

# **STUDY & EVALUATION SCHEME**

**OF**

## **MASTER OF PHYSIOTHERAPY**

**(MPT-I YEAR/ I SEMESTER)**

**[Applicable w.e.f. Academic Session 2021-22 till revised]**



**INTEGRAL UNIVERSITY, LUCKNOW**

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**Syllabus approved by Board of Study, Faculty Board, Academic Council, Executive Council of the Integral University, Lucknow**

**STUDY & EVALUATION SCHEME**  
**MASTER OF PHYSIOTHERAPY (MPT)**  
**(w.e.f. July 2019)**

**I - Year**

**I - Semester**

S. No.	Subject Code	Name of Subjects	Periods			Credits	Evaluation Scheme				Subject Total
			L	T	P		Sessional		Exam		
							CT	TA		Total	
1.	PT 501	Basic Health Sciences	3	1	0	4	25	15	40	60	100
2.	PT 502	Advanced Electrotherapy and Electrodiagnosis	3	1	0	4	25	15	40	60	100
3.	PT 503	Research Methodology, Biostatistics	3	1	0	4	25	15	40	60	100
4.	PT 504	Exercise Testing & Prescription	3	1	0	4	25	15	40	60	100
5.	PT 505	Seminar on Clinical Issues	0	3	0	3	50	50	100	--	100
6.	PT 506	Clinical Training	0	0	14	7	50	50	100	--	100
<b>Total</b>			<b>12</b>	<b>07</b>	<b>14</b>	<b>26</b>	<b>200</b>	<b>160</b>	<b>360</b>	<b>240</b>	<b>600</b>

**L:** Lecture

**T:** Tutorials

**P:** Practical

**CT:** Class Test

**TA:** Teacher Assessment

**ESE:** End Semester Examination

**Sessional Total:** Class Test + Teacher Assessment

**Subject Total:** Sessional Total + End Semester Examination (ESE)

**SUBJECT NAME: BASIC HEALTH SCIENCES**  
**SUBJECT CODE: PT 501**  
**(W.e.f. July 2021)**

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**3 1 0**

**UNIT-I ANATOMY:**

**(8 Hours)**

1. Bone & Cartilage
2. Muscles, Tendons & ligaments
3. An outline of Vascular System
4. An outline of nervous System

**UNIT-II PHYSIOLOGY:**

**(8 Hours)**

1. Cell and its function.
2. Physiology of Edema
3. Basic Muscle Physiology.
4. Effects of ageing on various system of human body.

**UNIT-III PATHOLOGY:**

**(8 Hours)**

1. Infection & Inflammation.
2. Response to trauma & Tissue healing.
3. Tuberculosis
4. Rheumatism.

**UNIT-IV PHARMACOLOGY:**

**(8 Hours)**

1. NSAIDs & Muscle relaxant
2. Anti-Hypertensive
3. Anti diabetics
4. Vitamins & minerals Supplements.

**UNIT-V RADIOLOGY:**

**(8 Hours)**

- Basics of Imaging Techniques in different conditions
1. Colour Doppler
  2. X-rays & CT Scan
  3. MRI scanning
  4. Bone Scan & DMD
  5. DEXA Scan

**RECOMMENDED BOOKS:**

1. Gray's Anatomy
2. Pharmacology in Rehabilitation. Ciccone
3. Clinical Anatomy – Snell
4. Boyd's Textbook of Pathology – A.C. Ritchie
5. Textbook of Medical Physiology - Guyton - Mosby.
6. Pathologic Basis of Diseases - Robbins, Kotran and Kumar - W.B. Saunders.

**SUBJECT NAME: ADVANCED ELECTROTHERAPY AND ELECTRODIAGNOSIS**  
**SUBJECT CODE: PT 502**  
**(W.e.f. July 2015)**

**L T P**  
**3 1 0**

**UNIT-I:**

1. Neurophysiology basis for application of therapeutic electricity. **(2 hour)**
  - a) Nerve and muscle excitation induced by external applied stimulation
  - b) Reflex activation and synaptic transmission, Excitation of alpha motor neurons
2. Electrophysiology of pain and its management **(3hour)**
3. Electrodiagnostic and electrotherapeutic instrumentation **(3 hour)**
  - a) Types of stimulation electrodes, Placement of electrodes
  - b) Different components in diagnostic equipments e.g. processor, amplifiers, processors, rectifiers and display devices.
  - c) Signal processor and amplification and filtering.

**UNIT-II:**

1. Recent advances in application of TENS for neuromuscular and musculoskeletal rehabilitation. **(2hours)**
2. Role of different electrotherapeutic modalities in management of pain and healing. **(3hours)**
3. Clinical decision making in the use of appropriate modality in neuromuscular, musculoskeletal, Neurological, cardiopulmonary, and sports conditions. **(3hour)**

**UNIT-III:**

1. Electrical evaluation of nerve and muscle excitability **(4 Hours)**
  - a) SD curve and chronaxie test.
  - b) Nerve conduction test Motor nerve conduction-
    - Motor nerve conduction, Sensory nerve conduction, H-reflex response, Evoked potential tests (Somatosensory evoked potentials, Visual evoked potentials and Auditory evoked potentials)
2. Electromyography and bio-feed back **(4 Hours)**
  - a) Biophysical principles, Clinical considerations, Clinical application of musculoskeletal patients, Clinical application of neuromuscular patients.
  - b) Role of E.M.G.B.F.B in sports training and rehabilitation.
  - c) EMG- Normal, abnormal EMG and indications.

**UNIT-IV:**

1. Extracorporeal Shock Wave Therapy **(3hours)**
  - a) Biophysical and Biophysiological principals
  - b) clinical application in musculoskeletal rehabilitation
  - c) Future prospects of E.S.W.T. in musculoskeletal rehabilitation
2. F.E.S. in Rehabilitation **(2Hours)**

- a) Evidence based practice
  - b) Clinical application
3. NMES and clinical applications: **(3hour)**
- Disuse atrophy, ROM, Muscle re-education and facilitation, Spasticity management, Orthotic substitution, Gait training, Shoulder subluxation.

**UNIT-V:**

**(8hours)**

Recent advances, critical evaluation and current status of different electrotherapeutic modalities like pulsed and continuous diathermy, pulsed and continuous microwave diathermy, Ultrasonic Therapy, LASER, Thermotherapy, Cryotherapy, Infra Red, etc. In musculoskeletal, neuromuscular, sports and cardiovascular rehabilitation.

**RECOMMENDED BOOKS:**

1. Electrodiagnosis in Diseases of Nerve and Muscle: Principles and Practice. Kimura J
2. Electrotherapy: Evidenced based Therapy by Sheila Kitchen
3. Clinical Electrotherapy & Electrophysiological Testing by Andrew J Robinson
4. Electrotherapy/; Evidenced based practice by Tim Watson
5. Physical Agents in Rehabilitation - Cameron
6. Practical Electrotherapy, John Fox; Elsevier

**SUBJECT NAME: RESEARCH METHODOLOGY AND BIostatISTICS**

**SUBJECT CODE: PT 503**

**(W.e.f. July 2015)**

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**RESEARCH METHODOLOGY**

**UNIT-I: (8Hour)**

1. An introduction to research methodology.
2. Defining the research problem.
3. Review of literature/use of IT & Database for ROL.
4. Research Design—Experimental & Non-experimental.
5. Measurement and scaling techniques.
6. Methods of data collection.
7. Sampling.
8. Level of evidence.

**UNIT-II: (8hour)**

1. Research ethics.
2. Writing proposal, & Writing in scientific style.
3. Use of animals in research.
4. Critiquing article.
5. Choosing & Developing Research question.
6. Presenting research Proposal.
7. Applying for research funding.

**UNIT-III: (8Hour)**

1. Writing thesis & journal article.
2. Presenting research.
3. Attending a scientific conference.
4. Preparing a conference poster .
5. Guidelines for development/ refinement, evaluation and use of assessment tools (including attitude scales): scoring, administering tests & critiquing tools.
6. Research in rehabilitation.

**BIostatISTICS**

**UNIT-IV: (8Hour)**

1. Types of data, collection, representation, measure of central tendency, variation, and association.
2. Processing and analysis of data and Interpretation.
3. Testing of hypothesis (parametric or standard tests of hypotheses, non parametric or distribution-free tests).
4. Statistical analysis for differences and correlation: Basic, Advanced special technique.
5. Analysis of variance and covariance.
6. Multivariate analysis techniques.

**UNIT-V:****(8Hour)**

1. Sample size estimation and power calculation.
2. Qualitative analysis.
3. Rasch analysis.
4. Software use for data analysis – STATA, SPSS etc.
5. Repertory grid analysis and its application to health care research.
6. Delphi technique (to arrive at a consensus of professional opinion on any given topic).

**RECOMMENDED BOOKS:**

1. Handbook of Research in Physical Therapy, by C. E. Bork
2. Physical Therapy Research: Principles and Application, by E. Domholdt
3. Research Methodology for Physical Therapists, by C. Hicks
4. Professionalism in Physical Therapy by Swisher
5. Introduction to Research in Health Sciences, by Stephen Polgar

**SUBJECT CODE: PT 504**  
**(w.e.f. July 2015)**

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**UNIT-I LIFESTYLE FACTORS ASSOCIATED WITH HEALTH AND DISEASE:**

**(8 Hours)**

1. Factors associated with increased risk of Coronary Heart Disease.
2. General overview of Pre-participation Health screening and risk assessment,
3. Physical Activity Assessment
4. Relationship of Nutrition to Chronic Diseases
5. Assessment of Dietary Intake
6. The Influence of Emotional Distress on Chronic Illness

**UNIT-II PHYSICAL FITNESS, CLINICAL, AND DIAGNOSTIC ASSESSMENTS:**

**(8 Hours)**

1. Body Composition
2. Muscular Fitness
3. Clinical Exercise Testing related to Cardiovascular Disease.
4. Assessment and Limitations Associated with Pulmonary Disease
5. Exercise Testing in Patients with Diabetes
6. Clinical Exercise Testing in Individuals with Disabilities Due to Neuromuscular Disorders

**UNIT-III Exercise Prescription, Exercise Programming and Adaptations to**

**Exercise Training:**

**(8 Hours)**

1. Cardiopulmonary Adaptations to Exercise.
2. Adaptations to Resistance Training.
3. Principles of Cardiorespiratory Endurance Programming.
4. Principles of Musculoskeletal Exercise Programming.
5. Weight Management.
6. Medical Considerations.

**UNIT-IV EXERCISE TESTING AND TRAINING FOR INDIVIDUALS WITH CHRONIC DISEASE:**

**(8 Hours)**

1. Exercise Training in Patients with Cardiovascular Disease.
2. Treatment and Rehabilitation of Pulmonary Diseases
3. Exercise in patients with end stage Renal Disease.
4. Osteoporosis and Exercise.
5. Arthritis Diseases and Conditions
6. Neuromuscular Diseases and Exercise.

**UNIT-V HUMAN BEHAVIOURAL PRINCIPLES APPLIED TO PHYSICAL ACTIVITY:**

**(8 Hours)**

1. Principles of Health Behaviour Change
2. Channels for Delivering Behavioral Programs
3. Factors Associated with Regular Physical Activity Participation
4. Behavioral Strategies to Enhance Physical Activity Participation
5. Health Counselling Skills



**UNIT-V EXERCISE PROGRAM ADMINISTRATION:****(8 Hours)**

1. The Exercise Program Professional and Related Staff.
2. Health and Fitness Program Development and Operation.
3. Clinical Exercise Program Development and Operations.
4. Policies and Procedures for Program Safety and Compliance
5. Legal Considerations

**RECOMMENDED BOOKS:**

1. Exercise Testing & Prescription by David C. Neiman, Mc. Graw Hill.
2. Exercise training and exercise prescription for special cases. Theoretical basis and clinical application by James A. Skinner, Lippincott Williams and Wilkins

**SUBJECT CODE: PT 505  
(W.e.f. July 2015)**

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These will serve as a platform for students to integrate various components of patient management and debate contentious issues in the efficacy of Physiotherapy techniques used in musculoskeletal, neurological, cardiopulmonary, & Sports rehabilitation. Students will present on topics provided to them.

**CHECK LIST FOR EVALUATION OF SEMINAR PRESENTATIONS**

**Name of the students:**

**Date:**

**Topic:**

**Marks: 50**

<b>S. No.</b>	<b>Item for observation during presentation</b>	<b>Poor (0)</b>	<b>Below Average (1)</b>	<b>Average (2)</b>	<b>Good (3)</b>	<b>Very Good (4)</b>	<b>Excellent (5)</b>
1.	Introduction						
2.	Review of Literature						
3.	Recent Development						
4.	Clarity of presentation						
5.	Understanding of subject						
6.	Ability to answer the questions						
7.	Time management						
8.	Appropriate use of audio/ visual aids						
9.	Overall performance						
10.	Any other observations						
	TOTAL						

Comments:

**Name signature of the faculty/observer:**

**HOD  
Department of Physiotherapy**

**SUBJECT NAME: CLINICAL TRAINING**

**SUBJECT CODE: PT 506  
(W.e.f. July 2015)**

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Students will engage in clinical practice in Physiotherapy departments in the musculoskeletal, neurology, cardiopulmonary, sports settings to enhance their clinical skills and apply contemporary knowledge gained during teaching sessions.

**MODEL CHECKLIST FOR EVALUATION OF CLINICAL TRAINING**

**Name of Student:**

**Month:**

**Name of Faculty/ Supervisor:**

**Date:**

S. No	Point to be Considered	Poor (0)	Below Average (1)	Average (2)	Good (3)	Very Good (4)	Excellent (5)
1.	Punctuality						
2.	Interaction with colleagues and supporting staff						
3.	Maintenance of case records						
4.	Presentation of case during rounds						
5.	Investigation work up						
6.	Bedside Manners						
7.	Rapport with patients						
8.	Treatment approach & technique						
9.	Discipline						
10.	Overall quality of clinical work						
	<b>TOTAL SCORE</b>						

Comments:

**Signature of Faculty/ Supervisor**

**HOD  
Department of Physiotherapy**