SCHEME OF EXAMINATION

&

SYLLABI

OF

MASTER OF PHYSIOTHERAPY

(MUSCULOSKELETAL)

(Two Years Programme)

Guru Gobind Singh Indraprastha University
KASHMERE GATE, DELHI

W.E.F. Academic Session 2008-2009

Guru Gobind Singh Indraprastha University, Delhi.

MASTER OF PHYSIOTHERAPY (MPT)

(MUSCULOSKELETAL)

FIRST YEAR

COURSE CODE	COURSE NAME	L	T/P	YEARLY * CREDITS
MPT (M) 101	Basic Sciences and Biomechanics	3	--	6
MPT (M) 102	Research Methodology& Biostatics	3	--	6
MPT (M) 103	Musculoskeletal Disorders-I	4	--	8
MPT (M) 104	Physiotherapy Assessment & Goal Planning-I	3	--	6
MPT (M) 105	Musculoskeletal Physiotherapy Management-I	3	--	6
	PRACTICALS			
MPT (M) 151	Musculoskeletal Physiotherapy Assessment & Management	--	6	6
MPT (M) 152	P.T. Clinics/ Symposia/ Presentation**	--	12	12
	Total	16	18	50

* Yearly Credits have been calculated by multiplying the Semester-wise credits by two for theory papers.

** NUES stands for Non University Examination Subject.

Guru Gobind Singh Indraprastha University, Delhi

MASTER OF PHYSIOTHERAPY (MPT)

(MUSCULOSKELETAL)

SECOND YEAR

COURSE CODE	COURSE NAME	L	T/P	YEARLY * CREDITS
MPT (M) 201	Pedagogy in Physiotherapy Education	2	--	4
MPT (M) 202	Administration, Management & Ethical issues	2	--	4
MPT (M) 203	Musculoskeletal Disorders-II	4	--	8
MPT (M) 204	Physiotherapy Assessment & Goal Planning –II	3	--	6
MPT (M) 205	Musculoskeletal Physiotherapy Management –II	3	--	6
	PRACTICALS			
MPT (M) 251	Musculoskeletal Physiotherapy Assessment and Management	--	6	6
MPT (M) 252	P.T. Clinics/ Symposia / Presentation**	--	8	8
MPT (M) 253	Dissertation			8***
	Total	14	14	50

* Yearly Credits have been calculated by multiplying the Semester-wise credits by two for theory papers.
** NUES stands for Non University Examination Subject.
*** The contact hours for dissertation would depend on the subject hence the credits have directly been shown in the final column

Total Credits of the Programme are – 100

Every student will be required to register themselves for all courses of the programme and shall also be required to take up examination to all courses; however a student shall be entitled to the award of the degree if he or she is able to earn a total of 100 credits.

First Year

Basic Sciences & Biomechanics

Course code MPT (M) 101 L-3 T/P - 0 CREDITS-6

Basic Sciences:

Objective:

On completion of the study of this subject the student should be able to

- Comprehend the structure & function of parts of the musculoskeletal system in relevance to Physiotherapy
- Correlate the knowledge gained, in understanding the musculoskeletal dysfunction

Following are the topics to be included but not limited to:

1. Introduction to musculoskeletal system.
2. Structure & function of the various components of musculoskeletal system.
   a) Bone structure, blood supply, and growth.
   b) Cartilage
   c) Muscle structure, functional & classification. Origin, insertion, action and nerve supply.
   d) Ligament
   e) Major nerves – Course, branches & distribution. Implication of nerve injuries.
3. Joints – classification, structure of joints, movements, range, limiting factors, stability, blood supply, nerve supply, its applied anatomy.
4. Spine – Vertebral column development, structure, joints, muscles of back, applied and functional anatomy
5. Brief description of Upper & lower extremity, abdomen, pelvis, head, neck and brain.

1. Kinematics

- Types of motion (accessory and joint play of axial and peripheral skeletal)
- Location of motion (instantaneous axis of movement ,shifting axis of movement)
- Magnitude of motion(factors determining it)
- Direction of motion
- Angular motion and its various parameters
- Linear motion and its various parameters
- Projectile motions

2. Kinetics

- Definition of forces
- Force vectors (composition, resolution, magnitude)
- Naming of Force (gravity and anti-gravity force,JFR)
- Force of gravity and COG
- Stability
- Reaction forces
- Equilibrium & BALANCE
- Linear forces system
- Friction and its various parameters
- Parallel force systems
- Concurrent force systems
- Work power and energy
- Moment arms of force & its application
- Force components
- Equilibrium of force

3. Mechanical energy, work and power

- Definitions
- Positive and Negative work of muscles
- Muscle mechanical power
- Causes of inefficient movement
    - Co-contractions
    - Isometric contraction against gravity jerky movement
    - Energy generation at one joint and absorption at another
    - Energy flow and Energy system used by the body
    - Energy storage

4. Muscle Mechanics

- Structure and composition of muscle. Physiology of musculoskeletal systems
- Fiber length and cross section area
- Mechanical properties of various muscles.
- EMG changes during fatigue and contraction.
- Changes in mechanical and physiological properties because of ageing, exercise and immobilization ,dystrophies and pathological conditions.

5. Ligament & Tendon mechanics

- Structure and composition
- Mechanical properties and physiological properties.
- Cross sectional area measurements
- Muscle tendon properties
- Temperature sensitivity

Changes in physical and mechanical properties because of aging, exercise and Immobilization and position

Mechanoreceptors, its types, distribution with respect to joint, structure and function.

Clinical applications

6. Joint mechanics

Joint design

Joint categories

Joint function
- Arthrokinematics
- Osteokinematics
- Kinematic chains — Open / Closed

Joint forces, equilibrium and distribution of these forces

Degenerative changes in weight bearing joints and compensatory actions

Joint stability and its mechanics

Clinical applications

7. Gait

Normal Gait and its determinants

Gait parameter
- Kinetic
- Kinematics
- Time-Space

Pathological gait with emphasis on polio, cerebral palsy, dystrophies, hemi paresis, Para paresis

Running

Stair climbing

Changes in gait following various surgeries/ diseases/ disorders.

1. Basic wheelchair skills and assessment training.

2. Transfer skill training

References:

S. No.	*Title*
1	Synopsis of Surgical Anatomy
2	Gray's Anatomy-
3	Grants – Methods of Anatomy
4	Clinical Anatomy for Medical Students
5	Textbook of Medical Physiology
6	Pathologic Basis of Diseases
7	The Pharmacological basis of Therapeutics
8	Pathology implications for Physical Therapists
9	Hutchinsons – Clinical Methods of Medicine
10	Outline of Orthopedics
11	Outline of Fractures
12	Tureks – Orthopedics
13	Text Book of Radiology
14	The Pharmacological basis of Therapeutics
15	Pharmacology and Pharmacotherapeutics
16	Davidsons – Principles and Practice of Medicine
17	Systems of Orthopedics
18	Clinical Kinesiology
19	Kinesiology – Scientific Basis of Human Motion, Brown & Benchmark
20	Kinesiology and Applied Anatomy,
21	Biomechanics of Spine
22	Physiology of Joints
23	Clinical Neurophysiology.
24	The Biomechanics of Sports Techniques,
25	Biomechanics – A Qualitative approach for studying Human Motion
26	Joint Structure and Function - A Comprehensive Analysis -
27	Analysis of Sports Motion: Anatomic and Biomechanics perspectives
28	Basic Biomechanics in Sports and Orthopedic Therapy
29	Biomechanics of Sports
30	Muscle alive
31	Basic Biomechanics of Muscular Skeletal System
32	Introduction to Sports biomechanics

Research Methodology & Biostatistics

Course code MPT (M) 102 L-3 T/P - 0 CREDITS-6

Objective:

On completion of the study of this subject the student should be able to:

- Enumerate the steps in Physiotherapy research process
- Acquire skills of reviewing literature, formulating a hypothesis, collect data, writing research proposal etc
- Describe the importance & use of biostatistics for research work

Following are the topics to be included but not limited to:

SECTION I

RESEARCH METHODOLOGY

1. Research in Physiotherapy

Introduction

Research for Physiotherapist: Why? How? And When?

Research – Definition, concept, purpose, approaches

Internet sites for Physiotherapist

2. Research Fundamentals

Define measurement

Measurement framework

Scales of measurement

Pilot Study

Types of variables

Reliability & Validity

Drawing Tables, graphs, master chart etc

3. Writing a Research Proposal, Critiquing a research article

Defining a problem

Review of Literature

Formulating a question, Operational Definition

Inclusion & Exclusion criteria

Forming groups

Data collection & analysis

Results, Interpretation, conclusion, discussion

Informed Consent

Limitations

4. Research Design

Principle of Designing

Design, instrumentation & analysis for qualitative research

Design, instrumentation & analysis for quantitative research

Design, instrumentation & analysis for quasi-experimental research

Design models utilized in Physiotherapy

5. Research Ethics

Importance of Ethics in Research

Main ethical issues in human subjects' research

Main ethical principles that govern research with human subjects

Components of an ethically valid informed consent for research

SECTION II

BIOSTATISTICS

1. Biostatistics

- Introduction
- Definition
- Types
- Application in Physiotherapy

2. Data

- Definition
- Types
- Presentation
- Collection methods

3. Measures of central value

- Arithmetic mean, median, mode. Relation ship between them
- Partitioned values- Quatertiles, Deciles, Percentiles
- Graphical determination

4. Measures of Dispersion

- Range
- Mean Deviation
- Standard Deviation

5. Normal Distribution Curve

- Properties of normal distribution
- Standard normal distribution
- Transformation of normal random variables.
- Inverse transformation
- Normal approximation of Bioaxial distribution.

6. Correlation analysis

- Bivariate distribution
- Scatter Diagram
- Coefficient of correlation
- Calculation & interpretation of correlation coefficient
- T-test, Z-test, P-value

7. Regression analysis

- Lines of regression
- Calculation of Regression coefficient

8. Sampling

- Methods of Sampling
- Sampling distribution
- Standard error
- Types I & II error

9. Probability (in Brief)

10.Hypothesis Testing

- Null Hypothesis
- Alternative hypothesis
- Acceptance & rejection of null Hypothesis

- Level of significance

11. Parametric & non Parametric tests

- Chi square test
- Mann-Whitney U test
- Wilcoxon Signed test
- Kruskal-Wallis test
- Friednam test
- T-test/student T test
- Analysis of variance

References:

Sr. No.	*Title*
1	Research for physiotherapists
2	Handbook of research Method
3	Introduction to research in Health Sciences
4	Elements of research in Physical Therapy
5	Physical Therapy Research
6	Methods in Biostatistics: For Medical students and research workers
7	An Introduction to biostatistics

Musculoskeletal Disorders I

Course code MPT (M) 103 L-4 T/P-0 CREDITS-8

Objective:
On completion of the study of this subject the student should be able to

- Correlate the clinical manifestations to the organ of dysfunction of the musculoskeletal system
- To understand the Conservative & Surgical management of the musculoskeletal conditions as relevant to physiotherapy.

Section I

Musculoskeletal disorders

Introduction, epidemiology of disease pattern, Path physiology, Clinical presentation, conservative management & complications of the following clinical conditions:

General Musculoskeletal Disorders

1. **Congenital malformations**
   - Upper Limb
   - Lower Limb
   - Spine
2. **Rheumatic disorders**
   - Rheumatoid arthritis
   - Ankylosis Spondylosis
   - Reiter's disease
   - Polymyalgia rheumatica
   - Psoriasis
3. **Infections of musculoskeletal system**

Acute

Chronic

4. Metabolic and endocrine disorders

Calcium metabolism

Osteoporosis

Osteomalacia and ricket

Hyper parathyrodism

5. Tumors of the musculoskeletal system

Classification

Benign

Malignant

6. Neuromuscular disorders

Poliomyelitis.

Cerebral palsy

Arthrogryposis multiplex Congenita

Muscular dystrophy

7. Osteoarthritis and crystal deposition diseases

Investigations

Orientation and Introduction, physical basis, normal result & common abnormal response of the procedures done for musculoskeletal conditions (in brief)

1. X- ray
2. Computerized Tomography
3. Magnetic Resonance Imaging
4. Bone Scan
5. Laboratory tests
6. FNAC

7. Bone biopsy

Section II

Musculoskeletal Disorders

Orientation and General principles of Orthopaedic surgery-

1. Arthrodesis
2. Osteotomy
3. Arthroplasty
4. Bone grafting
5. Internal and external fixations
6. Distraction and limb reconstruction
7. Correction of bone deformities and joint contractures.
8. Tendon transfers
9. Nerve suturing and grafting.

References:

S. No.	*Title*
1	Essential of Orthopaedic for Physiotherapist by Ehbezar
2	Cash'TB for Ortho and rheumatology for physiotherapist by Downie
3	Muscle Testing by Hislop Daniel and Wortuingham
4	Physical Medicine and Rehabilitation Secrets by O'Young
5	Principles and Practice of orthopedics and sports medicine by Garret
6	Orthopaedic rehabilitation by Brokmen
7	Treatment and rehabilitation fractures by Hoppenfield
8	Rehabilitation Medicine by Delisa
9	Essentials of Physical Medicine and Rehabilitation by Silver
10	Recent advances in Orthopaedic
11	Musculoskeletal Trauma
12	Textbook of Orthopaedic & Trauma
13	Campbell's Orthopaedic surgery
14	Watson Jones fracture join & injuries

Physiotherapy Assessment and Goal Planning-I

Course code MPT (M) 104 L-3 T/P-0 CREDITS-6

Objective:

On completion of the study of this subject the student should be able to

- Perform thorough Physiotherapy assessment & list deficiencies
- Design individualized goals for the patient
- Rationalize the outcome of the assessment
- Document systematic, meaningful, accurate written records of the patient

Physiotherapy assessment to be taught for the conditions covered in the subject Musculoskeletal Disorders I (Code MPT (M) 103)

1. Review of General assessment – patients history, observation, palpation, examination
2. Pain assessment and scales for evaluation in acute and chronic pain
3. Sensory assessment
4. Motor assessment
5. Balance assessment and scales for assessment. Balance Outcome measures and there administration.
6. Assessment of Tone, flexibility, tightness of musculoskeletal tissues
7. Muscle Length Testing and special tests for the same
8. Reflex testing
9. Limb length measurement recent methods for assessment and its clinical applications
10. Postural assessment methods and common deviations from the normal
11. Examination of movements, Range of Motion
12. Clinical Gait assessment (observational methods and EMG gait analysis)
13. Functional assessment
14. X-Ray, MRI, CT report reading and analysis
15. Physical Disability evaluation in detail .ICF classification

References:

Sr. No.	*Title*
1	Rehabilitation of people with Spinal cord injury
2	Essentials of in patient rehabilitation
3	Physical Rehabilitation: Assessment and Treatment by O'Sullivan, F.A. Davis, Philadelphia , 1994
4	Orthopaedic physical assessment by Magee
5	Physical therapy of the low back
6	Practical evidence based physiotherapy
7	Differential diagnosis and physical therapy by Goodman
8	Orthopaedic Rehabilitation by Brokman
9	Orthopaedic taping, wrapping, bracing & paddling
10	Textbook of Rehabilitation by Sunder
11	Physiotherapy and growing child by Burns
12	Essential of Orthopaedic for physiotherapists by Ebnezar
13	Physical therapy of the low back by Twomey, Churchill, Livingstone, London 1995
14	Myofascial and pain dysfunction by Travell, Villimans and Wilkins, Baltimore 1983
15	Orthopaedic Physical therapy by Donatteli, London Churchill Livingstone
16	Mobilization of the extremity joints by Kaltenbore, Harper and Row

Musculoskeletal Physiotherapy Management- I

Course code MPT (M) 105 L-3 T/P-0 CREDITS-6

Objective:
On completion of the study of this subject the student should be able to:

- To formulate a rationalized treatment plan for the patient
- Implement physiotherapy treatment
- Compare & contrast the outcome of various treatment approaches
- Document the status to the patient as written records

Following are the topics to be included but not limited to-
Review of Basic Techniques:

1. Stretching (principals and methods)
2. Strengthening (principals and methods)
3. Passive movements testing and end feel assessment
4. Active exercise training , its benefits and various methods
5. Assisted resisted exercise training
6. Resisted exercise training. Its uses and disadvantages in comparison with other forms of exercise training
7. Postural Re-education (methods and techniques)
8. Electrotherapy Modalities(principal off application and properties along with various indications and contraindications)

Physiotherapy management for the conditions covered in the subject Musculoskeletal Disorders I (Code MPT (M) 103)

Advanced Physiotherapy Treatment approaches:

1. Mobilization techniques like Mc Kenzie.
2. Pain management with emphasis on pain of peripheral origin and central origin
3. Gait Training
4. Biofeedback
5. Hydrotherapy

6. Patient & family education
7. Role of splints in Physiotherapy
8. Relaxation Techniques
9. Massage therapy
10. Wheel chair skills-basic

References:

Sr. No.	***Title***
1	Management Principles for Physiotherapist by Nosse, Lorry J
2	Essential of Orthopaedic for physiotherapists by Ebnezar
3	Physical therapy of the low back by Twomey, Churchill, Livingstone, London 1995
4	Myofascial and pain dysfunction by Travell, Villimans and Wilkins, Baltimore 1983
5	Orthopaedic Physical therapy by Donatteli, London Churchill Livingstone
6	Hand Rehabilitation by Christine, Churchcill, Livingstone London 1995
7	Vertebral Manipulation by Matiland G.D. Boston, Butterworth & Co. Boston , 1997
8	Peripheral Manipulation Matiland G.D. Boston, Butterworth & Co. Boston , 1997
9	Gait Analysis by Perry J., Black Thorofare, New Jersy, 1992
10	Bio – Feedback by A practitioner's guide – Kerb D., Guiford Press

Musculoskeletal Physiotherapy Assessment & Management (Practical)

Course code MPT (M) 151 L-0 T/P-6 CREDITS-6

Objective:

On completion of the study of this subject the student should be able to:

- Perform a through physiotherapy assessment & plan an individualized goals for Musculoskeletal Conditions covered in the first year
- Apply Effective physiotherapy treatment techniques, compare & contrast the efficacy of different treatment approaches
- Communicate the status to the patient with other rehabilitation team members & patient's attendants

Following are the topics to be included but not limited to-

Practical Training in the Physiotherapy assessment & treatment for conditions covered in the first year.

Physiotherapy Assessment

1. Review of General assessment – patient's history, observation, Palpation and examination
2. Pain assessment
3. Sensory and Motor assessment
4. Balance Assessment
5. Assessment of tone, flexibility and tightness
6. Muscle Length Testing
7. Reflex testing
8. Limb length measurement
9. Postural assessment

10. Examination of movements, Range of Motion
11. Clinical Gait assessment
12. Functional assessment
13. X-Ray, MRI, CT report reading & analysis
14. Physical Disability evaluation (in brief)
15. Wheel chair skills- Basic.

Advance Physiotherapy Treatment approaches

1. Pain management
2. Gait Training
3. Biofeedback
4. Hydrotherapy
5. Patient & family education
6. Role of splints in Physiotherapy
7. Relaxation Techniques
8. Massage therapy

Practical Examination-

- Practical examination will be divided into two parts:

1) Two long Cases

2) One Short Case

CLINICS, SYMPOSIA, PRESENTATION & COMPUTER FUNDAMENTALS

Course code MPT (M) 152 L-0 T/P-12 CREDITS-12

Course objective: The student will learn approach to patient, collection of demographic data, art of history taking and bedside/ OPD/ on-field manners in relation to the patient. The student will be posted in the department of Physiotherapy & the sports clubs/ organizations/ teams associated with the hospital and he/ she will do the assessment of the patients visiting the respective destinations.
Students will be taught the basic fundamentals of computer science and information technology, helping them in carrying out research and penning the dissertation.

Examination

There will be no university examination. The students will be awarded marks on the basis of his/ her attendance & performance during clinical postings at the destinations attached with institute.

MUSCULOSKELETAL DISORDERS

SECOND YEAR
Pedagogy in Physiotherapy Education

Course code MPT (M) 201 L-2 T/P-0 CREDITS-4

Objective:

On completion of the study of this subject the student should be able to:

- Understand the Dynamics of teaching & learning
- Plan effective teaching sessions in Physiotherapy

Following are the topics to be included but not limited to-

1. Education -

Introduction

Educational Philosophy- Idealism Naturalism, Pragmatism

Aims of Education

Functions of Education

Formal, informal and Non formal Education

Agencies of Education

Current issues and Trends in Higher Education

Issue of quality in Higher Education

Autonomy and Accountability

Privatization of Education

2. Concept of Teaching and Learning

Meaning and scope of Educational Psychology

Meaning and Relationship between teaching and learning

Learning Theories

Dynamics of behavior

Individual differences

3. Curriculum

Meaning and concept

Basis of curriculum formulation

Framing objectives for curriculum

Process of curriculum development and factors involved.

Evaluation of curriculum

4. Method and techniques of teaching

Lecture

Demonstration

Discussion

Seminar

Assignment

Project

Case Study

5. Planning for teaching

Bloom’s taxonomy of instructional objectives

Writing instructional objectives in behavioral terms

Unit planning

Lesson planning

6. Teaching aids

- Types of teaching aids
- Principles of selection, preparation and use of audio-visual aides

7. Measurement and Evaluation

- Nature of educational measurement: meaning, process, types of tests
- Construction of an achievement test and its analysis
- Standardized test
- Introduction of some standardized tools, important tests of intelligence, Aptitude and personality.
- Continuous and comprehensive evaluation

8. Guidance and counseling

- Meaning & concepts of guidance and counseling
- Principles of guidance and counseling

9.

- Awareness Programme

Awareness and guidance to the common people about health and disease.

References:

Sr. No.	*Title*
1	Developing a Pedagogy of Teacher education: Understanding teaching and learning about teaching.
2	Handbook of Technological pedagogical content knowledge (TPCK) for educators
3	Language, Culture and community in Teacher education.

4	*Studying Teacher Education* The Report of the AERA Panel on Research and Teacher Education
5	Reframing Sociocultural Research on Literacy Identity, Agency, and Power
6	Education of the masses: A Quest for Pedagogy
7	Pedagogy and Learning with ICT
8	Changing Mins: Pedagogy of Hope
9	Treatise on Pedagogy
10	Choral Pedagogy

Administration, Management & Ethical Issues

Course code MPT (M) 202 L-2 T/P-0 CREDITS-4

Objective:

On completion of the study of this subject the student should be able to:

- Understand the basic issues of Management & Administration
- Practice as an informed professional on Legal & ethical issues

Following are the topics to be included:

SECTION I

Management

Management:

Introduction

Evolution of management

Functions of management

Management process – planning, organization, direction, controlling decision-making

Personnel management:

Staffing

Recruitment selection

Performance appraisal

Collective bargaining

Job satisfaction

Marketing:

- Market segmentation
- Channels of distribution
- Promotion
- Consumer behavior

Total Quality Management:

- Basics of quality management
- Quality control
- Quality assurance PROGRAMME in hospitals & medical audit
- International quality system

SECTION II
Administration, Legal Ethical Issues

- Hospital as an organization - Functions and types of hospitals
- Roles of Physical therapist, Physical therapy Director, Physiotherapy Supervisor, Physiotherapy assistant, Physiotherapy aide, Home health aide, Volunteer.
- Rules of Professional Conduct.
- Legal responsibility
- Code of ethics
- Functions of Physiotherapy associations
- Role of the International Health Agencies
- Standards of practice for physiotherapists
- Liability and obligations in the case of medical legal action
- Law of disability & discrimination
- Confidentially of the Patient's status

Consumer protection law, health law, MCI, DCP

References

Sr. No.	*Title*
1	Human Resource Management by NK Singh
2	Organizational Behaviour by Archana Tyagi
3	Public Power & Administration by Wilenski, Hale & Iremonger
4	Physical Therapy Administration & Management by Hickik Robert J
5	Management Principles for physiotherapists by Nosse Lorry J.
6	Managerial accounting for hospital
7	Hospital: planning, design & management
8	Medical ethics & consumer protection act
9	Health economics in development
10	Marketing Management by T.N. Chhabra & S.K. Grover
11	Hospital Administration by Dr. S.L. Goel & Dr. R. Kumar
12	Principles and Practice of Management by LM Prasad
13	Quality Management by Bedi
14	Handbook of human resource management
15	Personnel /Human Resource Management by Decenzo Robbins

Musculoskeletal Disorders II

Course code MPT (M) 203 L-4 T/P-0 CREDITS-8

Objective:

On completion of the study of this subject the student should be able to

- Correlate the clinical manifestations to the organ of dysfunction of the Musculoskeletal system
- To understand the conservative & surgical management of the Musculoskeletal conditions as relevant to physiotherapy.

Following are the topics to be included but not limited to:

Section I

Musculoskeletal disorders

Introduction, epidemiology of disease pattern, Path physiology, Clinical presentation, complication and physiotherapy management of the following clinical conditions:

REGIONAL ORTHOPEADICS

1. **The shoulder**

- Rotator cuff lesions
- Instability
- Rheumatoid disease of shoulder.
- Tuberculosis

2. The Elbow

- Tennis elbow

- Golfer’s elbow
- Myositis ossificans

3. **The Wrist**

- Carpal tunnel syndrome
- Ganglion

Wrist instabilities and special tests

4. **The Hand**

- Peripheral nerve injuries
- Tendon lesions and transfer surgeries
- Deformity in rheumatoid arthritis, peripheral nerve injuries, Hemiplegia SCI and leprosy

5. Cervical Spine

- Discogenic pain
- Whiplash injuries
- Thoracic outlet syndrome
- Brachial plexus injury and plexopathies
- Torticollis and wry neck in pathologies of cervical spine

6. **Back**

- Inervertebral disc.
- Discogenic pain
- Spondylolysis & listhesis
- Scoliosis & kyphosis
- Tuberculosis

Musculoskeletal causes of low back pain

7. **The Hip**

- A vascular necrosis of femoral head.
- Osteoarthritis
- Principles of Total Hip Replacement (THR)

8. **Knee**

- Osteoarthritis
- Meniscal / ligament injuries
- Genu valgum / varum
- Princliples of Total Knee Replacement (TKR)

9. **Ankle and foot**

- Metatarsalgia
- Flat foot
- Carsus foot
- Hallax valgus

CTEV

Ankle sprains

10. **Fractures and joint injuries**

- Principles of acute fracture care
- Conservative management of the following:
- Pediatric fractures
- Injuries of shoulder, upper arm and elbow
- Injuries of forearm and wrist
- Neurosurgery
- Injuries of Spine

Injuries of Pelvis

Injuries of Hip and Femur

Injuries of Knee.

Leg Injuries

Injuries of ankle and foot

Section II

Musculoskeletal surgeries

General Principal and Orientation –

1. Operations on joints
2. Menisectomy, laminectomy, patellectomy, total knee and hip replacement
3. Malformations of spine & spinal cord
4. Surgeries for disc disorders
5. Amputations for upper and lower extremities.
6. Surgical management of fractures & other injuries
7. Orthopaedic implants- designs, materials, indications, post operative assessment

References:

S. No.	*Title*
1	Essential of Orthopaedic for Physiotherapist by Ehbezar
2	Cash'TB for Ortho and rheumatology for physiotherapist by Downie
3	Muscle Testing by Hislop Daniel and Wortuingham
4	Physical Medicine and Rehabilitation Secrets by O'Young
5	Principles and Practice of orthopedics and sports medicine by Garret
6	Orthopaedic rehabilitation by Brokmen
7	Treatment and rehabilitation fractures by Hoppenfield
8	Rehabilitation Medicine by Delisa
9	Essentials of Physical Medicine and Rehabilitation by Silver
10	Recent advances in Orthopaedic
11	Musculoskeletal Trauma
12	Textbook of Orthopaedic & Trauma
13	Campbell's Orthopaedic surgery

14	Watson Jones fracture join & injuries
15	Advanced reconstruction foot and ankle
16	Joint structure and function by Norkin
17	Trauma Secrets by Naudee

Physiotherapy Assessment & Goal Planning-II

Course code MPT (M) 204 L-3 T/P-0 CREDITS-6

Objective:

On completion of the study of this subject the student should be able to:

- Perform thorough Physiotherapy assessment & list deficiencies
- Design individualized goals for the patient
- Rationalize the outcome of the assessment
- Document systematic, meaningful, accurate written records of the patient

Physiotherapy assessment to be taught for the conditions covered in the subject Orthopaedic Disorders II (Code MPT (M) 203)

- Review of General assessment – patients history, observation, palpation, examination
- Pain assessment
- Sensory and motor assessment
- Balance assessment
- Assessment of tone, flexibility and tightness
- Muscle Length Testing
- Reflex testing
- Limb length measurement
- Postural assessment
- Examination of movements, Range of Motion
- Clinical Gait assessment
- Functional assessment and outcome scales and questionnaires
- X-Ray, MRI, CT report reading & analysis
- Physical Disability evaluation and ICF classification. (in brief)
- Clinical Orthopaedic testing

References:

Sr. No.	***Title***
1	Rehabilitation of people with Spinal cord injury
2	Essentials of in patient rehabilitation
3	Physical Rehabilitation: Assessment and Treatment by O'Sullivan, F.A. Davis, Philadelphia , 1994
4	Orthopaedic physical assessment by Magee
5	Physical therapy of the low back
6	Practical evidence based physiotherapy
7	Differential diagnosis and physical therapy by Goodman
8	Orthopaedic Rehabilitation by Brokman
9	Orthopaedic taping, wrapping, bracing & paddling
10	Textbook of Rehabilitation by Sunder
11	Physiotherapy and growing child by Burns
12	Textbook of Rehabilitation by Sunder
13	Essential of Orthopaedic for physiotherapists by Ebnezar
14	Physical therapy of the low back by Twomey, Churchill, Livingstone, London 1995
15	Myofascial and pain dysfunction by Travell, Villimans and Wilkins, Baltimore 1983
16	Orthopaedic Physical therapy by Donatteli, London Churchill Livingstone
17	Mobilization of the extremity joints by Kaltenbore, Harper and Row

18	Physical therapy for children by Campbell Suzann
19	Physical therapy assessment in early infancy by Wilhelm Churchill, Livingstone New York 1993
20	Measurement and Physical therapy by Churchill, Livingstone London 1988

Musculoskeletal Physiotherapy Management- II

Course code MPT (M) 205 L-3 T/P-0 CREDITS-6

Objective:

On completion of the study of this subject the student should be able to

- To formulate a rationalized treatment plan for the patient
- Implement physiotherapy treatment
- Compare & contrast the outcome of various treatment approaches
- Document the status to the patient as written records

Following are the topics to be included but not limited to -

1. Physiotherapy management for the conditions covered in the subject musculoskeletal Disorders II (Code MPT (M) 203)
2. Advanced physiotherapy Treatment approaches

Mobilization techniques: Mulligan Cyriax, Maitland

Combined movement therapy

Muscle energy techniques and its applications

Positional release techniques

Myofasical release

Trigger point therapy

Group exercises

Physiotherapy in home setting and use of assistive aids

External aids, appliances, and adaptive self-help devices: Prescription, biomechanics, checkout and training.

Community based rehabilitation in musculoskeletal disorders.

Wheelchair prescription and advanced skills

Transfer techniques

References:

Sr. No.	***Title***
1	Management Principles for Physiotherapist by Nosse, Lorry J
2	Essential of Orthopaedic for physiotherapists by Ebnezar
3	Physical therapy of the low back by Twomey, Churchill, Livingstone, London 1995
4	Myofascial and pain dysfunction by Travell, Villimans and Wilkins, Baltimore 1983
5	Orthopaedic Physical therapy by Donatteli, London Churchill Livingstone
6	Hand Rehabilitation by Christine, Churchcill, Livingstone London 1995
7	Vertebral Manipulation by Matiland G.D. Boston, Butterworth & Co. Boston , 1997
8	Peripheral Manipulation Matiland G.D. Boston, Butterworth & Co. Boston , 1997
9	Gait Analysis by Perry J., Black Thorofare, New Jersy, 1992
10	Bio – Feedback by A practitioner's guide – Kerb D., Guiford Press
11	Cash's Textbook for Ortho and Rheumatology for physiotherapist by Downie
12	Practical exercise therapy by Hollis
13	Orthopaedic Rehabilitation by Brokman
14	Essential for Physical Medicine and Rehabilitation ed. 2003 by Silver

Musculoskeletal Physiotherapy Assessment & management (Practical)

Course code MPT (M) 251 L-0 T/P-6 CREDITS-6

Objective:

On completion of the study of this subject the student should be able to

- Perform a through physiotherapy assessment & plan an individualized goals for musculoskeletal Conditions covered in the second year.
- Apply Effective physiotherapy treatment techniques, compare & contrast the efficacy of different treatment approaches
- Communicate the status to the patient with other rehabilitation team members & patient's attendants

Practical Training in the Physiotherapy assessment & treatment for conditions covered in the second year.

Physiotherapy Assessment

- Review of General assessment – patients history, observation, palpation, examination
- Pain assessment
- Sensory and motor assessment
- Balance assessment
- Assessment of tone, flexibility and tightness
- Muscle Length Testing

- Reflex testing
- Limb length measurement
- Postural assessment
- Examination of movements, Range of Motion
- Clinical Gait assessment
- Functional assessment
- X-Ray, MRI, CT report reading & analysis
- Physical Disability (in brief)
- Clinical Orthopaedic testing

Combined movement therapy

Muscle energy techniques

Positional release techniques

Myofasical release

Group exercises

Physiotherapy in home setting

External aids, appliances, and adaptive self-help devices: Prescription, biomechanics, checkout and training.

Community based rehabilitation in musculoskeletal disorders.

Wheelchair prescription

Wheel chair skills- advanced

Transfer techniques

CLINICS, SYMPOSIA, PRESENTATION & COMPUTER FUNDAMENTALS

Course code MPT (M) 252 L-0 T/P-8 CREDITS-8

Course objective: The student will learn approach to patient, collection of demographic data, art of history taking and bedside/ OPD/ on-field manners in relation to the patient. The student will be posted in the department of Physiotherapy & the sports clubs/ organizations/ teams associated with the hospital and he/ she will do the assessment of the patients visiting the respective destinations.
Students will be taught the basic fundamentals of computer science and information technology, helping them in carrying out research and penning the dissertation.

Examination

There will be no university examination. The students will be awarded marks on the basis of his/ her attendance & performance during clinical postings at the destinations attached with institute.

Dissertation

Course code MPT (M) 253 L-0 T/P-0 CREDITS-8

Student will select a topic in his/her area of interest, in consultation with a supervisor/Guide, qualified for the purpose as recommended by the council/University for and carry out an independent dissertation, which will involve making research proposal, conduct of the work as per the documented methodology, statistical analysis, dissertation writing. The work will build on the knowledge acquired through study of research methodology and Biostatistics. The work will build on the knowledge acquired through study of research methodology and Biostatistics. Each candidate shall submit three type written copies of a dissertation and it should be submitted well in advance before the date of written, oral, clinical and practical examination, Acceptance of the dissertation by the examiners should be a pre-condition to sit in the annual examination.

Evaluation of the dissertation will be done by the examiner (s) appointed by Vice Chancellor of the University.

RECOMMENDED JOURNALS

1. Clinical Kinesiology
2. Physical Therapy (APTA, America)
3. Journal of Indian Association of Physiotherapy
4. Journal of Rehabilitation Research and Development
5. Archives of Physical Medicine and Rehabilitation
6. Journal of Pediatric Orthopaedics
7. Physiotherapy (CSP, London)
8. Pediatric Physical Therapy
9. American Journal of Physical Medicine and Rehabilitation
10. Physiotherapy (Canada).
11. Journal of neurological Sciences
12. Physiotherapy Theory and Practice
13. Journal of Biomechanics
14. Australian Journal of Physiotherapy
15. American Journal of Sports Exercises

The list of recommended books and journals are suggestions and must be taken as a helpful guide for reading. Students are encouraged to refer to other books and study material and not to limit themselves to the study material listed above.