

**STUDY & EVALUATION SCHEME  
OF  
BACHELOR OF PHYSIOTHERAPY**

**(BPT IV Year/ VII Semester)**

**[Applicable w.e.f Academic Session 2015-16 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**  
**BACHELOR OF PHYSIOTHERAPY (BPT)**  
**(w.e.f. July 2015)**

**IV - Year**

**VII - Semester**

S. No.	Subject Code	Subject Title	Periods per week			Credits	Evaluation Scheme				Subject Total
			L	T	P		Sessional			Exam	
							CT	TA	Total	ESE	
1.	PT 401	Orthopedics Physiotherapy - I	3	1	0	4	25	15	40	60	100
2.	PT 402	Neuro Physiotherapy	3	1	0	4	25	15	40	60	100
3.	PT 403	Cardiopulmonary Physiotherapy	3	1	0	4	25	15	40	60	100
4.	PT 404	Research & Biostatistics in Physiotherapy	2	1	0	3	25	15	40	60	100
5.	PT 405	Orthopedics Physiotherapy - I Lab	0	0	2	1	30	30	60	40	100
6.	PT 406	Neuro Physiotherapy - Lab	0	0	2	1	30	30	60	40	100
7.	PT 407	Cardiopulmonary Physiotherapy -Lab	0	0	2	1	30	30	60	40	100
8.	PT 408	Seminar on Clinical Issues	0	2	0	2	25	25	50	--	50
9.	PT 409	Clinical Training	0	0	10	5	25	25	50	--	50
<b>Total</b>			<b>11</b>	<b>6</b>	<b>16</b>	<b>25</b>	<b>240</b>	<b>200</b>	<b>440</b>	<b>360</b>	<b>800</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: ORTHOPAEDICS PHYSIOTHERAPY-I**

**SUBJECT CODE: PT 401**

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

**L T P  
3 1 0**

## **COURSE OBJECTIVES:**

This course is formulated on the "Problem based" method. At the end of the course, the candidate will:

1. Be able to identify, discuss & analyze, the general orthopaedic condition and musculoskeletal trauma in terms of Biomechanical, Kinesiology & Biophysical basis & correlate the same with the provisional diagnosis, routine radiological & Electrophysiological investigations & arrive at appropriate Functional diagnosis with clinical reasoning.
2. Be able to plan & Prescribe as well as acquire the skill of executing short & long term Physiotherapy treatment by selecting appropriate modes of Mobilization / Manipulations, Electro-Therapy, Therapeutic exercise & appropriate Ergonomic advise for the relief of pain, restoration / Maintenance of function & rehabilitation for maximum functional independence in A.D.L. at home & work place.

## **COURSE DESCRIPTION:**

This course involves a description of the assessment and management of patients with General Orthopaedic condition and Traumatology on the basis of functional diagnosis according to ICF model.

### **UNIT-I: PHYSIOTHERAPY APPROACH IN UPPER LIMB TRAUMA:**

**8 Hours**

1. Basic concepts of physiotherapy management in different stages of soft tissue lesion.
2. Effects of therapeutic modalities in various traumatic conditions.
3. Physiotherapy assessment and management of upper limb fractures during immobilization and mobilization phase.
4. Physiotherapy assessment and management of upper limb dislocations and soft tissue. injury during immobilization and mobilization phase.

### **UNIT-II: PHYSIOTHERAPY APPROACH IN LOWER LIMB AND SPINE TRAUMA:**

**8 Hours**

1. Physiotherapy assessment and management of lower limb fractures during immobilization and mobilization phase.
2. Physiotherapy assessment and management of lower limb dislocations during. Immobilization and mobilization phase.
3. Physiotherapy assessment and management of lower limb soft tissue injuries.
4. Physiotherapy assessment and management of spine and pelvis fracture during. Immobilization and mobilization phase.

### **UNIT-III: PHYSIOTHERAPY APPROACH TOWARDS ORTHOPAEDICSURGERIES:**

**8 Hours**

1. Arthroplasty and Arthroscopy.

2. Osteotomy, Arthrodesis and Bone Grafting.
3. Muscle tendon and nerve surgeries.
4. Spinal Surgeries.

#### **UNIT-IV: PHYSIOTHERAPY IN AMPUTATION**

**8 Hours**

1. Pre and post operative assessment and Goals of management.
2. Level of amputation of upper limb and lower limb.
3. Stump care, Bandaging, Pre and post prosthetic management.
4. Complication of amputation and their management.

#### **UNIT-V: PHYSIOTHERAPY IN BONE AND JOINT INFECTION AND BONE TUMORS**

**8 Hours**

1. Physiotherapy assessment and management of bone infection on the basis of physical and functional diagnosis.
2. Physiotherapy assessment and management of joint infection on the basis of physical and functional diagnosis.
3. Physiotherapy assessment and management of bone tumors on the basis of physical and functional diagnosis.

#### **STUDENT LEARNING OUTCOMES/OBJECTIVES:**

At the end of the course the students will learn about Physiotherapy assessment & management of various traumatic orthopaedic conditions.

#### **RECOMMENDED BOOKS:**

1. Cash Text books of Orthopaedics and Rheumatology for physiotherapist Jaypee Publication.
2. Tidy's Physiotherapy thirteenth edition by Stuart B.Porter.
3. Neuromusculoskeletal Examination and assessment fourth edition by Nicola J. Petty Churchill Livingstone.
4. Therapeutic Exercise fifth edition by Carolyn Kisner F.A Davis Company Philadelphia.
5. Physical Rehabilitation Sixth edition by Susan B. O'sullivan Davis Plus.
6. Orthopaedic physical assessment third and fifth Edition by David J Magee.
7. Essential Orthopaedics third Edition by Maheshwari Mehta publishers.
8. Outline of fractures eleventh Edition by Adams and Hamblen Churchill Livingstone.
9. Muscles testing and function with posture and pain fifth Edition by F. Peterson Kendall.

#### **REFERENCE BOOKS:**

1. Apley system of musculoskeletal and fractures ninth edition by Jouis Solomon Arnold publication
2. Clinical Orthopaedic Rehabilitation third Edition by S Brotzman, R Manske Elsevier
3. Rehabilitation for the Post surgical Orthopaedic patient by Lisa Maxey, Jin Magnusson Elseveir
4. Trauma management: An emergency medicine approach Ferrera Colucciello, BMJ publication

**SUBJECT: NEUROPHYSIOTHERAPY**  
**SUBJECT CODE: PT 402**  
**(W.e.f. July 2015)**

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

**COURSE OBJECTIVES:**

The student will be able to conduct a safe and effective rehabilitation program with advance rehabilitation techniques on the patient with neurological conditions.

**COURSE DESCRIPTION:**

This course involves a description of the assessment and management of patients with neurological conditions.

**UNIT-I: BRIEF INTRODUCTION OF FOLLOWING NEURO-REHABILITATIVE TECHNIQUES    8 hours**

1. Motor control & Motor Learning
2. NDT (Bobath approach)
3. Neuroplasticity
4. MRP

**UNIT-II: PHYSIOTHERAPY IN PEADIATRIC CONDITIONS:**

**6 hours**

1. **CEREBRAL PALSY**
  - a. Definition of cerebral palsy, its etiology, classification, and clinical presentation.
  - b. PT assessment and management of cerebral palsy.
2. **MUSCULAR DYSTROPHY**
  - a. Definition of muscular dystrophy, its etiology, classification, and clinical presentation.
  - b. PT assessment and management of muscular dystrophy.

**UNIT-III: PHYSIOTHERAPY IN CVA & INFECTIOUS CONDITIONS:**

**10 hours**

1. **Cerebrovascular Accident (CVA)**
  - a. Review of brain anatomy.
  - b. Definition of stroke, its classification, risk factor and clinical presentation.
  - c. PT assessment & management of stroke.
  - d. Brief discussion about juvenile stroke & lacunar stroke.
2. **MENINGITIS, ENCEPHALITIS**
  - a. Definition, etiology, classification, and clinical presentation.
  - b. PT assessment and management.

### 3. **POLIOMYELITIS**

- a. Definition of poliomyelitis its etiology, stages, and clinical presentation.
- b. PT assessment and management of poliomyelitis.
- c. Post polio residual paralysis (PPRP) & its management.

## **UNIT-IV: PHYSIOTHERAPY IN DEGENERATIVE & DEMYELINATING CONDITIONS:**

**8 hours**

### 1. **PARKINSON DISEASE**

- a. Definition of Parkinson disease, its etiology, classification, and clinical presentation.
- b. PT assessment and management of Parkinson disease.

### 2. **ATAXIA**

- a. Definition of ataxia & its etiology, types, and clinical presentation.
- b. PT assessment and management of ataxia.

### 3. **GBS (Guillain – Barre syndrome)**

- a. Definition of GBS & its etiology, types, and clinical presentation.
- b. PT assessment and management of GBS.

## **UNIT-V PHYSIOTHERAPY IN TRAUMATIC CONDITIONS:**

**8 hours**

### 1. **SPINAL CORD INJURY (SCI)**

- a. Definition of SCI, its mechanism of injury, classification, and clinical presentation.
- b. PT assessment and management of SCI.

### 2. **PERIPHERAL NERVE INJURY (PNI)**

- a. Definition of PNI its mechanism of injury, classification, and clinical presentation.
- b. PT assessment and management of PNI.

## **RECOMMENDED BOOKS:**

1. Physical rehabilitation – Susan O` Sullivan, 5<sup>th</sup> edition
2. Neurological Rehabilitation – D. A. Umphred, 6<sup>th</sup> edition
3. Physical medicine and rehabilitation – Braddom, 3<sup>rd</sup> edition
4. Cash`s Text Book For Physiotherapists In Neurological Disorders – 4<sup>th</sup> edition
5. The neurological examination – De Myer`s, 6<sup>th</sup> edition
6. Neurological differential diagnosis – John Patten, 2<sup>nd</sup> edition
7. Practical Physical Therapy – Margaret Hollis, 3<sup>rd</sup> edition
8. Neurological Physiotherapy – by Edward Susan, 2<sup>nd</sup> edition
9. Adult Hemiplegia – Evaluation and Treatment – Batra & Bobath, 3<sup>rd</sup> edition
10. Orthopaedic Physical Assessment – Devid J Magee, 5<sup>th</sup> edition

**SUBJECT: CARDIOPULMONARY PHYSIOTHERAPY**  
**SUBJECT CODE: PT 403**  
**(w.e.f. July 2015)**

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

**COURSE OBJECTIVE:**

The student will be able to conduct a safe and effective treatment of patient with cardiopulmonary conditions

**COURSE DESCRIPTION:**

This course involves a description of the assessment and treatment of patients with cardiopulmonary conditions, training of the various techniques involved in Cardiopulmonary Physiotherapy, and orientation to ICU/critical care.

**UNIT I - REVIEW THE REGIONAL ANATOMY AND PHYSIOLOGY OF THORAX AND RESPIRATORY**

**TRACT**

**8 Hours**

1. Anatomy of heart and its functions
2. Anatomy of lungs and its functions
3. Mechanics of respiration
4. Lung volumes and lung capacities
5. Coronary and Pulmonary circulation.

**UNIT II - PHYSICAL ASSESSMENT IN CARDIORESPIRATORY DYSFUNCTION:**

**8 Hours**

1. **Inspection:**
  - a. Assessment of Cardio-Vascular and Respiratory system.
  - b. Breathing pattern (rate, rhythm, use of accessory muscles),
  - c. Chest deformity (Barrel chest, pigeon chest), Spinal deformity (scoliosis, kyphosis, kyphoscoliosis),
  - d. Sputum (color, types), Cough (types, productive/non-productive).
2. **Palpation:**
  - a. Tactile and vocal fremitus, mobility of thoracic spine and rib cage.
  - b. Percussion: Dullness and hyper resonance.
  - c. Auscultation: Normal and abnormal breath sounds.
3. **Measurement and Investigation**
  - a. Chest expansion at different levels (auxiliary), nipple, xiphoid);
  - b. Exercise tolerance test .
  - c. ABG analysis, ECG, PFT and radio-diagnosis.

**UNIT III-GENERAL AND INTENSIVE CARE PHYSIOTHERAPY:****8 Hours**

1. Postural drainage
2. Mechanical ventilation : IPPB, PEEP, CPAP, Bi-PAP, SIMV
3. Aerosol Therapy, Humidifiers and nebulizer
4. **Principles of intensive care therapy. Knowledge of the equipments and monitoring**
  - (a) Endotracheal tubes, tracheostomy tubes, suction pump
  - (b) (b) Vitals monitoring
5. **General Physiotherapy Management**
  - (a) Positioning: Prone, sidelying, long sitting, upright or standing
  - (b) Airway Clearance techniques: ACBT and Autogenic Drainage

**UNIT IV- PHYSIOTHERAPY IN OBSTRUCTIVE AND RESTRICTIVE LUNG DISEASES:****8 Hours**

1. **Physiotherapy techniques to decrease work of breathing**
  - a. Energy Conservation
  - b. Breathing re-education – Breathing control techniques
  - c. Graduated exercise programme and posture correction.
  - d. Mechanical aids –Incentive Spirometry, PEP Devices
2. **Physiotherapy techniques to increase lung volume**
  - a. Chest mobility exercises
  - b. Neuro-physiological Facilitation of Respiration
  - c. Mechanical aids –Incentive Spirometry, IPPB

**UNIT V- PHYSIOTHERAPY AFTER PULMONARY AND CARDIAC SURGERY****8 Hours**

1. Breathing exercises, huffing and coughing,
2. arm exercises, ankle foot exercises,
3. trunk exercises, posture correction
4. Pulmonary Rehabilitation
5. Cardiac Rehabilitation

**RECOMMENDED BOOKS:**

1. Cash`s Text Book For Physiotherapists In Chest, Heart & Vascular Diseases, Publisher: Mosby
2. Cardiovascular And Pulmonary Physical Therapy Evidence to Practice: Donna Frownfelter, Elsevier
3. Physiotherapy For Respiratory and Cardiac Problems: Jennifer & Ammani, Churchill Livingstone/Elsevier.
4. Clinical Application of Mechanical Ventilation, CENGAGE Learning.



**SUBJECT: RESEARCH & BIostatISTICS IN PHYSIOTHERAPY**  
**SUBJECT CODE: PT 404**  
**(w.e.f. July 2015)**

**L T P**  
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**COURSE OBJECTIVE:**

This course will introduce to the student the basic research methodology to acquire skills to review literature selection of research strategy, formulate problems, research writing and publishing.

**LEARNING OUTCOMES:** At the end of the year the student will be able:

- a. To know the basics of research and biostatistics in Physiotherapy and its application.
- b. To know the various tools, software's and its usage towards research.
- c. To prepare a research proposal.

**UNIT I: INTRODUCTION OF RESEARCH METHODOLOGY:**

**5 Hours**

- a. Introduction to Research methodology.
- b. Review of Literature and its importance-Different methods to review the literature.
- c. Research design.
- d. Measurement & scaling techniques.

**UNIT II: COLLECTION OF DATA:**

**5 Hours**

- a. Methods of data collection: Primary and secondary source of information, collection of primary data, collection data through questionnaires & schedules, Difference between questionnaires & schedules.
- b. Sampling: Definition and types.
- c. Sample size calculation.

**UNIT III: DESCRIPTIVE STATISTICS - I:**

**8 Hours**

- a. Introduction: Meaning, definition, characteristics of statistics. Importance of the study of statistics, Branches of statistics, Statistics and health science,
- b. Tabulation of Data: Basic principles of graphical representation.
- c. Measures of Central Tendency.
- d. Measures of Dispersion.
- e. Skewness, kurtosis.

**UNIT IV: DESCRIPTIVE STATISTICS - II:**

**6 Hours**

- a. Probability and standard distributions the binominal distribution, the normal distribution.
- b. Correlation & regression correlation coefficient for two variables.
- c. Linear regression.

**UNIT V: INFERENCE STATISTICS:****6 Hours**

- a. Testing of Hypotheses Procedure, Null and Alternative hypothesis, Level of significance, Degrees of freedom.
- b. Parametric and Nonparametric Tests.

**RECOMMENDED BOOKS:**

1. B.K. Mahajan, Methods in Biostatistics, Jaypee.
2. P.N. Arora: Biostatistics & Research methodology
3. Dr J. A. Khan: Biostatistics & Research methodology, APH Publishing.
4. Hicks: Research methodology, Churchill Livingstone
5. Research Methodology: Methods and Techniques by Kothari C.R.

**SUBJECT: ORTHOPAEDICS PHYSIOTHERAPY-I LAB**  
**SUBJECT CODE: PT 405**  
**(w.e.f. July 2015)**

**L T P**  
**0 0 2**

**COURSE OBJECTIVES:**

This course is formulated on the “Problem based” method. At the end of the course, the candidate will:

1. Be able to identify, discuss & analyze, the general orthopedics condition and musculoskeletal trauma in terms of Biomechanical, Kinesiology & Biophysical basis & correlate the same with the provisional diagnosis, routine radiological & Electrophysiological investigations & arrive at appropriate Functional diagnosis with clinical reasoning.
2. Be able to plan & Prescribe as well as acquire the skill of executing short & long term Physiotherapy treatment by selecting appropriate modes of Mobilization / Manipulations, Electro-Therapy, Therapeutic exercise & appropriate Ergonomic advise for the relief of pain, restoration / Maintenance of function & rehabilitation for maximum functional independence in A.D.L. at home & work place.

**COURSE CONTENT:**

1. Subjective and Objective Examination
2. Investigation employed in Orthopaedic Trauma
3. Outcome measures, setting of treatment goals and plan
4. Documentation (Writing patient/Client notes)
5. Physiotherapy management of the various post traumatic and post surgical cases

**RECOMMENDED BOOKS:**

1. Cash Text books of Orthopaedics and Rheumatology for physiotherapist Jaypee Publication
2. Tidys Physiotherapy thirteenth edition by Stuart B.Porter
3. Neuromusculoskeletal Examination and assessment fourth edition by Nicola JPetty Churchill Livingstone
4. Therapeutic Exercise fifth edition by Carolyn Kisner F.A Davis Company Philadelphia
5. Physical Rehabilitation Sixth edition by Susan B. OSullivan Davis Plus
6. Orthopaedic physical assessment third and fifth Edition by David J Magee
7. Essential Orthopaedics third Edition by Maheshwari Mehta publishers
8. Outline of fractures eleventh Edition by Adams and Hamblen Churchill Livingstone
9. Muscles testing and function with posture and pain fifth Edition by F. Peterson Kendall

**REFERENCE BOOKS**

1. Apley system of musculoskeletal and fractures ninyh edition by Jouis Solomon Arnold publication
2. Clinical Orthopaedic Rehabilitation third Edition by S Brotzman, R Manske Elsevier
3. Rehabilitation for the Post surgical Orthopaedic patient by Lisa Maxey, Jin Magnusson Elseveir
4. Trauma management: An emergency medicine approach Ferrera Colucciello, BMJ publication

**SUBJECT: NEUROPHYSIOTHERAPY LAB**  
**SUBJECT CODE: PT 406**  
**(w.e.f. July 2015)**

**L T P**  
**0 0 2**

**COURSE OBJECTIVE:**

The student will be able to conduct a safe and effective rehabilitation program with advance rehabilitation techniques on the patient with neurological conditions.

**1. EVALUATION & TREATMENT PLANNING, OF FOLLOWING CONDITIONS:**

- a. Cerebral Palsy
- b. Muscular Dystrophy
- c. Cerebrovascular Accident (CVA)
- d. Meningitis, Encephalitis
- e. Poliomyelitis
- f. Parkinson Disease
- g. Ataxia
- h. GBS (Guillain–Barre Syndrome)
- i. Spinal Cord Injury (SCI)
- j. Peripheral Nerve Injury (PNI)

**2. Documentation of minimum two case each In:**

- a. U.M.N. lesion
- b. L.M.N. lesion
- c. Pediatric neuro case

**RECOMMENDED BOOKS:**

1. Physical rehabilitation – Susan O` Sullivan, 5<sup>th</sup> edition
2. Neurological Rehabilitation – D. A. Umphred, 6<sup>th</sup> edition
3. Physical medicine and rehabilitation – Braddom, 3<sup>rd</sup> edition
4. The neurological examination – De Myer's, 6<sup>th</sup> edition
5. Neurological differential diagnosis – John Patten, 2<sup>nd</sup> edition
6. Adult Hemiplegia – Evaluation and Treatment – Batra & Bobath, 3<sup>rd</sup> edition
7. Orthopaedic Physical Assessment – Devid J Magee, 5<sup>th</sup> edition

**SUBJECT: CARDIOPULMONARY PHYSIOTHERAPY LAB**  
**SUBJECT CODE: PT 407**  
**(w.e.f. July 2015)**

**L T P**

**0 0 2**

**COURSE OBJECTIVE:** The student will be able to conduct a safe and effective treatment of patient with cardiopulmonary conditions.

**COURSE DESCRIPTION:** This course involves a description of the assessment and treatment of patients with cardiopulmonary conditions.

The students will be shown patients of relevant diseases and disorders for:

1. History taking of the conditions of patients.
2. Assessment
3. Clinical diagnosis of the presentations.
4. Investigations and tests of different clinical presentations
5. Physiotherapy management of the various disorders & surgeries

**SUBJECT NAME: SEMINAR ON CLINICAL ISSUES**  
**SUBJECT CODE: PT 408**  
**(w.e.f. July 2015)**

**L T P**  
**0 2 0**

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						

**Comments:**

**Name & Signature of the Faculty/ Observer:**

**HoD,**  
Department of Physiotherapy

**SUBJECT NAME: CLINICAL TRAINING**  
**SUBJECT CODE: PT 409**  
**(w.e.f. July 2015)**

**L T P**  
**0 0 10**

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.

**CHECKLIST FOR EVALUATION OF CLINICAL TRAINING**

**Name of Student:**

**Month:**

**Name of Faculty/ Supervisor:**

**Date:**

**Marks: 50**

<b>S. No.</b>	<b>Point to be considered</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.	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:

**Name & Signature of the Faculty/ Observer:**

**HoD,**  
 Department of Physiotherapy