

BHAGWANT UNIVERSITY
Sikar Road, Ajmer
Rajasthan



Syllabus

Master Of Physiotherapy
(Ortho, Neuro, Sports)

2 Year Semester Programme

BHAGWANT UNIVERSITY

MPT

SEMESTER I

Subject Code	Subject Name	Teaching Hours			Credits
		L	T	P	
01MPO101	Medical & Surgical Management of disorders of the Musculoskeletal system-1	6	0	0	6
01MPO102	Physiotherapy Management in disorders of the Musculoskeletal system- 1	6	0	0	6
01MPO103	Physiotherapy Management in disorders of the Musculoskeletal system - II	6	0	0	6
01MPO201	Clinical Practice-1	0	0	6	3
01MPO301	Discipline & Extra Curricular Activities	0	0	4	1
	TOTAL	18	0	10	22

SEMESTER II

Subject Code	Subject Name	Teaching Hours			Credits
		L	T	P	
02MPO101	Medical and Surgical Management of Disorder of the Musculoskeletal System-2	6	0	0	6
02MPO102	Research Methodology and Bio-Statistics	6	0	0	6
02MPO201	Clinical Practice-2	6	0	0	6
02MPO202	Seminars on Clinical Issues	0	0	6	3
02MPO301	Discipline & Extra Curricular Activities	0	0	4	1
	TOTAL	18	0	10	22

SEMESTER III

Subject Code	Subject Name	Teaching Hours			Credits
		L	T	P	
03MPO101	Pedagogy in Physiotherapy Education	6	0	0	6
03MPO102	Management, Administration and Ethical Issue	6	0	0	6
03MPO103	Bio- mechanics	6	0	0	6
03MPO201	Clinical Practice-3	0	0	6	3
03MPO301	Discipline & Extra Curricular Activities	0	0	4	1
	TOTAL	18	0	10	22

SEMESTER IV

Subject Code	Subject Name	Teaching Hours			Credits
		L	T	P	
04MPO101	Bio- mechanics in Musculoskeletal conditions	6	0	0	6
04MPO201	Clinical Practice-4	6	0	0	6
04MPO202	Seminars of Clinical Issues	6	0	0	6
04MPO203	Dissertation	0	0	6	3
04MPO301	Discipline & Extra Curricular Activities	0	0	4	1
	TOTAL	18	0	10	22

SEMESTER I

MEDICAL AND SURGICAL MANAGEMENT OF DISORDER OF THE MUSCULOSKELETAL SYSTEM.-I

Course Objectives:

- Demonstrate an understanding of surgical treatments, and alternatives to surgical treatment

Learning Outcomes:

- Demonstrate knowledge and understanding of common surgical problems
- Understand the indications for, and the limitations of, essential diagnostic studies used to evaluate patients with surgical problems

Course/Paper: 01MPO101 MPO Semester-I

Epidemiology, Pathomechanics, clinical presentation relevant diagnostic test and medical management of disorders of the musculoskeletal system. Surgical Management, indications, contra- indications for surgery precautions after surgery.

General Orthopedics

1. Metabolic Disorders of the Bone and Joints
2. Infectious Disorders of the Bone and Joints
3. Congenital Disorders of the Bone and Joints
4. Inflammatory Disorders of the Bone and Joints
5. Myopathies.
6. Neurological Disorders
7. Bone and Joint Tumors.
8. Complex Regional Pain Syndromes

Regional Orthopaedics

1. Disorders of Upper Limb
2. Disorders of Lower Limb.
3. Disorders of the Spine.

Traumatology

1. Trauma of the Upper Limb
2. Trauma of the Lower Limb
3. Trauma of the Spine
4. Trauma of the Peripheral Nerves

PHYSIOTHERAPY MANAGEMENT IN DISORDERS OF THE MUSCULOSKELETAL SYSTEM-I

Course Objectives;

- Integrate knowledge of basic sciences and physical therapy in order to modify treatment approaches that reflect the breadth and scope of physical therapy practice.

Learning outcomes:

- Integrate the use of basic principles of research in critical analysis of concepts and findings generated by self and others.
- Actively recognize the rights and dignity of individuals in planning and administering programs of care.

Course/Paper: 01MPO102
MPO Semester-I

GENERAL PRINCIPLE

1. P.T Assessment
2. Manipulation and Mobilizations Technique
3. Critical Analysis of Electrotherapeutic Modalities.
4. Exercise Training Programmes
5. Various Stretching techniques.

Physiotherapy Management in Specific Conditions

PHYSIOTHERAPY MANAGEMENT IN DISORDERS OF THE MUSCULOSKELETAL SYSTEM – II

**Course/Paper: 01MPO103
MPO Semester-I**

Course Objectives:

- Integrate knowledge of basic sciences and physical therapy in order to modify treatment approaches that reflect the breadth and scope of physical therapy practice.

Learning outcomes:

- Integrate the use of basic principles of research in critical analysis of concepts and findings generated by self and others.
- Actively recognize the rights and dignity of individuals in planning and administering programs of care.

GENERAL PRINCIPLE

1. Disability Evaluation.
2. Assessment and Management of Pain.
3. Soft Tissue Mobilizations.
4. Muscle Energy Technique.
5. Pt in home setting

Physiotherapy Management in Specific Conditions

CLINICAL PRACTICE-I

**Course/Paper: 01MPO201
MPO Semester-I**

Students will engage in clinical practice in Physiotherapy Department in the orthopedic setting to enhance their clinical skills and apply theoretical Knowledge gained during teaching sessions.

SEMESTER II

MEDICAL AND SURGICAL MANAGEMENT OF DISORDER OF THE MUSCULOSKELETAL SYSTEM-2

Course/Paper: 02MPO101
MPO Semester-II

Course Objectives:

- Demonstrate an understanding of surgical treatments, and alternatives to surgical treatment

Learning Outcomes:

- Demonstrate knowledge and understanding of common surgical problems
- Understand the indications for, and the limitations of, essential diagnostic studies used to evaluate patients with surgical problems

Students will be instructed via demonstration hands of technique, field visit and case conference on specific technique used in management of patients with musculoskeletal orders. Students will on their experience at the clinical postings to formulate a treatment plan for cases presented at the case conference.

RESEARCH METHODOLOGY AND BIOSTATISTICS

Course/Paper: 02MPO102
MPO Semester-II

Learning outcomes

- Select from, use and interpret results of, descriptive statistical methods effectively;
- Demonstrate an understanding of the central concepts of modern statistical theory and their probabilistic foundation;
- Select from, use, and interpret results of, the principal methods of statistical inference and design;
- • Communicate the results of statistical analyses accurately and effectively

RESEARCH METHODOLOGY

1. How are read and critique research.
2. Introduction to research: framework; levels of measurement; variables.

3. Basic research concept; validity and reliability
4. Design, instrumentation and analysis for qualitative research
5. Design, instrumentation and analysis for quantitative research
6. Design, instrumentation and analysis for quasi- experimental research
7. How to write a research proposal
8. The use and Protection of Human and Animal Subjects.

BIOSTATICS

1. Descriptive and Inferential statistics
2. Types of data: Qualitative and Quantities
3. Frequency distributions
4. Describing data with Graphs
5. Describing data with Averages Mode, Median, Mean
6. Describing variability Variance, Standard deviation etc.
7. Normal Distributions
8. Interpretation of r
9. Hypothesis testing
10. T tests
11. ANOVA
12. Probability
13. Type I and II errors
14. Parametric and Non – Parametric tests.
15. Which tests to use
16. Basics of computers – Hardware and Software
17. Basic of Computer Application- Windows, MS Word, Power Point, etc.
18. Simple statistical Analysis using available software

CLINICAL PRACTICE 2

Course/Paper: 02MPO201
MPO Semester-II

Students will engage in clinical practice in Physiotherapy Department in the orthopedic setting to enhance their clinical skills and apply theoretical Knowledge gained during teaching sessions

SEMINARS ON CLINICAL ISSUES

Course/Paper: 02MPO202
MPO Semester-II

These will serve as platform students to integrate components of patient's management. Students will give presentations on topics provide to them.

SEMESTER III

PEDAGOGY OF PHYSIOTHERAPY EDUCATION

Course/Paper: 03MPO101
MPO Semester-III

Course Objectives:

- Design syllabus and plan lessons that align objectives, methods, and assessments

Learning Outcomes:

- Provide common training so everyone teaches from the same curriculum
- Adhere to teaching policies and procedures
- Use diverse resources to support effective teaching
- Set learning objectives

Philosophy of educational and Emerging Issue in education

1. Meaning, Functions and aims of education
2. Agencies of education
3. Current Issue and trends in Higher Education.
4. Issue of quality in higher management, Accountability and Autonomy, Privatisation, Professional Development of Teachers, Educations of persons with Disabilities
5. Need for Education Philosophy
6. Some Major Philosophics, Idealism, Naturalism, Pragmatism and their Implications for education.

Concept of Teaching and Learning

1. Meaning scope of Educational Psychology
2. Meaning and Relationship between Teaching and Learning
3. Learning Theories
4. Dynamics of Behavior
5. Individual Differences

Curriculum

1. Meaning and concept
2. Basis of curriculum Formulation Development
3. Framing Objectives for curriculum
4. Process of Curriculum Development and factors Affecting Curriculum
5. Development Evaluation of Curriculum

Method and Technique of Teaching

1. Lecture, Demonstration
2. Discussion, Seminar, Assignment, Project and case Study.

Planning for teaching

Bloom's Taxonomy of Instructional Objectives, Writing Instructional Objectives in Behavioral terms, Unit Planning and Lesson planning.

Teaching Aids

1. Types of Teaching Aides
2. Principle of Selection, Preparation, and Use of Audio –
3. Visuals aids.

Measurement and Evaluation

1. Nature of Educational Measurement: Meaning Process, Types of Tests.
2. Construction of an Achievement test and Analysis
3. Standardized Test.
4. Introduction of some Standards tools, important tests of Intelligence, Aptitude, Personality.
5. Continuous and Comprehensive Evaluation

Guidance and Counseling

1. Meaning and Concepts of Guidance and Counseling Principles
2. Guidance and Counseling Services of Students and Faculty members.

3. Faculty Development and Development of Personnel for
4. P.T Services.

Clinical Education.

1. Awareness and Guidance to the common people about Health and Diseases and Available professional Services
2. Patient Education.
3. Education of the Practitioners

MANAGEMENT, ADMINISTRATION AND ETHICAL ISSUE

Course/Paper: 03MPO102
MPO Semester-III

Course objectives:

- Increase ethical **sensitivity**

Learning Outcomes;

- Raise (easy) ethical issues in class and tell students where to find answers in the code. Hold the students responsible for an answer on the exam or on later problem sets (e.g. in mini-design problems). Do this regularly.

MANAGEMENT

Functions of management

1. Evaluation of management through scientific management theory

Classical theory

System approach

Contingency approach

2. Management process

Planning, Organization, direction, controlling decision making

3. Introduction of personnel management

Staffing, recruitment, selection, performance appraisal, collective bargaining, discipline, and job satisfaction.

4. Quantitative methods of management

Relevance of statistical and/ or technique in management.

5. Marketing

Market segmentation, marketing research production planning pricing, and channels of distribution, promotion, consumer behavior, and licenser.

6. Total quality management

Basis of quality management – acid for quality control quality assurance program in hospitals, medical audit, and international quality system.

ADMINISTRATION

1. Hospital as an organization

Functions and types of hospitals selected clinical supportive ancillary services of a hospital, emergency department, nursing, , physical medicine & rehabilitation, clinical supportive and ancillary services of a hospital, emergency department nursing physical medicine & rehabilitation, clinical laboratory, pharmacy and dietary dept.

2. Roles of Physiotherapist, Physiotherapy, director physiotherapy supervisor, Physiotherapy assistant, Physiotherapy aide, Occupational Therapist, Home health side, volunteer.

3. Director care and referral relationship and confidentiality

LEGAL PROFESSIONAL ETHICAL ISSUES

1. Physical therapy: Definition and development.

2. The implications & 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. Codes of ethics

5. A wider knowledge of ethics relating to current social and medical policy in the provisions of health care.

6. Functions of the relevant professional associates education body and trade union.

7. The role of the international health agencies such as the world health organizations.

8. Standards of practice for physical therapies.

9. Current issues

BIO-MECHANICS

Course/Paper: 03MPO103
MPO Semester-III

Course Objectives:

- Apply knowledge of the underlying principles and concepts of Exercise and Sport Science. Including the core areas of: Human Physiology, Anatomy, Functional Anatomy, Exercise Physiology, Biomechanics, Motor Learning and Control, Exercise Metabolism and Nutrition, and Psychology .

Learning Outcomes:

- Utilise core instrumentation and equipment for the monitoring and assessment of exercise clients .
- Review, analyse and interpret information, and independently generate conclusions

Fundamental Mechanics

1. Forces
2. Moments
3. Newton's laws
4. Composition and resolution of forces
5. Static Equilibrium
6. Dynamic Equilibrium
7. Force systems.
8. Levers
9. Pulley Systems
10. Density & Mass
11. Segmental dimensions

Kinematics

1. Types of Motion.
2. Location of Motion.
3. Magnitude of Motion
4. Direction of Motion
5. Angular motion and its various parameters
6. Linear motion and its various parameters
7. Projectile motions

Kinetics

1. Definition of forces
2. Force vectors
3. Naming of force
4. Force of gravity & Cog
5. Stability
6. Reaction forces
7. Equilibrium
8. Linear forces system
9. Friction and its various parameters
10. Parallel force system
11. Concurrent force systems
12. Work power & energy
13. Moment arms of force
14. Force components
15. Equilibrium of force

Fluid Mechanics

1. Various laws governing the flow of fluids.
2. Various laws governing the volume of fluids
3. Various laws governing the pressure of fluids
4. Various laws governing the energy of fluids.
5. Various parameters explaining the flow.

6. Various parameters describing the fluids
7. Clinical applications.

Bone Mechanics

1. Structure & composition of bone
2. Stress
3. Strain
4. Modulus of rigidity & modular of elasticity
5. Poisson's effect
6. Strain energy
7. Static & Cyclic load behaviors.
8. Load
9. Mechanical properties of trabecular bone
10. Mechanical properties of cortical bone
11. Bone remodeling
12. Response of the bone to aging & exercise & immobilization
13. Mechanisms to prevent fracture present in bone
14. Fracture of prediction
15. Behavior of bone under load
16. Clinical applications
17. Failure Criteria

Muscles Mechanics

1. Structure & composition of muscle
2. Fiber length & cross section area
3. Mechanical propertied
4. EMG changes during fatigue & contraction
5. Changes in mechanical properties because of ageing and exercised & immobilization.
6. Clinical applications.

LIGAMENT & TENDON MECHANICS

1. Structure and composition
2. Mechanical properties.
3. Cross sectional area measurements.
4. Muscle tendon properties

CLINICAL PRACTICE-3

Course/Paper: 03MPO201
MPO Semester-III

Students will engage in clinical Physiotherapy Departments in the orthopedic setting to enhance their clinical skills and apply theoretical knowledge gaining during teaching sessions.

SEMESTER IV

BIOMECHANICS IN MUSCULOSKELETAL CONDITIONS

Course/Paper: 04MPO101
MPO Semester-IV.

Course Objectives:

- Apply knowledge of the underlying principles and concepts of Exercise and Sport Science. Including the core areas of: Human Physiology, Anatomy, Functional Anatomy, Exercise Physiology, Biomechanics, Motor Learning and Control, Exercise Metabolism and Nutrition, and Psychology .

Learning Outcomes:

- Utilise core instrumentation and equipment for the monitoring and assessment of exercise clients .
- Review, analyse and interpret information, and independently generate conclusions

1. APPLICATION OF BONE AND JOINTS MECHANICS

Load sharing & load transfer

Prosthetic design criteria

Bio- mechanical analysis of implants internal fixations

Degenerative changes in weight bearing joints & compensatory actions

2. GAIT

1. Gait parameter

- Kinetic

- Kinematic
 - Time – Space
2. Pathological gait
 3. Running
 4. Stair climbing
 5. Changes in gait following various surgeries/ diseases/ disorders

3. ORTHOSIS & PROSTHOSIS

1. Orthosis of Spine
2. Orthosis of upper limb
3. Orthosis of lower limb
4. Prescriptions checkouts & proper fittings
5. Bio- mechanical principles governing them
6. Aids used in management of disability.

CLINICAL PRACTICE-4

Course/Paper: 04MPO201
MPO Semester-IV.

Students will engage in clinical in Physiotherapy Departments in the orthopedic setting to enhance their clinical skills and apply theoretical knowledge gaining during teaching sessions.

SEMINARS ON CLINICAL ISSUES.

Course/Paper: 04MPO202
MPO Semester-IV

These will serve as a platform for students to integrate various components of patient management. Students will give presentations on topics provided to them.

DISSERTATION

Course/Paper: 04MPO203

MPO Semester-IV.

As part of the requirement for the master's degree the student is required to undertake a research study under the guidance of a guide.

