



Course Name: Laws, Ethics & Administration and Educational Methodology (LEM)

Year: MPT 1

Course Code: MPT101

Prerequisite: Learners should possess foundational knowledge of physiotherapy practice, professional ethics, healthcare systems, research methodology, and basic teaching–learning principles acquired during undergraduate physiotherapy education.

Rationale: This course is designed to develop advanced competencies in ethical decision-making, legal and professional responsibilities, healthcare management, educational methodology, communication, and leadership skills essential for effective clinical practice, research, administration, teaching, and entrepreneurship in physiotherapy.

Course Objective:

At the end of the course, the learner should be able to,

Sr. No	Course Objective	Mapped CO
1	To develop understanding of legal principles, ethical guidelines, research ethics frameworks, and laws governing physiotherapy practice	CO1
2	To impart knowledge of professional ethics, informed consent, confidentiality, and ethical responsibilities in physiotherapy practice and research	CO2
3	To enable application of management principles, communication skills, quality assurance, and administrative practices in physiotherapy services	CO3
4	To facilitate analytical understanding of educational principles, learning theories, and teaching–learning processes in physiotherapy education	CO4
5	To develop analytical skills in teaching methodologies, curriculum planning, assessment strategies, and professional development in physiotherapy practice	CO5

Teaching and Examination Scheme

Teaching Scheme					Examination Scheme					Total
Lecture Hrs./Week	Tutorial Hrs./Week	Lab Hrs./Week	Seminar Hrs./Week	Credit	Internal Marks			External Marks		
					T	CE	P	T	P	
2	-	-	-	6	-	-	-	100	-	100

T - Theory, P– Practical

Course Content:

Sr. No	Unit	Sub-unit	Content	Weightage (%)	Teaching Hours	CO
1	Unit 1: ETHICS AND LAW	1.1	Principles of ethics History and evolution of ethics - Helsinki declaration; Nuremberg Code; Principles of ethics and its importance - Autonomy, Beneficence, Nonmaleficence, Justice	4	4	CO1
2		1.2	Professionalism	3	2	CO1
3		1.3	Ethics in professional practice Principles of practice in respective profession. Privacy, confidentiality, shared decision making, informed consent, equality and equity, justice	4	4	CO1
4		1.4	ICMR Guidelines General principles, Responsible conduct of research, Risk benefit assessment	4	4	CO1
5		1.5	Informed Consent Process Components of informed consent document, Procedure in obtaining informed consent, Special situations, waivers, and proxy consent	5	4	CO1
6		1.6	Roles and Responsibilities of IEC Ethical Review process, Classification of projects for review, Roles and responsibilities of members, Communications with investigators and authorities	5	4	CO2
7		1.7	Ethics in Special and Vulnerable Populations Types of Vulnerability and vulnerable population, Challenges for research in vulnerable population, Guidelines for research in special and vulnerable population	4	4	CO2
8		1.8	Conflict of Interest Definition and Types of Conflict of Interest, Identifying, mitigating and managing Conflict of Interest, Conflicts of interest in international collaborations	4	3	CO2
9		1.9	Publication Ethics Importance of publishing, Authorship guidelines according to ICMJE, Plagiarism	4	3	CO2
10		1.10	Laws governing Physiotherapy practice: NCAHP Act, Consumer Protection Act, Rights of persons with disability act Ethical issues in practice of Physiotherapy-Clinical, Research and Academics	5	4	CO2, CO4
11	Unit 2: Management and	2.1	Principles and applications of Management and Administration to Physio Therapy practice	5	4	CO3



12	administr ation in Physiothe rapy	2.2	Management PROCESS: planning, organizing, staffing, finance, marketing, controlling, directing	6	6	CO3
13		2.3	Quality assurance: Total Quality Management: basis of quality management, quality assurance program in hospitals, medical audit and international quality system.	5	5	CO3
14		2.4	COMMUNICATION: Process of Communication Barriers to Communication Types of Communication Written vs. Oral Communication Elements of good communication	5	5	CO3,C O5
15		2.5	Hospital as an organization: functions and types of hospitals MANAGEMENT IN HOSPITAL Setting of a physiotherapy service unit	5	5	CO3,C O4
16	Unit 3: Managem ent of Teaching Instituti on and Education al Methodol ogy In Physiothe rapy	3.1	Education: definition, aims and objectives of education, Agencies of education, Formal and informal education, brief introduction to the philosophies of education, taxonomy of educational objectives, essentials of Physiotherapy education, NEP	5	5	CO4
17		3.2	Basics of Adult Learning Theories including Learning Styles and Motivation	5	4	CO4
18		3.3	Concept of teaching – learning - nature of learning, type and stages of learning, factors affecting learning, laws of learning, learning style teaching learning process, role of teacher in teaching learning process, adult learning	6	5	CO4, CO5
19		3.4	Teaching skills, Teaching Methods in Classroom Setting, clinical teaching methods, planning of teaching: lesson planning and unit planning Teaching aids and educational technology	5	5	CO5
20		3.5	Formulating Intended Learning Outcomes Including Tyler’s principles, Bloom's Taxonomy, Miller's Pyramid, Clinical Competence, and Dreyfus' Model of Skill Acquisition	6	6	CO5
21		3.6	Entrepreneurship in Physiotherapy Practice: Need, Advantages and Opportunities,	5	4	CO5
TOTAL				100%	90	-



Course Outcome

At the end of the course, the learner should be able to,

CO1	Describe fundamental legal principles, ethical guidelines, research ethics frameworks (ICMR), and laws governing physiotherapy practice
CO2	Explain professional ethics, informed consent, confidentiality, and ethical responsibilities in physiotherapy practice and research
CO3	Discuss principles of management, communication, quality assurance, and administration in physiotherapy services
CO4	Explain educational principles, learning theories, and teaching–learning processes relevant to physiotherapy education
CO5	Describe teaching methodologies, curriculum planning, assessment frameworks, and professional development in physiotherapy practice



Course Name: Research methodology and Biostatistics and Evidence based practice (RMB)

Year: MPT 1

Course Code: MPT102

Prerequisite: Learners should possess foundational knowledge of research principles, basic statistics, scientific writing, and undergraduate-level evidence-based physiotherapy practice.

Rationale: This course is designed to equip postgraduate physiotherapy students with advanced competencies in research methodology, biostatistics, evidence-based practice, critical appraisal, and scientific communication necessary for conducting, interpreting, and translating research into clinical and academic practice.

Course Objective:

At the end of the course, the learner should be able to,

Sr. No	Course Objective	Mapped CO
1	To explain the basic concepts of research methodology including types of research, research questions, and different study designs used in rehabilitation research.	CO1
2	To develop understanding of sources of bias, research reporting, evaluation of published research, authorship roles, research communication, and principles of evidence-based practice including formulation of clinical questions, use of guidelines, and translation of evidence into physiotherapy practice.	CO2
3	To explain the principles of sampling, measurement, outcome measures, and basic statistical concepts used in research.	CO3
4	To describe statistical tests, interpretation of data, and use of statistical software in research analysis.	CO4
5	To explain the principles of scientific writing including research reports, publication, citation styles, thesis preparation, and presentation of research work.	CO5

Teaching and Examination Scheme

Teaching Scheme					Examination Scheme					Total
Lecture	Tutorial	Lab	Seminar	Credit	Internal Marks			External Marks		
Hrs./Week	Hrs./Week	Hrs./Week	Hrs./Week		T	CE	P	T	P	
2	-	-	-	6	-	-	-	100	-	100

T - Theory, P- Practical



Course Content:

Sr. No	Unit	Sub-unit	Content	Weightage	Teaching Hours	CO
1	Unit 1 - RESEARCH METHODOLOGY	1.1	Introduction to research	2	2	CO1
2		1.2	Types of research	2	2	CO1
3		1.3	Defining a research question	2	2	CO1
4		1.4	Qualitative study designs	2	2	CO1
5		1.5	Quantitative study	2	2	CO1
6		1.6	Type I and type II bias	2	2	CO2
7		1.7	Study design: types	2	2	CO1
8		1.8	Case study, Case series, longitudinal cohort, Pre post design, Time series design, repeated measures design, Randomized control design.	5	4	CO1
9		1.9	Sampling design, calculating minimum sample size based on design	3	3	CO3
10		1.10	Measurement: Properties of measurement: reliability, validity, responsiveness, MCID.	2	2	CO3
11		1.11	Outcome measures: Use of outcome measures in rehabilitation research	2	2	CO3
12		1.12	Research Methods: Designing methodology, Reporting results, Type I and Type II bias.	2	2	CO2,CO3
13		1.13	Communicating research.	2	1	CO2,CO5
14		1.14	Evaluating published research: looking at the evidence	2	2	CO2
15		1.15	Introduction to evidence-based practice, evaluating evidence	2	2	CO2
16		1.16	Asking clinical questions	2	1	CO2
17		1.17	Translating of evidence into practice: strategies	2	2	CO2
18		1.18	Use of clinical practice guidelines, clinical pathways, prediction rules to inform practice.	2	1	CO2
19	Unit 2 - BIOSTATISTICS	2.1	Descriptive Statistics and measurement variability	3	3	CO3
20		2.2	Inferential Statistics	3	3	CO3
21		2.3	Comparison of group means: T-test	3	3	CO4
22		2.4	Analysis of variance	3	3	CO4
23		2.5	Multiple comparison tests	2	2	CO4
24		2.6	Parametric and Non parametric tests	3	3	CO3,CO4
25		2.7	Correlations	2	2	CO4
26		2.8	Regression	3	3	CO4
27		2.9	Analysis of frequencies: Chi square	2	2	CO4
28		2.10	Statistical measure of validity and reliability	2	2	CO3,CO4
29		2.11	Factorial Design analysis	2	2	CO4



30		2.12	Power analysis – Determining sample size, Epidemiological Measures – Rate, Ratio, Proportion, Incidence and prevalence, Relative risk, Risk ratio, Odds ratio	5	4	CO3,CO4
31		2.13	Application of various statistical software.	2	2	CO4
32	Unit 3 - SCIENTIFIC WRITING	3.1	Definition and kinds of scientific documents – Research paper, Review paper, Book, Reviews, Thesis, Conference and project reports (for the scientific community and for funding agencies).	5	4	CO5
33		3.2	Publication – Role of author, Guide, Co-authors.	3	3	CO2,CO5
34		3.3	Structure, Style and contents; Style manuals (APA, MLA); Citation styles: Footnotes, References; Evaluation of research	5	4	CO5
35		3.4	Significance of Report writing; Different steps in Report writing; Mechanics and precautions of writing research reports Oral and poster presentation of research papers in conferences/symposia; Preparation of abstracts.	7	5	CO5
36		3.5	Structure of Thesis and Content – Preparing Abstracts.	5	4	CO5
TOTAL				100%	90	-

Course Outcome

At the end of the course, the learner should be able to,

CO1	Explain the basic concepts of research methodology including types of research, research questions, qualitative and quantitative designs, study designs, and methods used in rehabilitation research.
CO2	Describe the sources of bias, principles of research reporting, and evaluation of published research, along with the roles of authors and co-authors, communication of research findings, and the principles of evidence-based practice, including formulation of clinical questions, use of guidelines, and translation of evidence into physiotherapy practice.
CO3	Explain the principles of measurement, sampling, outcome measures, descriptive and inferential statistics, and epidemiological concepts used in research.
CO4	Describe statistical tests, data analysis methods, interpretation of results, and use of statistical software in research.
CO5	Explain the principles of scientific writing including research documentation, publication process, citation styles, report writing, thesis preparation, and presentation of research.



Course Name: Biomechanics & Therapeutics (BCT)

Year: MPT 1

Course Code: MPT103

Prerequisite: Learners should possess foundational knowledge of human anatomy, physiology, kinesiology, exercise therapy, electrotherapy, and basic physiotherapy assessment and treatment principles acquired during undergraduate physiotherapy education.

Rationale: This course is designed to develop advanced understanding of biomechanics, movement analysis, therapeutic exercise techniques, electrodiagnostic procedures, and physiotherapy interventions to enhance clinical reasoning, functional rehabilitation, evidence-based practice, and patient-centered care in physiotherapy.

Course Objective:

At the end of the course, the learner should be able to,

Sr. No	Course Objective	Mapped CO
1	To develop understanding of principles of kinesiology, biomechanics, tissue mechanics, kinetics, kinematics, biomechanical analysis of human motion, analytical tools and instrumentation, and biomechanics of the upper extremity in physiotherapy	CO1
2	To provide knowledge of biomechanics of the lower extremity, gait, gait analysis, and pathological gait in physiotherapy practice	CO2
3	To enable understanding of principles of therapeutic exercises including dynamic, plyometric, isokinetic, kinetic chain exercises, balance and coordination training, tissue response to mechanical loading, and functional assessment and re-education	CO3
4	To develop understanding of biomechanics of the spine, ergonomic principles, clinical reasoning approaches, manual therapy concepts, electrodiagnosis, electromyography, nerve conduction studies, evoked potentials, and biofeedback used in physiotherapy evaluation	CO4
5	To impart knowledge of physiotherapy modalities including hydrotherapy, yoga, thermal agents, electrotherapy (low and high frequency currents, TENS, IFT, LASER), advanced electrotherapeutics, and wound care in physiotherapy practice	CO5

Teaching and Examination Scheme

Teaching Scheme					Examination Scheme					Total
Lecture	Tutorial	Lab	Seminar	Credit	Internal Marks			External Marks		
Hrs./Week	Hrs./Week	Hrs./Week	Hrs./Week		T	CE	P	T	P	
2	-	-	-	6	-	-	-	100	-	100

T - Theory, P- Practical

Course Content:

Sr. No	Unit	Sub-unit	Content	Weightage	Teaching Hours	CO
1	Unit 1 - Concepts of Biomechanics	1.1	Introduction to Kinesiology and Biomechanics. Biomechanics of Tissues and structures of the musculoskeletal system	2	2	CO1
2		1.2	Principle of Biomechanics	3	2	CO1
3		1.3	Nature and importance of Biomechanics in Physiotherapy.	1	1	CO1
4		1.4	Methods of kinetics and kinematics investigation	2	2	CO1
5		1.5	Introduction to biomechanical analysis of human motion.	2	2	CO1
6		1.6	Analytical tools and techniques –1. Isokinetic Dynamometer,2. Kinesiological EMG,3. Electronic Goniometer,4. Force Platform,5. Videography.	3	3	CO1
7		1.7	Upper Extremity: Shoulder and Shoulder girdle, Elbow joint, Wrist joint and Hand.	10	7	CO1
8		1.8	Lower Extremity: Pelvic Girdle, Hip joint, Knee joint, Ankle & Foot	10	6	CO2
9		1.9	Spine	5	4	CO4
10		1.10	Gait	3	3	CO2
11		1.11	Gait Analysis: Kinetic & Kinematic Analysis.	3	3	CO2
12		1.12	Pathological Gait: Kinetic & Kinematic Analysis	3	3	CO2
13		1.13	Ergonomic approach to lifting and handling, workspace and environment. Patient positioning, body mechanics and Transfer techniques	3	3	CO4
14	Unit 2 - Physiotherapy techniques	2.1	Principle of therapeutic exercises	2	2	CO3
15		2.2	Definition, details of effects and uses of following exercises.	1	1	CO3
16		2.3	Dynamic Exercises	2	2	CO3
17		2.4	Plyometric Exercises	1	1	CO3
18		2.5	Isokinetic Exercises	2	2	CO3
19		2.6	Kinetic chain exercises	2	2	CO3
20		2.7	Balance and coordination exercises	2	2	CO3
21		2.8	Biophysics of contractile and non-contractile tissues, Response to mechanical loading	2	2	CO3
22		2.9	Clinical reasoning and differential clinical diagnosis based on various approaches such as Maitland, Kaltenborne, Cyriax, Mulligan, McKenzie etc.	4	3	CO4
23		2.10	Proprioceptive neuromuscular Facilitation,	2	2	CO3, CO4
24		2.11	Hydrotherapy Techniques	2	2	CO5
25		2.12	Functional assessment and re-education	2	2	CO3

26	2.13	Yoga: Introduction, Historical background and Origin of Yoga, Meaning and Concept of Yoga and its relationship with Physical Education and Sports, Yoga in Global Scenario, Pranayama: Meaning, Types and its importance. Asanas: Asanas- meaning, types, principles, Techniques of asanas and effects of asanas on various systems of the body - circulatory, respiratory and digestive system.	2	2	CO5
27	2.14	Electro diagnosis: introduction to methods of electro diagnosis SD CURVE	2	2	CO4
28	2.15	Electromyography: technique of EMG, interpretation of normal and abnormal responses	2	2	CO4
29	2.16	Nerve conduction studies: MNCV, SNCV, variables affecting nerve conduction, measurement of NCV of nerves of upper limb and lower limb, interpretations of normal and abnormal responses.	3	3	CO4
30	2.17	Evoked potentials, H-reflex, P wave, repetitive nerve stimulation, VEP, BAEP, SSEP, SSR.	2	2	CO4
31	2.18	Review of Principles underlying the application of following modalities with reference to their Production, biophysical and therapeutic effects, indications and contraindications and the specific uses of: 1. Superficial heating modalities, 2. Deep heating modalities, 3. Ultrasound, 4. Cryotherapy	3	3	CO5
32	2.19	Review of Principles underlying the application of following modalities with reference to their Production, biophysical and therapeutic effects, indications and contraindications and the specific uses of Physiotherapy	2	2	CO5
33	2.20	Low Frequency Current: Diadynamic Current, Iontophoresis	2	2	CO5
34	2.21	High Voltage, Pulsed Galvanic Stimulation, TENS, IFT, Russian Currents. LASER	3	3	CO5
35	2.22	Advanced Electro Therapeutics in Tissue healing, Wound care, Management of Scars, keloids, Muscle Plasticity & Integumentary Conditions.	3	3	CO5
36	2.23	Bio-Feedback	2	2	CO4, CO5
TOTAL			100%	90	-



Course Outcome

At the end of the course, the learner should be able to,

CO1	Explain the principles of kinesiology, biomechanics, tissue mechanics, kinetics, kinematics, biomechanical analysis of human motion, analytical tools and instrumentation, and biomechanics of the upper extremity in physiotherapy.
CO2	Describe the biomechanics of lower extremity, gait, gait analysis, and pathological gait in physiotherapy practice.
CO3	Explain the principles of therapeutic exercises including dynamic, plyometric, isokinetic, kinetic chain exercises, balance and coordination training, tissue response to mechanical loading, and functional assessment and re-education.
CO4	Describe the biomechanics of the spine, ergonomic principles, clinical reasoning approaches, manual therapy concepts, electrodiagnosis, electromyography, nerve conduction studies, evoked potentials, and biofeedback used in physiotherapy evaluation.
CO5	Explain the application of physiotherapy modalities including hydrotherapy, yoga, thermal agents, electrotherapy (low and high frequency currents, TENS, IFT, LASER), advanced electrotherapeutics, and wound care in physiotherapy practice.



Course Name: Clinical, Physical and Functional diagnosis in Neuro-physiotherapy (NCPFD)

Year: MPT 1

Course Code: MPTN104

Prerequisite: Learners should possess foundational knowledge of neuroanatomy, neurophysiology, kinesiology, pathology, clinical neurology, and basic physiotherapy assessment and rehabilitation principles acquired during undergraduate physiotherapy education.

Rationale: This course is designed to develop advanced competencies in neurological assessment, differential diagnosis, clinical decision-making, outcome measurement, electrophysiological interpretation, gait and movement analysis, and functional evaluation to support evidence-based neurophysiotherapy practice and rehabilitation planning.

Course Objective:

At the end of the course, the learner should be able to,

Sr. No	Course Objective	Mapped CO
1	To explain the clinical signs, symptoms, neurological examination methods, and special investigations used in the diagnosis of neurological conditions.	CO1
2	To describe the principles of clinical reasoning and differential diagnosis for identifying neurological disorders based on patient presentation.	CO2
3	To identify normal and abnormal anatomical structures using diagnostic imaging and electrophysiological investigations in neurological conditions.	CO3
4	To discuss the effect of common and serious neurological disorders on physiotherapy assessment, functional ability, and rehabilitation planning.	CO4
5	To demonstrate skills in functional evaluation, outcome measurement, disability assessment, gait and posture analysis, balance testing, and diagnostic procedures used in neuro-physiotherapy.	CO5

Teaching and Examination Scheme

Teaching Scheme					Examination Scheme					Total	
Lecture Hrs./Week	Tutorial Hrs./Week	Lab Hrs./Week	Seminar Hrs./Week	Credit	Internal Marks			External Marks			
					T	CE	P	T	P		
3	-	3	-	12	-	-	-	100	-	100	

T - Theory, P- Practical


Course Content:

Sr. No	Unit	Sub-unit	Content	Weightage	Teaching Hours	CO
1	Unit 1	1.1	ICF conceptual frame work	3	7	CO2
2		1.2	Importance of assessment & evaluation, Outlines of principles and Methods of evaluation	3	7	CO1
3		1.3	Need and types of Documentation	3	7	CO4
4		1.4	Critical decision making and selection of outcome measures in Musculoskeletal Physiotherapy	5	12	CO2
5		1.5	Assessment, differential diagnosis and diagnosis of various Neurology conditions	7	18	CO1,CO2
6		1.6	Associated functional disturbances of higher function and their testing	5	12	CO1
7		1.7	Outcome measures used in Neuro-physiotherapy-for Cognitive impairment and disability, Focal disabilities, Global measures of disability, Motor impairment, ADL and extended ADL tests, Person with Disabilities and quality of life, Multiple Sclerosis, Parkinson 's disease, Stroke, Head injury, Spinal cord injury, Pain scales	6	14	CO2,CO5
8		1.8	Clinical analysis of posture, movement and gait, use of gait analyzer	6	14	CO5
9		1.9	Principles, Techniques and interpretation of Pathological investigations and diagnostic imaging (CT, MRI, Ultra sound, PET, fMRI, bone scan and other diagnostic imaging) for diagnosis of neurological conditions.	7	18	CO1,CO3
10		1.10	Clinical examination and detection of movement dysfunction	3	7	CO1,CO2
11		1.11	Evaluation of ANS dysfunction with reference to Psycho physiological testing	3	7	CO1
12		1.12	Motor control assessment, reflexes and automatic reactions	5	12	CO1,CO2
13		1.13	Neurodevelopment assessment	5	12	CO1
14	Unit 2	2.1	Assessment of Hand Function	3	7	CO5
15		2.2	Voluntary control assessment	3	7	CO5
16		2.3	Neuropsychological tests	3	7	CO1



17	2.4	Electrophysiological assessment devices – Instrumentation, Characteristics and components EMG (Qualitative and Quantitative EMG), NCV, Conventional Methods, RNS, EPS, EEG related to neurological disorders with interpretation.	7	18	CO1,CO5
18	2.5	Physical disability evaluation and disability diagnosis	3	7	CO1,CO2
19	2.6	Assessment of progressive locomotor disorder- Neuropathic, myopathic and NMJ conditions	3	7	CO1,CO2
20	2.7	Assessment and scales for diagnosis of pain	3	7	CO1,CO2
21	2.8	Biomarkers specific to neurological disorders	3	7	CO1
22	2.9	Assessment of Emotional Intelligence	3	7	CO1
23	2.10	Assessment of Peripheral nerve injuries and Cranial nerve disorders.	3	7	CO1,CO2
24	2.11	Neurophysiology and evaluation of Balance and Coordination	3	7	CO1,CO5
25	2.12	Assessment of Physical and Neurological Functions of Patients in ICU.	2	5	CO1,CO4
TOTAL			100	240	-

Course Outcome

At the end of the course, the learner should be able to,

CO1	Elicit and interpret clinical signs and symptoms of diseases commonly seen in Neurology medicine & interpret clinical tests and special investigations commonly used in the diagnosis of these conditions.
CO2	Generate a primary physical diagnosis and a list of differential diagnoses consistent with typical presentations.
CO3	Identify normal & pathological anatomy on diagnostic images.
CO4	Discuss how the serious and common disorders and the specialized areas of medical practice may impact on Neurological physiotherapy practice.
CO5	Demonstrate a broad range of technical skill in diagnosing the physiotherapy related neurology conditions.