

# **Faculty of Sports Medicine & Physiotherapy**

## **SYLLABUS**

### **FOR**

## **MASTERS IN PHYSIOTHERAPY (COMMUNITY PHYSIOTHERAPY) (SEMESTER: I – IV) (Credit Based Evaluation and Grading System)**

**Session: 2019-20**



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# **GURU NANAK DEV UNIVERSITY AMRITSAR**

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**MASTERS IN PHYSIOTHERAPY (COMMUNITY PHYSIOTHERAPY) (SEMESTER SYSTEM)**  
(Credit Based Evaluation and Grading System)

**Scheme of Examination**

**Duration:** 2 years

**Eligibility:** Bachelor in Physiotherapy with at least 50% marks in aggregate.

**Scheme of Examination**

**A. Theory Examination:**

**Semester – I:**

| Course No.          | C/E/I/A | Course Title                         | L | T | P | Total Credits | Marks (Mid Semester + Major Exam) |
|---------------------|---------|--------------------------------------|---|---|---|---------------|-----------------------------------|
| <b>Core Courses</b> |         |                                      |   |   |   |               |                                   |
| CPL501              | C       | Basic Medical Science & Conditions   | 4 | – | – | 4             | 20+80=100                         |
| CPL502              | C       | Human Kinesiology                    | 4 | – | – | 4             | 20+80=100                         |
| CPL503              | C       | Health Education & Administration    | 4 | – | – | 4             | 20+80=100                         |
| CPL504              | C       | Research Methodology & Biostatistics | 4 | – | – | 4             | 20+80=100                         |
| <b>Audit Course</b> |         |                                      |   |   |   |               |                                   |
| CPP511              | A       | Clinical Training–I                  | – | – | 6 | 6             |                                   |

**Semester – II:**

| Course No.           | C/E/I/A | Course Title                  | L | T | P | Total Credits | Marks (Mid Semester + Major Exam) |
|----------------------|---------|-------------------------------|---|---|---|---------------|-----------------------------------|
| <b>Core Courses</b>  |         |                               |   |   |   |               |                                   |
| CPL551               | C       | Applied Clinical Sciences     | 4 | – | – | 4             | 20+80=100                         |
| CPL552               | C       | Human Biomechanics            | 4 | – | – | 4             | 20+80=100                         |
| CPL553               | C       | Basic Physiotherapy Methods   | 4 | – | – | 4             | 20+80=100                         |
| CPL554               | C       | Health Promotion in Community | 4 | – | – | 4             | 20+80=100                         |
| <b>Audit Courses</b> |         |                               |   |   |   |               |                                   |
| CPP561               | A       | Clinical Training–II          | – | – | 6 | 6             |                                   |
| CPD562               | A       | Dissertation                  | – | – | 8 | 8             |                                   |

**Note:-**

**PSL-053 ID Course Human Rights & Constitutional Duties (Compulsory Paper) Students can opt. in any semester except Semester 1<sup>st</sup>. This ID Paper is one of the total ID Papers of this course.**

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**Semester – III:**

| Course No.                               | C/E/I/A | Course Title                                | L | T | P | Total Credits | Marks (Mid Semester + Major Exam) |
|--|---------|---|---|---|---|---------------|-----------------------------------|
| <b>Core Courses</b>                      |         |   |   |   |   |               |                                   |
| CPL601                                   | C       | Advanced Physiotherapy Methods              | 4 | – | – | 4             | 20+80=100                         |
| CPL602                                   | C       | Anthropometry                               | 4 | – | – | 4             | 20+80=100                         |
| CPL603                                   | C       | Work Physiology                             | 4 | – | – | 4             | 20+80=100                         |
| CPL604                                   | C       | Physiotherapy In Geriatrics And Paediatrics | 4 | – | – | 4             | 20+80=100                         |
| <b>Audit Courses</b>                     |         |   |   |   |   |               |                                   |
| CPP611                                   | A       | Clinical Training–III                       | – | – | 6 | 6             |                                   |
| CPD612                                   | A       | Dissertation                                | – | – | 8 | 8             |                                   |
| <b>Interdisciplinary/Optional Course</b> |         |   |   |   |   |               |                                   |
|  | I       | Interdisciplinary/Optional Course           | 4 | - | - | 4             |                                   |

**Semester – IV:**

| Course No.           | C/E/I/A | Course Title                                   | L | T | P | Total Credits | Marks (Mid Semester + Major Exam) |
|----------------------|---------|--|---|---|---|---------------|-----------------------------------|
| <b>Core Courses</b>  |         |  |   |   |   |               |                                   |
| CPL651               | C       | Physiotherapy In Women's Health And Work Place | 4 | – | – | 4             | 20+80=100                         |
| CPL652               | C       | Advanced Community Physiotherapy               | 4 | – | – | 4             | 20+80=100                         |
| CPL653               | C       | Management And Professional Ethics             | 4 | – | – | 4             | 20+80=100                         |
| CPL654               | C       | Recent Trends In Physiotherapy                 | 4 | – | – | 4             | 20+80=100                         |
| <b>Audit Courses</b> |         |  |   |   |   |               |                                   |
| CPP661               | A       | Clinical Training–IV                           | – | – | 6 | 6             |                                   |
| CPD662               | A       | Dissertation                                   | – | – | 8 | 8             |                                   |

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**B. Practical Examination–24 Credits**

Practical examination of 24 credits will be conducted at the end of 4<sup>th</sup> semester which includes patient evaluation and management, viva–voce etc.

**C. Dissertation – 24 Credits**

The topic of dissertation will be allocated in Second Semester and candidate will work for 2 semesters and submit a written thesis in 4<sup>th</sup> semester. The student will be awarded grade for the total number of credits earned in dissertation in II, III and IV semesters of study at the end of the IV semester.

***Practical Attachments:***

To enable the students to acquire practicing in hand on skills, maximum emphasis will be laid on regular practical classes, demonstration and clinical practice. The students will undergo Clinical / Government Medical College Amritsar, and decided by BOC.

\* The credits earned by a candidate in practical and dissertation during different semesters will be evaluated at the end of the 4<sup>th</sup> semester and the grade will be determined accordingly.

\* A candidate shall be required to maintain minimum of 5.00 SGPA at the end of each semester. A student getting ‘C’ or lower grade in any course in this discipline will be treated as having failed in that course and shall have to repeat the core/elective courses/or repeat/opt. another course in lieu of interdisciplinary/outside department course with approval of Board of Control, and will have to obtain at least ‘B’ grade in that course within specified period as per the prevailing rules. The weights of ‘C’ and lower Grades will not be counted in SGPA or CGPA.

\*\* Interdisciplinary/Optional Course: to be offered from outside the department.

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**CPL501: BASIC MEDICAL SCIENCE & CONDITIONS**

**L T P**  
**4 0 0**

**Max. Marks: 100**  
**Internal: 20**  
**External: 80**

**Mid Semester Examination: 20% Weightage**  
**End Semester Examination: 80% Weightage**

**Instructions for the Paper Setters:**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Section-A**

**Applied Anatomy: A Review**

1. A review of organization and regulation of motor system.
  - a) Types of movement and factors affecting contact and range of motion at synovial joints
  - b) Skeletal muscle fibers: composition, structure and characteristics
  - c) Muscle metabolism
  - d) Contraction and relaxation of muscle
  - e) Control of muscle tension
  
2. Anatomy of certain diseases
  - a. Common dislocations
  - b. Low back pain
  - c. Sciatica
  - d. Lesions of inter-vertebral disc
  - e. Anatomical and Physiological loss resulting from nerve injury.
  - f. Peripheral nerve entrapment(such as carpel tunnel syndrome, cubital tunnel syndrome, tarsal tunnel syndrome, morton neuroma)
  - g. Spinal infection

**Section-B**

**Applied Physiology**

1. Blood
  - a. The various components of blood
  - b. Viscosity correlation
  - c. Oxyhemoglobin Dissociation curves
  - d. Interrelationship between pressure flow and resistance

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2. Cardiovascular system
  - a) Cardiac cycle
  - b) Cardiac output and its regulation
  - c) Cardiac output in normal stress conditions
  - d) Methods of measuring cardiac output
  - e) Oxygen demand theory of local blood flow circulation
  - f) Mechanisms of arterial pulse regulation
  - g) Hypertension
  - h) Normal coronary blood flow along with variations
  - i) The cardiac reserve
  - j) Physiological causes of shock

**Section-C**

**Respiratory system:**

- a. Review of mechanics of respiration
- b. Pulmonary volumes and capacities
- c. Transport of oxygen in blood
- d. Carbon dioxide in blood
- e. Regulation of respiration
- f. Respiratory abnormalities Hypoxia, Hypercapnoea, Hypocapnoea
- g. Artificial respiration
- h. Disorders of respiration- dyspnoea, orthopnoea, hyperpnoea, hyperventilation, apnoea, tachypnoea
- i. Respiratory changes during exercise.

**Section-D**

**Endocrine system:**

Physiology of the endocrine glands – Pituitary, Pineal Body, Thyroid, Parathyroid, Adrenal, Thymus, Pancreas, Testes & Ovary. Hormones secreted by these glands, their classifications and functions.

**References:**

1. Synopsis of Surgical Anatomy – John Wright & Sons, Bristol 1970 ed.
2. Gray's Anatomy - Williams & Warwick - Churchill Livingstone. 35<sup>th</sup> ed. 2007
3. Clinical Anatomy for Medical Students - Snell – Lippincott. 6<sup>th</sup> ed., 2000
4. Textbook of Medical Physiology - Guyton - Mosby. 10<sup>th</sup> Ed 2000
5. Pathologic Basis of Diseases - Robbins, Kotran and Kumar – W.B. Saunders. 7<sup>th</sup> ed, 2004
6. Pathology implications for Physical Therapists - Goodmann & Boissonnault- W. B. Saunders. 1999
7. Tureks – Orthopedics - Weinsteil & Buckwalter - Lippincott Publications.2004

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**CPL502: HUMAN KINESIOLOGY**

**L T P**  
**4 0 0**

**Max. Marks: 100**  
**Internal: 20**  
**External: 80**

**Mid Semester Examination: 20% Weightage**

**End Semester Examination: 80% Weightage**

**Instructions for the Paper Setters:**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Section-A**

1. Definition, aims, objectives and role of Kinesiology in physiotherapy.
2. Review of fundamental concepts (applied aspect), Centre of gravity, Line of gravity, Planes, Lever system in Body, Fundamental starting positions.

**Section-B**

1. Frame work and joints of the body: Classification of the muscles and their structure, functions and role.
2. Types of Muscle contractions (Static, Concentric and Eccentric), Two joint Muscles, Angle of pull, Role of Gravity affecting muscular action.

**Section-C**

1. Physical Properties of bone, cartilage and muscle and their functional adaptation in various conditions.
2. Joints: Definition and Classification of joints- Shoulder, Elbow, wrist joint, Hip, Knee, Ankle, Inter-vertebral joints, small joints of hand and foot.
3. Origin, insertion, nerve supply and action of all important muscles related to human movement.

**Section-D**

1. Motion, type of motion, Distance and speed, Displacement and velocity, Acceleration, Angular distance and Angular displacement, Angular Speed, Angular Velocity, Angular Acceleration, Inertia, mass, weight, Newton's Laws of motion, Sections in linear and angular motion.
2. Force and its characteristics, internal and external forces, Classification of force system, Composition and resolution of forces. Friction, impact, elasticity, principles of spin and rebound, Eccentric forces, Moment, Principles of Lever, Rotatory force, Gravity, Methods of finding centre of gravity, Principles of Equilibrium, principles of projectile.

***References***

1. Brunnstrom - Clinical Kinesiology, F.A. Davis. 4<sup>th</sup> Ed, 2003
2. Rasch and Burk: Mishra: Clinical Neurophysiology, B.I. Churchill Livingstone. 3<sup>rd</sup> Ed.
3. Kinesiology and Applied Anatomy, Lee and Fabiger. 2002
4. White and Punjabi - Biomechanics of Spine - Lippincott. 2<sup>nd</sup> Ed, 1995.
5. Kapandji: Physiology of Joints Vol. I, II & III, W.B. Saunders, 2007.
6. Norkin & Levangie: Joint Structure and Function - A Comprehensive Analysis - F.A. Davis, 2001



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**CPL503: HEALTH EDUCATION & ADMINISTRATION**

**L T P**  
**4 0 0**

**Max. Marks: 100**

**Internal: 20**

**External: 80**

**Mid Semester Examination: 20% Weightage**

**End Semester Examination: 80% Weightage**

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**Section-A**

1. WHO definition of Health and Disease
2. Health Education: Concepts, aims and objectives, Approaches to health education, Models of health education, Contents of health education, Principles of health education, Practice of health education.

**Section-B**

1. Public health administration: an overview of the health administration set up at Central and state levels. The national health program-highlighting the role of social, economic and cultural factors in the implementation of the national programs.

**Section-C**

1. Health programs in India:
  - a. Programmes for communicable diseases: National AIDS control program(NACP), National Vector borne disease control program, Revised National tuberculosis program (RNTCP), Pulse polio programme, National Leprosy eradication program(NLEP).
  - b. Programmes for non communicable diseases: National programme for control treatment of occupational diseases, National programme for prevention and control of cancer, Diabetes, Cardiovascular diseases & stroke(NPCDCS), National mental health programme.
  - c. National nutritional programmes: National Iodine deficiency disorders control programme.
  - d. National Program of health care for the elderly(NPHCE)
  - e. National health mission

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**Section-D**

1. Surveillance, Monitoring & Screening in Occupational Health-:
  - Types & purposes of work place health examination
  - Ethical Issues in health examination in the work place.

***References***

1. Park's Textbook of Preventive And Social Medicine- 23<sup>rd</sup> ed.
2. Physical Rehabilitation,6th Edition-Susan B. O'Sullivan PT, EdD Thomas J. Schmitz PT, PhD George Fulk PT, PhD – FA Davis
3. Hogg K. Worksite health Development, Health Development Foundation 1987.
4. Physical Medicine & Rehabilitation-Delsore

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**CPL504: RESEARCH METHODOLOGY & BIOSTATISTICS**

**L T P**  
**4 0 0**

**Max. Marks: 100**  
**Internal: 20**  
**External: 80**

**Mid Semester Examination: 20% Weightage**

**End Semester Examination: 80% Weightage**

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**Section-A**

Research Methodology

1. Introduction
  - a. Importance of research in clinical practice
  - b. Scientific approach
  - c. Characteristics
  - d. Purposes and limitations.
2. Ethical issues in research.
3. Structure, formulation and implementation of a research project
4. Research questions
  - a. Selection and statement of problem
  - b. Literature review
  - c. Meta-analysis.

**Section-B**

1. Types of research
  - a. Basic and Applied
  - b. Qualitative & Quantitative
  - c. Descriptive & Experimental
  - d. Longitudinal & Cross-sectional
2. Experimental Research
  - a. Types of Sampling
  - b. Variables
  - c. Experimental design
  - d. Factorial design

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**Section-C**

Survey research:

- a. Conducting a survey
- b. Questionnaires
- c. Steps in conducting survey research
- d. Epidemiological research

**Section-D**

Biostatistics

- a. Mean, Mode, Median
- b. Standard deviation
- c. Correlation and regression
- d. ANOVA and its application
- e. Validity and reliability
- f. Parametric (Student 't' test, Paired 't' test, Probability)
- g. Non-parametric statistics (Chi square test, Wilcoxon's signed rank test)
- h. Sample size determination

***References***

1. Mohsin S.M.: Research Methods in Behavioral Sciences: Orient Publications. 2<sup>nd</sup> Ed.
2. Colton: Statistics in medicine, Little Brown Company, Boston. 3<sup>rd</sup> Ed.
3. Mahajan: Methods in Biostatistics, Jay Pee Brothers. 3<sup>rd</sup> Ed., 2002
4. Vincent: Statistics in Kinesiology, Human Kinetics. 3<sup>rd</sup> Ed., 2005
5. Hicks: Research for Physiotherapists, Churchill Livingstone. 2<sup>nd</sup> Ed., 1995

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***CPL551: APPLIED CLINICAL SCIENCES***

**L T P**  
**4 0 0**

**Max. Marks: 100**  
**Internal: 20**  
**External: 80**

**Mid Semester Examination: 20% Weightage**  
**End Semester Examination: 80% Weightage**

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**Section-A**

1. Cell injuries:- Aetiology and Pathogenesis with a brief recall of important aspects of normal cell structure, Reversible cell injury, Irreversible cell injury, Pathologic calcification.
2. Inflammation

**Section-B**

1. Repair, wound healing by primary and secondary union, factors promoting and delaying the process. healing in specific site including bone healing. “Failed” healing responses.
2. Repair of soft tissue injuries.
3. Principles of drug action.
4. Basic pharmacokinetics and Pharmacodynamics.

**Section-C**

1. The use of drugs in various musculoskeletal disorders.
2. The use of drugs in various cardiovascular disorders.
3. The use of drugs in various neurological disorders.
4. The use of drugs in various Respiratory disorders.

**Section-D**

1. Basics of radiology including ultrasonography, X-ray, CT & MRI scanning
2. Imaging of the head and neck.
3. Imaging of spine.
4. Imaging of thorax and abdomen.
5. Imaging of upper extremity.
6. Imaging of lower extremity.

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***References:***

1. The Pharmacological basis of Therapeutics - Goodman and Gilman - MacMillan. 11<sup>th</sup> Ed.
2. Pharmacology and Pharmacotherapeutics - Satoskar & Bhandarkar - Popular Publications - Bombay. 17<sup>th</sup> Ed.
3. Davidsons – Principles and Practice of Medicine- Edward - Churchill Livingstone. 8<sup>th</sup> Ed.
4. Systems of Orthopedics - Apleys - Butterworth Heinmann. 13<sup>th</sup> Ed.
5. Outline of Orthopedics - Adams - Churchill Livingstone. 11<sup>th</sup> Ed.
6. Outline of Fractures - Adams - Churchill Livingstone. 11<sup>th</sup> Ed.
7. Tureks – Orthopedics - Weinsteil & Buckwalter - Lippincott Publications, 2004.
8. Text Book of Radiology - Sutton D. - Churchill Livingstone. 7<sup>th</sup> Ed.,2002.

***CPL552: HUMAN BIOMECHANICS***

**L T P**  
**4 0 0**

**Max. Marks: 100**  
**Internal: 20**  
**External: 80**

**Mid Semester Examination: 20% Weightage**  
**End Semester Examination: 80% Weightage**

**Instructions for the Paper Setters:**

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**Section-A**

Introduction to Human Biomechanics

1. Mechanics - Definition of mechanics and Biomechanics
2. Principle of Biomechanics
3. Nature and importance of Biomechanics in Physiotherapy
4. Elasticity - Definition, stress, strain, HOOKE'S Law

**Section-B**

Biomechanics of upper and lower extremities

1. Biomechanics of shoulder motion
2. Biomechanics of elbow motion
3. Biomechanics of wrist and hand motion
4. Biomechanics of pelvic motion
5. Biomechanics of hip motion
6. Biomechanics of knee motion
7. Biomechanics of ankle & foot motion

**Section-C**

Biomechanics of spinal region

1. Biomechanics of cervical region
2. Biomechanics of thoracic region
3. Biomechanics of lumbosacral region
4. Biomechanics of sacroiliac joint

**Section-D**

Posture & Gait

1. Posture – dynamic and static posture, kinetic and kinematics of posture, analysis of posture, effect of age, pregnancy, occupation on posture.
2. Gait – kinematics and kinetics of gait, Biomechanics of running and stair climbing.

***References:***

1. Brunnstrom - Clinical Kinesiology, F.A. Davis. 5<sup>th</sup> Ed.
2. White and Punjabi - Biomechanics of Spine - Lippincott. 2<sup>nd</sup> Ed, 1995.
3. Norkin & Levangie: Joint Structure and Function - A Comprehensive Analysis - F.A. Davis, 2001.
4. Nordin & Frankel - Basic Biomechanics of Muscular Skeletal System - Williams & Wilkins, 2<sup>nd</sup> Ed. 2001.
5. Koley – Textbook of Biomechanics, AITBS Publishers, India, 2019.



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***CPL553: BASIC PHYSIOTHERAPY METHODS***

**L T P**  
**4 0 0**

**Max. Marks: 100**

**Internal: 20**

**External: 80**

**Mid Semester Examination: 20% Weightage**

**End Semester Examination: 80% Weightage**

**Instructions for the Paper Setters:**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Section-A**

1. Define Rehabilitation, Goals and Objectives of Rehabilitation, multidisciplinary approach of rehabilitation.
2. Modern concepts in rehabilitation.
3. Definition, details of effects and uses of therapeutic exercises.
  - a. Dynamic Exercises
  - b. Isokinetic Exercises
  - c. Isometric and Isotonic Exercises
  - d. Kinetic chain exercises

**Section-B**

1. Stretching
2. Balance and coordination exercises
3. Factors affecting the joint range of motion prevention of stiffness, methods of joint mobilization.
4. Causes of muscle weakness, Prevention of disuse atrophy, Principles of treatment to increase muscle strength and function.
  - a. Techniques of strengthening with respect to regional consideration.
  - b. Various methods of progressive resisted exercise.

**Section-C**

1. Principles and application of neuromuscular facilitation techniques including PNF
2. Principles of different soft tissue mobilizations (such as Myofascial Techniques)
3. Neural Tissue Mobilization
4. Methods for improving neuromuscular control, proprioception and Kinesthetic sensation following different injuries.

**Section-D**

1. Muscle Energy Technique
2. Concept of group therapy.
3. Physiotherapy – Ethics & Medico legal aspects.

***References:***

1. Gardiner M. Dena: The Principles of Exercise Therapy - CBS Publishers, Delhi, 3<sup>rd</sup> Ed.
2. Kisner and Colby: Therapeutic Exercises – Foundations and Techniques, F.A. Davis, 5<sup>th</sup> Ed.
3. Basmajian John V.: Therapeutic Exercise, Williams & Wilkins, 2004.
4. Thomson et al - Tidy's Physiotherapy: Butterworth – Heinmann, 13<sup>th</sup> Ed.
5. Kendall: Muscles – Testing and Function - Williams & Wilkins, 4<sup>th</sup> Ed.
6. William E. Prentice: Rehabilitation Techniques – Mosby, 4<sup>th</sup> Ed, 2003.
7. Norkin & White: Measurement of Joint Motion – A Guide to Goniometry - F.A. Davis, 2002.
8. Dvir: Isokinetics: Muscle Testing, Interpretation and Clinical Applications, W.B. Saunders, 2004.
9. Voss et al - Proprioceptive Neuromuscular Facilitation - Patterns & Techniques - Williams & Wilkins, 2<sup>nd</sup> Ed, 2004.

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***CPL 554: HEALTH PROMOTION IN COMMUNITY***

**L T P**  
**4 0 0**

**Max. Marks: 100**

**Internal: 20**

**External: 80**

**Mid Semester Examination: 20% Weightage**

**End Semester Examination: 80% Weightage**

**Instructions for the Paper Setters:**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Section-A**

1. Definition of Community, Concepts of Community.
2. Introduction to Rehabilitation-: Principles of Rehabilitation & concept of team approach with role of each individual participant.
3. Role of Physiotherapy in Rehabilitation

**Section-B**

1. Institute based rehabilitation services and multi-disciplinary approach.
2. Introduction to CBR, Role of CBR, Methodology of CBR with reference to National Health Delivery system.
3. Role of National Institutes, District Rehabilitation Centre and Primary Health Centre (with appropriate exposure).

**Section-C**

1. Public awareness to the various disabilities, Communications, Message generation and dissipation.
2. Persons with disability; Act – 1995

**Section-D**

1. Role of Government in CBR, inter-sectoral programs and co-ordination. Implementation of the Act.
2. Role of Non-Government organizations in CBR.
3. Disability detection and early intervention.

**References:**

1. Park's Textbook of Preventive and Social Medicine- 23<sup>rd</sup> ed.
2. Physical Rehabilitation, 6th Edition- Susan B. O'Sullivan PT, EdD Thomas J. Schmitz PT, PhD George Fulk PT, PhD – FA Davis
3. Hogg K. Worksite health Development, Health Development Foundation 1987.
4. Physical Medicine & Rehabilitation- Delsore

***CPL601: ADVANCED PHYSIOTHERAPY METHODS***

**L T P**  
**4 0 0**

**Max. Marks: 100**  
**Internal: 20**  
**External: 80**

**Mid Semester Examination: 20% Weightage**  
**End Semester Examination: 80% Weightage**

**Instructions for the Paper Setters:**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Section- A**

1. Introduction to manual therapy
  - a. Joint techniques
  - b. Manual joint therapy
  - c. Traction Principles
  - d. Basic principles of manipulation for various disorders of the spine and extremities.

**Section- B**

1. Biophysics, Physiological effects, indications, contraindications and specific uses in Physiotherapy of the following equipments:- such as Infrared rays, Paraffin Wax Bath, Moist Heat Pack, Fluidotherapy, LASER, UVR.
2. **Massage:** - Definition and classification of massage techniques, Physiological effects of massage, Connective tissue massage, therapeutic applications and contraindications of massage.

**Section- C**

1. **Hydrotherapy-** Physiological Effects, raising temperature baths, baths with additives, whirl pool bath. Rehabilitation approach using hydrotherapy.
2. **Cryotherapy-** Physiological effects, Use of cold therapy in acute phase, rehabilitative phase, preventive phase of injury, Methods of application, Indications and contraindications.

### **Section- D**

#### **Electrotherapy approach-**

1. Principles underlying the application of following modalities with reference to their production, biophysical and therapeutic effects, indications and contraindications and the specific uses in Physiotherapy.
  - a. Low Frequency Current: Direct Current Modified Direct Current, Alternative Current, Diadynamic Current, Iontophoresis, TENS, High Voltage, Pulsed Galvanic Stimulation.
  - b. Medium Frequency Current: IFT, Russian Currents.
  - c. High Frequency Currents: SWD, MWD, Ultrasound.

#### ***Practical:***

1. The students will undergo clinical training in the Health Centre on various apparatus of physiotherapy. This training will constitute major part of the practical examination.

#### ***References:***

1. A.G. Sinha, Principle and Practices of Therapeutic Massage. Jaypee Brothers, New Delhi, 2001.
2. William E. Prentice: Rehabilitation Techniques – Mosby, 4<sup>th</sup> Ed.
3. O' Sullivan, Schmitz: Physical Rehabilitation – Assessment and Treatment - F.A. Davis, 4<sup>th</sup> Ed, 2006.
4. John Low & Reed: Electrotherapy Explained, Butterworth, 4<sup>th</sup> Ed, 2006.
5. Meryl Roth Gersh: Electrotherapy in Rehabilitation, FA Davis, 3<sup>rd</sup> Ed.
6. Joseph Kahn: Principles and Practice of Electrotherapy, Churchill Livingstone, 3<sup>rd</sup> Ed.
7. Claytons Electrotherapy - Sarah & Bazin - W.B. Saunders, 12<sup>th</sup> Ed.
8. Nelson and Currier: Clinical Electrotherapy, Prentice Hall, 3<sup>rd</sup> Ed.
9. Greenman: Principles of Manual medicine, William and Wilkins, 3<sup>rd</sup> Ed.
10. Michlovitz - Thermal agents in Rehabilitation - F.A. Davis, 1996.
11. Lehmann - Therapeutic Heat and Cold - Williams & Wilkins, 4<sup>th</sup> Ed, 1990.

*MASTERS IN PHYSIOTHERAPY (COMMUNITY PHYSIOTHERAPY) (SEMESTER – III)*  
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**CPL602: ANTHROPOMETRY**

**L T P**  
**4 0 0**

**Max. Marks: 100**  
**Internal: 20**  
**External: 80**

**Mid Semester Examination: 20% Weightage**

**End Semester Examination: 80% Weightage**

**Instructions for the Paper Setters:**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Section- A**

1. Role of anthropometric knowledge in Physiotherapy.
2. Age determination: -Skeletal age, Dental age.

**Section- B**

1. Body measurements
  - a. Gross size and mass
  - b. Lengths or heights of body parts
  - c. Circumstances of body parts
  - d. Skinfold thickness

**Section- C**

1. Anthropometric study group measurements
  - a. Planes of the body
  - b. Axes of the body
  - c. Landmarks on the body
2. Body composition
  - a. Different Body composition
  - b. Various methods to estimate body composition
    - i. Anthropometric determination of the body composition (skinfold thickness)
    - ii. Application of surface anthropometry (the body profile)

**Section- D**

1. Somatotyping
  - a. Sheldon's method of somatotyping
    - i. Critical evaluation of Sheldon's method of somatotyping
  - b. Heath – Carter method of somatotyping
    - i. The rating scales
    - ii. Anthropometric measurements
    - iii. First, Second and Third Components
    - iv. Somatotype distribution

***References:***

1. Ostym, Beunen and Simons: Kinanthropometry II, University Park Press, Baltimore, 1998.
2. James A.P. Day: Perspectives in Kinanthropometry, Human Kinetics Publishers, Inc. Champaign, Illinois, 1998.
3. Koley S., Textbook of Kinanthropometry, AITBS Publishers, India, 2018.
4. Singh and Malhotra: Kinanthropometry, Lunar Publications, 3<sup>rd</sup> Ed.
5. Verma and Mokha: Nutrition, Exercise and Weight Reduction, Exercise Science Publication Society, 3<sup>rd</sup> Ed.

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**CPL603: WORK PHYSIOLOGY**

**L T P**  
**4 0 0**

**Max. Marks: 100**  
**Internal: 20**  
**External: 80**

**Mid Semester Examination: 20% Weightage**

**End Semester Examination: 80% Weightage**

**Instructions for the Paper Setters:**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Section- A**

1. **Nutrition**
  - a. Carbohydrates, Fats, Proteins.
  - b. Vitamins, Minerals and Water.
  - c. Optimal Nutrition for Physical activity.
2. **Energy Transfer in Physical activity:**
  - a. Energy transfer in Body.
  - b. Energy transfer in exercise.
  - c. Energy expenditure during various activities.
  - d. Fatigue.

**Section- B**

1. **Cardiovascular adaptation to exercise:**
  - a. Cardiovascular adaptations to sustained aerobic exercises.
  - b. Coronary heart disease, exercise and optimization of lipid profile.
  - c. Regulation of circulation during exercise.
  - d. Circulatory responses to various types of exercise regulation of cardiovascular system during exercise.

**Section- C**

1. **Respiratory responses to exercise:**
  - a. Regulation of Respiration during exercise.
  - b. Ventilation at Rest and during Exercise.
  - c. Ventilation and the Anaerobic Threshold.
  - d. Static and dynamic lung volume.
  - e. Adaptive changes in the respiratory systems due to regular physical activities .



**Section- D**

1. **Musculoskeletal responses to exercises:**
  - a. Growth and Exercise.
  - b. Training for Muscular Strength and Endurance.
2. **Endocrine system responses to exercise:**
  - a. Effects of exercise on various Hormones in the body.
  - b. Hormone regulation of fluid and electrolytes during exercise.
  - c. Exercise and Menstrual Cycle.

***References***

1. Mc Ardle, Katch, Katch: Exercise Physiology, 5<sup>th</sup> Ed.
2. George A. Brooks, Thomas D. Fahey: Exercise Physiology – Human Bioenergetics and its applications 1984, John Wiley & Sons, New York, 4<sup>th</sup> Ed.
3. Astrand & Rodahl: Text Book of Work Physiology, McGraw Hill, 2003.
4. Fox and Mathews - The Physiological Basis of Physical Education and athletics - Holt Saunders, 4<sup>th</sup> Ed.
5. Koley – Essentials of Exercise Physiology, Jaypee Brothers, New Delhi, 2018.
6. Levick, J.R. (1998) An introduction to Cardiovascular Physiology. 2nd ed. Butterworth Heinemann

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***CPL604: PHYSIOTHERAPY IN GERIATRICS AND PAEDIATRICS***

**L T P**  
**4 0 0**

**Max. Marks: 100**

**Internal: 20**

**External: 80**

**Mid Semester Examination: 20% Weightage**

**End Semester Examination: 80% Weightage**

**Instructions for the Paper Setters:**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Section- A**

1. Disability detection and early intervention
2. Home exercise programs for various Groups of Disabilities
3. Normal aging – definition, the anatomical, physiological and cognitive changes related to aging.
4. Epidemiology and socio- economic impact of aging.
5. Evaluation and theories of aging; Assessment of the elderly; Exercise prescription for the elderly.

**Section- B**

1. Psychosocial and safety issues in elderly
2. Physiotherapy for Degenerative systemic changes, musculoskeletal, cardio respiratory, post menopausal changes, neurological changes.
3. Principles of geriatric rehabilitation.
4. Fall assessment, prevention and physiotherapy.
5. Nutrition in geriatric health.

**Section- C**

1. Early intervention- high risk babies, Neonatal care and management
2. Management of congenital locomotor disorders including the prosthetic and orthotic management.
3. Analysis of fitness and exercise prescription for special paediatric populations – Cerebral palsy, Down's syndrome, Polio, Muscular dystrophy, Juvenile diabetes and obesity.
4. Management of neuro paediatric patients.

**Section- D**

1. Motor learning process – Theory and Techniques.
2. Disorders of perception and sensory integration.
3. Integrated approach in management of paediatric disorders.
4. Paediatric surgeries and its post-operative management.
5. Adaptive equipment for physically challenged children.
6. Physiotherapy intervention in schools.

***References***

1. Physical therapy for children - Susan K. Campbell.
2. Paediatric Physical therapy - Tecklin.
3. Text book of Paediatrics – Guptha.
4. Cardio Pulmonary Rehabilitation – Elizabeth Dean
5. Motor relearning Program – Carr & Shepered
6. Treatment of Cerebral palsy and motor delay – Sofia Levit.
7. Neurological Rehabilitation – Umphred.

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**CPL651: PHYSIOTHERAPY IN WOMEN’S HEALTH AND WORK PLACE**

**L T P**  
**4 0 0**

**Max. Marks: 100**

**Internal: 20**

**External: 80**

**Mid Semester Examination: 20% Weightage**

**End Semester Examination: 80% Weightage**

**Instructions for the Paper Setters:**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Section- A**

1. Women’s Occupational Health Problem- Musculoskeletal disorders, Stress.
2. Family Planning Programs & Practices- Goals, Policies & Laws, Family Planning Problems in Public Health
3. Physiotherapy for Incontinence and Pelvic floor dysfunction.
4. Exercise for- the childbearing year, adolescence and the older woman
5. Antenatal and postnatal programmes.

**Section- B**

1. Types of verbal, non-verbal, elements in communication, barriers to good communication, developing effective communication, specific communication techniques.
2. Counselling: Definition, Aim, differentiate from guidance, principles in counselling and personality qualities of counsellors.
3. Types & purposes of work place health examination.
4. Work Disability- Definition, Causes & Prevention, Management

**Section- C**

1. Introduction to Ergonomics- Principles, Issues related to hand tools, posture, material handling and lifting.
2. Chronic work related musculoskeletal disorders
3. Occupational low back pain
4. Management of Work related Musculoskeletal disorders
5. Role of physiotherapy in occupational disorders
6. Industrial Hygiene- Occupational & Environmental Hazards, Hazard Evaluation, Hazard Control

**Section- D**

1. Relaxation- Describe relaxation, muscle fatigue, muscle spasm and tension (mental & physical).
2. Factors contributing to fatigue & tension.
3. Techniques of relaxation (local and general), Effects, uses & clinical application.  
Indication & contraindication.
4. Therapeutic Gymnasium- Setup of a gymnasium, various equipment & its importance.

***References***

1. Industrial Therapy - Key G.L. Mosby St. Louis, 1987.
2. Physiotherapy in Obstetrics & Gynaecology - Polden & Mantle, Jaypee Brothers, New Delhi, 1994.
3. Social & Preventive Medicine by Park & Park.
4. Obstetrics & Gynaecologic Physical Therapy - Wilder Elnine, Churchill, Livingstone, New York, 1988.
5. Women's Health - Sapsford, Publisher Lippincott.
6. Therapeutic Exercises - Basmajian - Williams and Wilkins.
7. Therapeutic Exercises Foundations and Techniques - Kisner and Colby -F.A. Davis.

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**CPL652: ADVANCED COMMUNITY PHYSIOTHERAPY**

**L T P**  
**4 0 0**

**Max. Marks: 100**

**Internal: 20**

**External: 80**

**Mid Semester Examination: 20% Weightage**

**End Semester Examination: 80% Weightage**

**Instructions for the Paper Setters:**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Section- A**

1. Sociology & Health: Social factors affecting health status, social consciousness and perception of illness, social consciousness and meaning of illness, decision making in taking treatment. Institutions of health, their role in the improvement of the health of the people.
2. Socialization: Meaning of socialization, influence of social factor on personality, socialization in hospitals, socialization in the rehabilitation of patients.
3. Social Groups: Concept of social groups, influence of formal and informal groups on health and sickness, the role of primary groups and secondary groups in the hospitals and rehabilitation settings.
4. Social Worker: The role of medical social worker.

**Section- B**

1. Musculo skeletal disorders – etiogenesis, clinical manifestation & principles of management
2. Principles and mechanisms of Communication including speech and hearing.
3. Common disorders of speech and hearing – etiogenesis, clinical features, assessment and principles of management.
4. Principles in the management of vocational problems, including evaluation and vocational goals for people with disability.

**Section- C**

1. Principles of rehabilitation Nursing, including function of Nursing personnel and Nursing practice in rehabilitation
2. Identification, assessment and classification of mentally subnormal.
3. Rehabilitation of the mentally subnormal, including vocational training & a home education programme.

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**Section- D**

1. The teaching and training of - wheel chair activities, bed activities, transfer activities, Locomotor activities, self care activities, such as toilet, eating, dressing etc.
2. Principles of occupational therapy including evaluation and goals for people with disability.

***References***

1. Social & Preventive Medicine by Park & Park.
2. Neurological Rehabilitation – Umphred
3. Mcgee - Sociology - Drydon Press Illinois.
4. Ahuja - Social Problems - Bookhive, Delhi.
5. Parter & Alder - Psychology & Sociology Applied to Medicine - W.B. Saunders.
6. Julian - Social Problems - Prentice Hall

***CPL653: MANAGEMENT AND PROFESSIONAL ETHICS***

**L T P**  
**4 0 0**

**Max. Marks: 100**

**Internal: 20**

**External: 80**

**Mid Semester Examination: 20% Weightage**

**End Semester Examination: 80% Weightage**

**Instructions for the Paper Setters:**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Section-A**

1. Function of management
2. Evaluation of management through scientific management theory, Classical theory, System approach, Contingency approach.
3. Management process, Planning, Organization, direction, controlling decision making.
4. Introduction of personnel management, Staffing recruitment selection, performance appraisal, discipline, job satisfaction.
5. Quantitative methods of management, Relevance of statistical and / or techniques in management
6. Total quality management

**Section- B**

1. Hospital as an organization
2. Function and types of hospitals selected, clinical supportive ancillary services of Hospital, emergency department, nursing, physical medicine & rehabilitation.
3. Roles of Physiotherapist, Physiotherapy director, Physiotherapy supervisor, Physiotherapy assistant, Physiotherapy aids.

**Section- C**

1. Physical Therapy: Definition and development
2. The implication & confirmation to the rules of professional conduct.
3. Legal responsibility for their actions in the professional context and understanding the physiotherapist liability and obligations in the case of medical legal action.
4. Code of ethics



**Section- D**

1. A wider knowledge of ethics related to current social and medical policy in the provisions of health care.
2. Function of the relevant professional association education body and trade union.
3. The role of the international health agencies such as the world health organization.
4. Standard of practice for physical therapies.

***References***

1. public power and administration – Wilenski, Hale and Iremonger, 1986
2. physical therapy administration and management – Hickik Robert J
3. Management principles for Physiotherapists – Nosse Lorry J.
4. Industrial Therapy – Key G L, Mosby, St. Louis 1987

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**CPL654: RECENT TRENDS IN PHYSIOTHERAPY**

**L T P**  
**4 0 0**

**Max. Marks: 100**  
**Internal: 20**  
**External: 80**

**Mid Semester Examination: 20% Weightage**

**End Semester Examination: 80% Weightage**

**Instructions for the Paper Setters:**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Section- A**

1. Manual Therapy: Introduction, Classification, Assessment for mobilization and manipulation. The concepts of mobilization, such as:
  - a. Maitland
  - b. Cyriax,
  - c. Kaltenborn
  - d. Mennel
  - e. Mulligan
  - f. McKenzie

**Section- B**

1. Pain: Assessment & management
2. Butler mobilization of nerves
3. Review of Special tests for various joints

**Section- C**

1. Myofascial Release: Concept & brief discussion of its application technique
2. Muscle Energy Techniques
3. Positional release technique
4. Principles of Taping and application- Rigid & Dynamic Taping

**Section- D**

1. Segmental Stabilization Concepts of Spine:
  - a. Muscle function in spinal stabilization
  - b. Contribution of various muscles to spinal stabilization
  - c. Local Muscle dysfunction in Low back pain
  - d. Principles of clinical management of deep muscle system for segmental Stabilization.

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***References:***

1. Clinical Orthopedic Rehabilitation, Brent Brotzman.
2. Orthopedic Physiotherapy, Robert A Donatelli, Churchill Livingstone.
3. Physical Rehabilitation Assessment and Treatment, Susan O Sullivan, Jaypee brothers
4. Therapeutic Exercise for Spinal Segmental Stabilization in Low back Pain, C. Richardson, G. Jull, Churchill Livingstone.
5. William E. Prentice: Rehabilitation Techniques – Mosby.