tr>
<tr><td>CO3.</td><td>Analyzing the research paper and critique it.</td><td></td></tr>
<tr><td>CO4.</td><td>Creating research problems effectively.</td><td></td></tr>
<tr><td>Course Content:</td><td></td><td></td></tr>
<tr><td></td><td>This course comprises of presentation of research articles of journals by the students. The student shall present at least 10 presentations in a semester. The presentation shall be evaluated by two internal examiners and the guide.

<u>Format for Internal Evaluation of Journal Presentation (Master of Physiotherapy Program)</u>

Name ofcandidate:
Program:
Semester:
Title of research article:
Date:

<table>
<tr><th rowspan="2">S.no.</th><th rowspan="2">Details</th><th colspan="3">Marks</th></tr>
<tr><th>Guide (20)</th><th>Internal Examiner-I (40)</th><th>Internal Examiner-II (40)</th></tr>
<tr><td>1.</td><td>Body Language/voice modulation</td><td></td><td></td><td></td></tr>
<tr><td>2.</td><td>Knowledge of the Topic</td><td></td><td></td><td></td></tr>
<tr><td>3.</td><td>Content of the presentation</td><td></td><td></td><td></td></tr>
<tr><td>4.</td><td>Confidence & Attitude</td><td></td><td></td><td></td></tr>
<tr><td>5.</td><td>Quiz</td><td></td><td></td><td></td></tr>
</table>
Evaluator:
Name:
Designation:
Department:
Student shall be evaluated in the above mentioned format by the team of faculty members and the guide. Student should have the copy of this format which should be provided to each member of the team of evaluators during every presentation. The average marks of each cycle shall be considered for final internal assessment.</td><td>112 Hrs.</td></tr>
</table>

Course Code: MPT469	Research Project Report-2 MPT- Semester-IV **Dissertation**	L-0 T-0 P-8 C-4
Course Content :		
	The dissertation is aimed to train a postgraduate student in research methods and techniques. It includes identification of a problem, formulation of a hypothesis search and review of literature getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, and comparison of results and drawing conclusions. No change in the dissertation topic or guide shall be made without prior approval of the university. Guide will be only a facilitator, advisor of the concept and hold responsible in correctly directing the candidate in the methodology and not responsible for the outcome and results. In the IV semester, candidate will work further on the project work report, under supervision and guidance of recognized faculty and will submit the same at the end of the year. He/she shall complete the data collection, data analysis and conclude the results. The dissertation should be written under the following headings. 1. Introduction 2. Aims or objectives of study 3. Review ofliterature 4. Research Methodology 5. Results 6. Discussion 7. Conclusion 8. References 9. Appendices The written text of dissertation shall not be less than 50 pages and shall not exceed 150 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. Spiral bindingshould 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 Registrar (Evaluation), on or before the dates notified by the university. Candidates who fail to submit their dissertation on or before the stipulated date shall not be permitted to appear for the final year examination. This shall be assessed by two examiners (internal examiner and external examiner)	

atleast. The dissertation shall be valued by examiners appointed by the university. Approved dissertation work is an essential precondition for a candidate to appear in the University examination.

EVALUATION SCHEME FOR DISSERTATION

S.No.	CRITERIA	INTERNAL EXAMINER (50)	EXTERNAL EXAMINER (50)	REMARKS
1	Statement of Problem			
2	Literature Review			
3	Research Design			
4	Sampling Design			
5	Data Collection Procedure			
6	Analysis of Data & Interpretation			
7	Ethical Aspects			
8	Interpretation of the finding			
9	Conclusion			
10	Presentation/Report writing			

Instructions to Candidates

Consider the following requirements for meeting the standards.

Paper

Use only one side of high-quality, plain white (unlined in any way) bond paper, minimum 20-lb weight, and 8-1/2 ‖ x 11 ‖ in size. Erasable paper should not be used.

Type Size and Print

Select fonts type Times New Roman and size of 10 to 12 characters. The size of the titles should be 14 and Bold, the size of subtitles should be 12 and bold. Print should be letter quality or laser (not dot matrix) printing with dark black characters that are consistently clear and dense. Use the same type of print and print size throughout the document.

Pagination

Number all of the pages of your document, including not only the principal text, but also all plates, tables, diagrams, maps, and so on. Roman numerals are used on the preliminary pages (pages up

to the first page of text) and Arabic numerals are used on the text pages. The numbers themselves can be placed anywhere on the page, however they should be consistent.

Spacing

Use double spacing except for long quotations, footnotes, and endnotes, which are single spaced.

Margins

To allow for binding, the left-hand margin must be 1.5 ‖. Other margins should be 1.0 ‖. Diagrams, photographs, or facsimiles in any form should be a standard page size, or if larger, folded so that a free left-hand margin of 1.5 ‖ remains and the folded sheet is not larger than the standard page.

Photographs

Professional quality black-and-white photographs are necessary for clear reproduction. Colours are allowed, but you should ascertain that the coloured figure will copy clearly

File Format

Thesis or Dissertations format should be in .Doc (MS Word Document) or PDF (Portable Document Format), Image files in JPG or TIFF format and Audio Visual in AVI (Audio video Interleave), GIF, MPEG (Moving Picture Expert) files format

TEERTHANKER MAHAVEER UNIVERSITY

<----------Title---------->

<----------Subtitle---------->

by

<--Name of the Candidate--->

Dissertation Submitted to the

Department of Physiotherapy, Moradabad, Uttar Pradesh

In partial fulfilment of the requirements for the degree of

MASTER OF PHYSIOTHERAPY

in

<elective course>

Under the guidanceof

< ---Name of the Guide--- >

Department ofPhysiotherapy

Moradabad

<--Year-->

DECLARATION BY THE CANDIDATE

I hereby declare that this dissertation/thesis entitled —<----------Title----------> " is a bonafide and genuine research work carried out by me under the guidance of <-- Name & designation of the Guide--- >.

Date: Signature of theCandidate

Place: Name:

CERTIFICATE BY THE GUIDE

This is to certify that the dissertation entitled —<----------Title----------> "is a bonafide research work done by Name of the Candidate in partial fulfillment of the requirement for the degree of MPT.

Date: Signature of theGuide

Place: Name

Designation & Department

ENDORSEMENT BYTHEHOD, PRINCIPAL/HEAD OFTHE INSTITUTION

This isto certify that the dissertation entitled —<----------Title----------
------>"is a bonafide research work done by Name of the Candidate under the guidance of Name & designation of the Guide.

Seal & Signatureof the Principal	Seal & Signature ofthe HOD
Name:	Name:
Date:	Date:
Place:	Place:

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Declaration by the Candidate

I hereby declare that the TeerthankerMahaveer University, Moradabad shall have the rights to preserve, use and disseminate this dissertation / thesis in print or electronic format for academic / research purpose.

Date:	Signature of theCandidate
Place:	Name:

ACKNOWLEDGMENT

Not lengthy. Avoid Superlatives.

Date: Signature of theCandidate

Place: Name

LIST OF ABBREVIATIONS USED

(In alphabetical order)

ABSTRACT

(Max. 200-300 words)

Background & Objectives

Methods

Results

Interpretation & Conclusion

Keywords

(Max. 10)

Keywords shall be chosen from MeSH (Medical Subject Headings)

(Each keyword should be separated by semicolon)

TABLE OF CONTENTS

LIST OF TABLES

Sl.No **TablesPages**

LIST OF FIGURES

Sl.No **FiguresPages**

1. INTRODUCTION

2. OBJECTIVES

3. REVIEW OF LITERATURE

4. METHODOLOGY

5. RESULTS

6. DISCUSSION

7. CONCLUSION

8. SUMMARY

9. BIBLIOGRAPHIC REFERENCES

(Vancouver Format)

Reference list at end ofpaper

References should be numbered consecutively in the order in which they are first mentioned in the text;

they should not be listed alphabetically by author or title or put in date order.

Printed publications

Book

Example:

a. Neal MJ. Medical pharmacology at a glance. Oxford: Blackwell Scientific;1987.
b. Rinsgiven MK, Bond D. Gerontology and leadership skills for nurses. 2nd ed. Albany(NY): Delmar Publishers;1996.

Note: Where there are more than six authors list the first six names, followed by et al. (and others).

Government publication/Corporateauthor

Example:

c. Department of Health. Saving lives: our healthier nation. London: Stationery Office;1999 (Cm 4386).
d. Institute of Medicine (US). Looking at the future of the Medicaid program. Washington:The Institute;1992.

Report

Example:

a. Confidential enquiries into stillbirths and deaths in infancy. 5th Report. London: Stationery Office;1998.
b. Chief Medical Officer's Committee on Medical Aspects of Food. Nutritional aspects ofthe development of cancer. London: Stationery Office; 1998. (Department of Health report on health and social subjects48.)

Conference paper in publishedproceedings

Example:

a. Bengtsson S, Solheim BG. Enforcement of data protection, privacy and security inmedical informatics. In: Lun KC, Degoulet P, Piemme TE, Rienhoff O, editors. MEDINFO92.
b. Proceedings of the 7th World Congress on Medical Informatics; 1992 Sep 6-10;Geneva, Switzerland. Amsterdam: North-Holland; 1992.p.1561-5

Journalarticle

Example:

a. You CH, Lee KY, Chey YW, Menguy R. Electrogastrographic study of patients with unexplained nausea, bloating and vomiting. Gastroenterology1980;79:311-4.
b. Vega KJ, Pina I, Krevsky B. Heart transplantation is associated with an increased risk for pancreatobiliary disease. Ann Intern Med 1996 Jun 1;124(11):980-3.
c. Parkin DM, Clayton D, Black RJ, Masuyer E, Friedl HP, Ivanov E, et al. Childhood leukaemia in Europe after Chernobyl: 5 year follow-up. Br J Cancer1996;73:1006-12.
d. Cancer in South Africa [editorial]. S Afr MEd J1994;84:15.

Note:

a. Journal titles which are just a single word are notabbreviated.
b. The titles of other journals should be abbreviated according to the style used in Index Medicus. Consult the List of Journals Indexed in Index Medicus, published in theJanuary issue of Index Medicus. The list can also be obtained through the NLM=s website (http://www.nlm.nih.gov).

Newspaperarticle

Example:

e. *Lee G. Hospitalizations tied to ozone pollution: study estimates 50,000 admissionsannually. The Washington Post 1996 Jun 21; Sect. A:3 (col.5).*

Electronic media

Individual works

Example:

a. CDI, clinical dermatology illustrated [monograph on CD-ROM]. Reeves JRT,Maibach H. CMEA Multimedia Group, 2nd ed. Version 2.0. San Diego: CMEA; 1995.

Journalarticle

Example:

Morse SS. Factors in the emergence of infectious diseases. Emerg Infect Dis [serial online]1995 Jan-Mar [cited 1996 Jun 5];1(1):[24 screens]. Available from: URL: http://www.cdc.gov/ncidod/EID/eid.htm

Computer File

Example:

a. Hemodynamics III: the ups and downs of hemodynamics [computer program]. Version 2.2.Orlando (FL): Computerized Educational Systems; 1993.Website (Including the accessdate)

10. ANNEXURE