

SCHEME OF EXAMINATION

&

SYLLABI

OF

**MASTER OF PHYSIOTHERPY
(SPORTS)
(Two Years Programme)**

**GURU GOBIND SINGH INDRAPRASTHA
UNIVERSITY
KASHMERE GATE, DELHI**

SYLLABUS FOR MPT SPORTS

MPT (Sports) First Year

Course Code	Course Name	L	T/P	Yearly Credits*
MPT (S) 101	Applied Medical Sciences	1		2
MPT (S) 102	Kinesiology and Biomechanics	3		6
MPT (S) 103	Research Methodology & Biostatistics	2		4
MPT (S) 104	Sports Injuries Diagnosis & Management-I	3		6
MPT (S) 105	Sports Physiotherapy Methods	3		6
MPT (S) 106	Basic Exercise Physiology	3		6
MPT (S) 107	Sports Psychology	1		2
Practical				
MPT (S) 151	Assessment & Evaluation in Sports Physiotherapy		6	6
MPT (S) 152	SPT Clinics/ Symposia/ Presentation/ Computer fundamentals**		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

SYLLABUS FOR MPT SPORTS

MPT (Sports) Second Year

Course Code	Course Name	L	T/P	Yearly Credits*
MPT (S) 201	Pedagogy in Physiotherapy	2		4
MPT (S) 202	Administration, Management & Ethics	2		4
MPT (S) 203	Medical Conditions in Sports Persons	3		6
MPT (S) 204	Sports Injuries Diagnosis & Management-II	3		6
MPT (S) 205	Latest Advancements in Sports Medicine	2		4
MPT (S) 206	Applied Exercise Physiology	3		6
Practical				
MPT (S) 251	Assessment, Evaluation & Management in Sports		6	6
MPT (S) 252	SPT Clinics/ Symposia/ Presentation**		6	6
MPT (S) 253	Dissertation		8	8***
Total		15	20	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 program 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 award of the degree if he or she is able to earn 100 credits

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Name of the Institute/ College

Ref No: _____ Enrolment No.: _____
 Name: _____ S/D of: _____
 Masters of Physiotherapy (Sports) (2 years programme)
 Medium of instruction: English
 Date of admission: _____ Date of Completion: _____

Curriculum Hours

First Year			
Theory Courses		Practical Courses	
Subject	Hours	Subject	Hours
Applied Medical Sciences	31	Assessment & Evaluation In Sports Physiotherapy	186
Kinesiology and Biomechanics	93	SPT Clinics / Symposia / Presentation	372
Research Methodology & Biostatistics	62		
Sports Injuries Diagnosis & Management-I	93		
Sports Physiotherapy Methods	93		
Basic Exercise Physiology	93		
Sports Psychology	31		
Second Year			
Subject	Hours	Subject	Hours
Pedagogy in Physiotherapy	62	Assessment, Evaluation & Management in Sports	186
Administration, Management & Ethics	62	SPT Clinics/ Symposia/ Presentation	186
Medical Conditions in Sports Persons	93	Dissertation	248
Sports Injuries: Diagnosis & Management – II	93		
Latest Advancements in Sports Medicine	62		
Applied Exercise Physiology	93		
	Theory Hours		Practical Hours
Total	961		1178

Date: _____

Head, Department of Physiotherapy
 Head of the Institution & Seal

SYLLABUS FOR MPT SPORTS

APPLIED MEDICAL SCIENCES

Course code MPT (S) 101

L-1

T/P-0

CREDITS-2

Unit – I *Applied General Clinical Anatomy*

1. *Anatomy of the Nerve Injuries*
 - a. Anatomical and Physiological loss resulting from nerve injury.
 - b. Peripheral nerve entrapment
2. *Anatomical Angles and stiff joints*
 - a. Anatomical Angles
 - b. Snapping Joints
3. *The pathology of nerve, bones in terms of anatomy*
 - a. Anatomical facts regarding bones
 - b. Anatomical disturbances in various bone pathologies
4. *Anatomy of certain diseases*
 - a. Headache
 - b. Infections of the hand
 - c. Common dislocations
 - d. Lesions of Supraspinatous and Subdeltoid Bursae
 - e. Hernias associated with sports persons
 - f. Low back pain
 - g. Sciatica
 - h. Lesions of inter-vertebral disk
 - i. Abscesses of Spine

Unit – II *Applied General Physiology*

1. *Blood*
 - a. The various components of blood
 - b. Viscosity correlation
 - c. Oxyhemoglobin Dissociation curves
 - d. Interrelationship between pressure flow and resistance
 - e. Pressure volume curves
 - f. Stress relaxation of vessels
2. *Cardiovascular system*
 - a. Physical characteristics of systemic circulation
 - b. Pressure pulses
 - c. Oxygen demand theory of local blood flow circulation
 - d. Nervous control of blood circulation
 - e. Humorous control of blood circulation
 - f. Mechanisms of arterial pulse regulation
 - g. Hypertension
 - h. Cardiac output and its regulation
 - i. Cardiac output in normal stress conditions
 - j. Methods of measuring cardiac output
 - k. Normal coronary blood flow along with variations
 - l. Physiological basis of ischemic heart disease
 - m. The cardiac reserve
 - n. Physiological causes of shock

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3. Neuromuscular System

- a. Basic physics of membrane potentials
- b. Recording of membrane potentials and action potentials with basics of Electromyogram
- c. Mechanism of muscle contraction
- d. Sources of energy for muscle contraction
- e. Neural control of movement

4. Respiratory System

- a. Review of mechanics of respiration
- b. Pulmonary volumes and capacities
- c. Composition of Alveolar air
- d. Transport of oxygen in blood
- e. Carbon dioxide in blood
- f. Regulation of respiration
- g. Methods of studying respiratory abnormalities

5. Temperature regulation

- a. Regulation of body temperature

6. Endocrine System

- a. Pituitary hormones and their functions
- b. Thyroid hormones
- c. Adrenocortical hormones
- d. Insulin Glucagon hormones
- e. Parathyroid hormones

Unit – III Pathology

1. Inflammation and repair
2. “Failed” healing responses
3. Regional considerations of Inflammation & repair of soft tissue injuries.

Unit – IV Pharmacology

1. Principles of drug action.
2. Basic pharmacokinetics and Pharmacodynamics.
3. The use of drugs in various musculoskeletal disorders.

Unit – V Radiology

1. Basics of Imaging Techniques
 - a) Fluoroscopic Examination
 - b) CT Scan
 - c) Radionuclide Scanning
 - d) MRI
 - e) Ultrasonography
 - f) X-Ray
 - g) Bone Scan
 - h) Dexa Scan
2. Imaging in Common Sports Injuries
 - a) Head and Neck.
 - b) Spine.
 - c) Pelvis, hip and thigh.
 - d) Patella Femoral Joint & Knee joint.
 - e) Lower leg, foot and ankle.

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References:

<i>Sr No.</i>	<i>Author</i>	<i>Title</i>	<i>Publisher</i>	<i>Year</i>	<i>Vol.</i>
1	John Wright & Sons, Bristol	Synopsis of Surgical Anatomy		1993	9
2	Williams & Warwick	Gray's Anatomy-	Churchill Livingstone	1990	37
3	Basmajian & Sloncker	Grants – Methods of Anatomy	Williams & Wilkins	1989	11
4	Snells	Clinical Anatomy for Medical Students	Lippincott	1995	5
5	Guyton	Textbook of Medical Physiology	Mosby	2000	10
6	Robbins, Kotran and Kumar	Pathologic Basis of Diseases	W.B. Saunders	2004	7
7	Goodman and Gilman	The Pharmacological basis of Therapeutics	MacMillan	2008	11
8	Goodmann & Boissonnault	Pathology implications for Physical Therapists	W. B. Saunders.	1998	2
9	Swash	Hutchinsons – Clinical Methods of Medicine	Bailliere Tindall	2001	21
10	Adams	Outline of Orthopedics	Churchill Livingstone	2001	13
11	Adams	Outline of Fractures	Churchill Livingstone	2007	12
12	Weinsteil & Buckwalter	Tureks – Orthopedics	Lippincott Publications	2005	6
13	Sutton D	Text Book of Radiology	Churchill Livingstone	2003	7
14	Goodman and Gilman	The Pharmacological basis of Therapeutics	MacMillan	2008	11
15	Satoskar & Bhandarkar	Pharmacology and Pharmacotherapeutics	Popular Publications Bombay	2005	19
16	Edward	Davidsons – Principles and Practice of Medicine	Churchill Livingstone	2004	20
17	Apleys	Systems of Orthopedics	Butterworth Heinmann	2001	8

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KINESIOLOGY AND BIOMECHANICS

Course code MPT (S) 102

L-3

T/P-0

CREDITS-6

Part-A Kinesiology

Unit – I Introduction & Mechanical Principles: Kinematics

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

Unit – II Mechanical Principles: Kinetics

-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. Couple, moment, Principles of Lever, Rotatory force, Gravity, Methods of finding Centre of Gravity, Principles of Equilibrium, Fluid mechanics, principles of projectile.

-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, Units in linear and angular motion.

Unit – III Anatomical Concepts in Kinesiology

Frame work and joints of the body: Influence of trauma and classification of the muscles, Relation of structure, functions, role of muscles, types of Muscle, contractions (Static, Concentric and Eccentric), Two joint Muscles, Angle of pull, Role of Gravity affecting muscular action.

Unit – IV Aspects of Muscle Physiology

1. Physical Properties of bone, cartilage and muscle and functional adaptation under pathological conditions.
2. Origin, insertion, nerve supply and action of all important muscles related to human movement.

Part-B Biomechanics

Unit – I Introduction

-Nature and importance of Biomechanics in Sports Physiotherapy.
-Principle of Biomechanics.

Unit- II Movement Analysis

-Biomechanics of shoulder and shoulder girdle motion, elbow motion, wrist and hand motion.
-Biomechanics of pelvic motion, hip motion, knee motion, ankle & foot motion
-Biomechanics of spinal motion.
-Gait analysis
-Biomechanical Analysis & Techniques – Isokinetic dynamometer, Kinesiological EMG, Electronic goniometry, Force platform, Videography

Unit – III Sports Specific Biomechanics

-Biomechanics of rowing, throwing, swimming, jumping and landing, running and other sports.

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References:

Sr. No.	Author	Title	Publisher	Year	Vol.
1	Brunnstrom	Clinical Kinesiology	F.A. Davis	1996	5
2	Luttgens K., Hamilton N.	Kinesiology – Scientific Basis of Human Motion, Brown & Benchmark	Madison	1997	9
3	Rasch and Burk	Kinesiology and Applied Anatomy,	Lee and Fabiger	1993	7
4	White and Punjabi	Biomechanics of Spine	Lippincott	1990	3
5	Kapandji	Physiology of Joints	W.B.Saunders	2004	I,II,III
6	Mishra	Clinical Neurophysiology.	Churchill Livingstone	2001	1
7	James G. Hay	The Biomechanics of Sports Techniques,	Prentice Hall	1985	3
8	Kreighbaum E., Barthels K	Biomechanics – A Qualitative approach for studying Human Motion	MacMillan	1985	2
9	Norkin & Levangie	Joint Structure and Function - A Comprehensive Analysis -	F.A. Davis	1992	3
10	Northrip et al	Analysis of Sports Motion: Anatomic and Biomechanics perspectives	W.C. Brown Co., IOWA	1990	2
11	Leveac B.F.	Basic Biomechanics in Sports and Orthopedic Therapy	C.V. Mosby	1993	2
12	De Boer & Groot	Biomechanics of Sports	CRL Press, Florida	1989	1
13	Basmajian	Muscle alive	Williams & Wilkins	1985	5
14	Nordin & Frankel	Basic Biomechanics of Muscular Skeletal System	Williams & Wilkins	2001	3
15	Bartlet	Introduction to Sports biomechanics	F & FN Spon Madras	1997	1

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RESEARCH & EDUCATIONAL METHODOLOGY

Course code MPT (S) 103

L-2

T/P-0

CREDITS-4

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

Enumerate the steps in Physiotherapy Research Process

Acquire the skills of reviewing literature, formulating a hypothesis, collect data, writing research proposal etc.

Describe the importance & use of biostatistics for research work

Section 1

Research Methodology

1. Research in Physiotherapy

Introduction

Research for Physiotherapist: Why? How? And, when?

Research – Definition, concept, purpose, approaches

Internet sites for physiotherapists

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 and 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 of Physiotherapy

1. Data

Definition
Types
Presentation
Collection methods

2. Measures of Central value

Arithmetic mean, median mode, Relationship between them
Partitioned values – Quartiles, Deciles, Percentiles
Graphical determination

3. Measures of Dispersion

Range
Mean Deviation
Standard Deviation

4. Normal distribution Curve

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

5. Correlation Analysis

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

6. Regression analysis

Lines of regression
Calculation of Regression Coefficient

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7. Sampling

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

8. Probability (in brief)

Basic Definition: Events, sample space and probabilities.

Basic rules for probability:

The range of values.

The Rule of complements

Mutually exclusive events

Conditional probability

Independence of events

Combinatorial concepts

Law of Total probability and Baye's theorem

9. Hypothesis testing

Null Hypothesis
Alternative hypothesis
Acceptance & rejection of null hypothesis
Level of significance

10. Parametric & Non Parametric tests

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

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References:

<i>Sr. No.</i>	<i>Author</i>	<i>Title</i>	<i>Publisher</i>	<i>Year</i>	<i>Vol.</i>
<i>1</i>	Hicks C	Research for physiotherapists	Chuchill Livingstone, Edinburgh	1995	2
<i>2</i>	Sproull	Handbook of research Method	Scarecrow Press	1998	2
<i>3</i>	Polgar S	Introduction to research in Health Sciences	Churchill Livingstone, London	1988	1
<i>4</i>	Currier D P	Elements of research in Physical Therapy	Williams and Wilkins, Baltimore	1990	1
<i>5</i>	Domholdt	Physical Therapy Research	W.B Saunders, Philadelphia	1993	2
<i>6.</i>	B K Mahajan	Methods in Biostatistics: For Medical students and research workers	Jaypee Publications	1998	6 th Ed
<i>7.</i>	Glover and Mitchell	An Introduction to biostatistics	McGraw Hill	1997	2

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SPORTS INJURIES DIAGNOSIS & MANAGEMENT-I

Course code MPT (S) 104

L-3

T/P-0

CREDITS-6

1. Pre-participation examination
2. Causes & Mechanism of Sports Injuries, Prevention of Sports Injuries.
3. Common acute and overuse injuries of:
 - Shoulder girdle, Arm, Elbow, Forearm, Wrist & hand
 - Pelvis, hip, thigh, knee, leg, ankle & foot
 - Spine
 - Head
 - Injuries to Athletes in various age groups.

References:

<i>Sr. No.</i>	<i>Author</i>	<i>Title</i>	<i>Publisher</i>	<i>Year</i>	<i>Vol.</i>
1	Morris B. Mellion	Office Sports Medicine	Hanley & Belfus	1996	2
2	Richard B. Birrer	Sports Medicine for the primary care Physician	CRC Press	2004	3
3	Torg, Welsh & Shephard	Current Therapy in Sports Medicine III	Mosby	1989	2
4	Zulunga et al	Sports Physiotherapy	W.B. Saunders	1995	3
5	Brukner and Khan	Clinical Sports Medicine	McGraw Hill	2007	3
6	Reide	Sports Injuries – Assessment and Rehabilitation,	W.B. Saunders	1992	2
7	Gould	Orthopaedic Sports Physical Therapy	Mosby	1997	3
8	C. Norris	Sports Injuries – Diagnosis and Management for Physiotherapists,	Heinmann	1997	2
9	D. Kulund	The Injured Athlete	Lippincott	1982	1
10	Nicholas Hershman	The Upper Extremity in Sports Medicine	Mosby	1995	1
		The Lower Extremity and Spine in Sports Medicine		1995	2
		The Lower Extremity and Spine in Sports Medicine		1995	3
11	Lee & Dress	Orthopaedic Sports Medicine	W.B Saunders	1995	1
12	K. Park	Preventive and Social Medicine	Banarsi Dass Bhanot - Jabalpur	2007	3
13	Fu and Stone	Sports Injuries: Mechanism, Prevention and Treatment,	Williams and Wilkins	1994	2
14	Scuderi, McCann	Bruno: Sports Medicine – Principles of Primary Care	Mosby	1997	2
15	Lars Peterson and Per Renstron	Sports Injuries – Their prevention and treatment,	Dunitz	2000	3
16	Marcia K. Anderson, Susan J. Hall	Sports Injury Management	Lippincott	1995	2

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SPORTS PHYSIOTHERAPY METHODS

Course code MPT (S) 105

L-3

T/P-0

CREDITS-6

Unit – I *Rehabilitation and Therapeutic Exercises*

1. Define Rehabilitation, Goals and Objectives of Rehabilitation in Sports, Clinical Evaluation phases of rehabilitation. (multidisciplinary approach)
2. Prehabilitation
3. Definition, details of effects and uses of therapeutic exercises.
 - a. Dynamic Exercises
 - b. Plyometric Exercises
 - c. Isokinetic Exercises
 - d. Kinetic chain exercises

Unit – II *Mobilization and Strengthening Techniques*

1. Factors affecting the joint range of motion prevention of stiffness, methods of joint mobilization.
 - a. Testing for tightness and contracture of soft-tissue structures.
 - b. Techniques of mobilizing the various joints of the body.
2. Types of Muscle Contractions and Muscle work, Strength of Muscle Contraction in terms of Motor units, Group action of muscles and its implication in designing an exercise program.
 - a. Causes of muscle weakness. Prevention of disuse atrophy, Principles of treatment to increase muscle strength and function.
 - b. Techniques of strengthening with respect to regional consideration.
 - c. Various methods of progressive resisted exercise.
3. Health club & fitness: Concept, group therapy

Unit – III *Neuromuscular Training*

1. Neuromuscular control, methods for improving neuromuscular control, proprioception and kinesthetic sensation following different sport injuries.
2. Principles and application of neuromuscular facilitation techniques including PNF in sports.

Unit – IV *Massage*

Historical development. Definition and classification of massage techniques, Physiological effects of massage, Description of the techniques of the classical massage. Connective tissue massage and myofascial release, physiological basis of sports massage and various categories, underwater massage, mechanical devices of massage, therapeutic applications and contraindications of massage.

Unit – V *Heat Therapy*

1. Production, Physiological effects, indications, contraindications and specific uses in sports of the following:
2. Infrared rays, Parafine Wax Bath, Steam Bath, Sauna Bath, Moist Heat Pack, Fluidotherapy, Mud Bath and Pelloids.

Unit – VI *Hydrotherapy*

History & Introduction .Physiological Effects &Techniques.Use of Hydrotherapy in Sports. Various Types of baths.

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Unit – VII *Electrotherapy*

1. Principles underlying the application of following modalities with reference to their production, biophysical and therapeutic effects, indications and contraindications. Clinical Implication and the technique of application with specific uses in Sports Physiotherapy
 - a. Low Frequency Current:-Direct Current, Modified Direct Current, Alternative Current, Diadynamic Current, Iontophoresis
 - b. TENS, High Voltage, Pulsed Galvanic Stimulation.
 - c. Medium Frequency Current:- IFT, Russian Currents.
 - d. High Frequency Currents:- SWD, MWD, Ultrasound, Pulsed Electromagnetic Energy.
 - e. Radiations: LASER, UVR
2. Electro diagnosis and its implications to Sports Physiotherapy.

Unit – VIII *Functional Bandages and Orthotic Aids & Protective Equipment in Sports*

History and uses of functional bandages, classification according to the time of application, types of bandages, Bandaging techniques and bandaging material, Indications, contraindications, Taping Techniques , athletic shoes and modifications, common orthotic aid and protective equipments in Sports.

Unit – IX *Cryotherapy*

Physiological effects, Use of cold therapy in acute phase, rehabilitative phase, preventive phase of athletic injury, Methods of application, Indications and contraindications.

Unit – X *Manual Therapy*

Introduction to Manual therapy techniques, Traction ,Neural mobilization, Trigger point therapy and Muscle energy techniques.

Unit – XI *Clinical Reasoning and decision making*

Clinical reasoning and clinical decision making - nature and context
Reasoning, Expertise and Knowledge
Clinical reasoning and clinical decision-making approaches
Teaching and learning clinical reasoning

References:

<i>Sr. No.</i>	<i>Author</i>	<i>Title</i>	<i>Publisher</i>	<i>Year</i>	<i>Vol.</i>
1	Sinha A.G	Principle and Practices of Therapeutic Massage	Jaypee Brothers, New Delhi	1999	2
2	Kisner and Colby	Therapeutic Exercises – Foundations and Techniques	F.A. Davis.	2002	5
3	Basmajian John V	Therapeutic Exercise	Williams & Wilkins	1990	5
4	Thomson et al	Tidy's Physiotherapy	Butterworth – Heinmann	1991	12
5	Kendall	Muscles – Testing and Function	Williams & Wilkins	2005	5

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6	Daniels and Worthingams	Muscle Testing – Techniques of Manual Examination	W.B. Saunders	2002	7
7		First Aid to Injured	St. John's Ambulance Association	1928	
8	William E. Prentice	Rehabilitation Techniques	Mosby	2003	4
9	Werner Kuprian	Physical Therapy for Sports	W.B. Saunders	1995	2
10	Norkin & White	Measurement of Joint Motion – A Guide to Goniometry	F.A. Davis	2003	3
11	Andrea Bates and Norm Hanson	Aquatic Exercise Therapy	W.B. Saunders	1996	
12	Hartley	Practical Joint Assessment, A Sports Medicine Manual	C.V. Mosby	2003	4
13	Kennedy:'s	Sports Therapy Taping Guide	Mosby	1995	
14	Voss et al	Proprioceptive Neuromuscular Facilitation - Patterns & Techniques	Williams & Wilkins	1985	3
15	William E. Prentice:	Therapeutic Modalities in Sports Medicine	Mosby	1989	2
16	O' Sullivan, Schmitz	Physical Rehabilitation – Assessment and Treatment	F.A. Davis	2006	5
17	John Low & Reed	Electrotherapy Explained	Butterworth.	2000	3
18	Meryl Roth Gersh	Electrotherapy in Rehabilitation	FA Davis	1992	1
19	Joseph Kahn	Principles and Practice of Electrotherapy	Churchill Livingstone.	2000	4
20	Sarah & Bazin	Claytons Electrotherapy	W.B. Saunders	1995	10 th Ed
21	Harrelson and Andrews	Physical Rehabilitation of Injured Athlete		2004	3
22	Nelson and	Clinical	Prentice Hall	1999	3

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	Currier	Electrotherapy			
23	Kuprian	Physical Therapy for Sports	W.B. Saunders	1995	2
24	Bates	Aquatic Exercise Therapy	W.B. Saunders	1999	1
25	Michlovitz	Thermal agents in Rehabilitation	F.A. Davis	1996	3

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BASIC EXERCISE PHYSIOLOGY

Course code MPT (S) 106

L-3

T/P-0

CREDITS-6

1. Nutrition in Sports

- a. Food : The ultimate drug
 - Energy requirement
 - Weight Loss & Weight Gain
 - Carbohydrate Requirement & Glycemic Index
 - Carbohydrate: Needs of Strength & Endurance Athletes
 - Pre & Post Exercise Carbohydrate Intake
 - Protein requirement and needs of Athlete
 - Fats requirement and needs of Athlete
- b. Water and Electrolyte Loss and Replacement in Exercise
- c. Vitamins are Athletes Needs, Megavitamin & Antioxidants
- d. Nutritional Ergogenic Aids and Supplements
- e. Pre competition Meal and Carbohydrate Loading
- f. Sports Specific Nutrition: Sprinting, Distance Running, Cycling, Swimming, Weight Lifting & Power Sport and team Sport
- g. Fluid and energy replacement in prolonged exercise.

2. Energy Transfer for Physical activity:

- a. Energy transfer in Body.
- b. Energy transfer in exercise.
- c. Energy expenditure during various activities.
- d. Fatigue.
- e. Biochemical responses to endurance training.

3. Cardio Vascular System and Exercise:

- a. Athletes Heart.
- b. Cardio Vascular adaptations to sustained aerobic exercises.
- c. Lipids and sports, protection from coronary heart disease, exercise and optimization of lipid profile.
- d. Sudden cardiac death in sports.
- e. Regulation of circulation during exercise.

4. Exercise and Respiratory System:

- a. Air Conditioning.
- b. Second Wind.
- c. Oxygen Debt.
- d. Breathe Holding, High Pressure Ventilation. Scuba Diving.
- e. Athletes Lung.
- f. Regulation of Respiration during exercise.

Skeletal System:

- a. Growth and Exercise.
- b. Repair and adaptation during exercise.
- c. Pathophysiology of Back.
- d. Training for Muscular Strength and Endurance.

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Gastrointestinal Tract and Endocrine system:

- a. Effect of Sports on GIT and Liver.
- b. Hormone regulation of fluid and electrolytes during exercise.
- c. Exercise and Menstrual Cycle.
- d. Stress Hormones in Exercise.
- e. Effects of exercise on various Hormones in the body.
- f. Opioids, Runners High.

References

<i>Sr. No.</i>	<i>Author</i>	<i>Title</i>	<i>Publisher</i>	<i>Year</i>	<i>Vol.</i>
1	Mc Ardle, Katch, Katch	Exercise Physiology	<i>Lippincott williams and wilkins</i>	2007	6
2	Era Volinski	Nutrition and exercise in Sports	CRC Press, New York	2003	4
3	George A. Brooks, Thomas D. Fahey	Exercise Physiology – Human Bioenergetics and its applications	John Wiley & Sons New York	2004	4
4	Erston and Reilly	Kinanthropometry and Exercise Physiology Laboratory Manual tests, Procedures and Data	F & FN Spon Madras	2001	1
5	Rowland	Developmental Exercise Physiology	Human Kinetics	1996	1
6	Clarke	Exercise Physiology	Prentice Hall	1975	1
7	Astrand & Rodahl	Text Book of Work Physiology	McGraw Hill	2003	4
8	Fox and Mathews	The Physiological Basis of Physical Education and athletics	Holt Saunders	1971	1
9	Ronald J. Maughan	Nutrition In Sport	<i>Blackwell Science</i>	2000	3

SPORTS PSYCHOLOGY

Course code MPT (S) 107 L-1 T/P-0 CREDITS-2

1. ***History and current status of Sports Psychology.***
2. ***Personality Assessment and Sports personality.***
 - a. Theories of personality
 - b. Personality assessment
3. ***Attention and Perception in sports.***
 - a. Attention
 - b. Perception
4. ***Pre-competitive anxiety.***
 - a. Source of PCA
 - b. Effect of PCA on performance
5. ***Aggression in sports.***
 - a. Theories of aggression
 - b. Management of aggression
6. ***Eating disorders.***
 - a. Etiology of eating disorders
 - b. Types of eating disorders
 - c. Complications of eating disorders
7. ***Role of Psychology in Dealing with Injuries.***
8. ***Group Behavior and leadership***
 - a. Nature of group behavior and group.
 - b. Types of group.
 - c. Educational implication of group behavior.
 - d. Meaning of leadership, types of leadership quality of leadership, training and functioning of leadership.
9. ***Emotion***
 - a. Meaning of emotion.
 - b. Characteristics of emotion.
 - c. Meaning of controlling and training of emotions and its importance.
 - d. Contribution of sports to emotional health.
 - e. Meaning of sentiment, its type, importance and formation.
10. ***Clinical Training***
 - a. Students will undergo Field Training with Sportsmen.
 - b. They will attend Sports medicine clinic.
 - c. Field Training at various Stadiums of New Delhi.
 - d. The students will accompany sports teams for National sporting competitions.
11. **Goal setting**
12. **Psychological aspect of doping**
13. **Psychological preparation of elite athletes**
 - a. Concept of psychological preparation

SYLLABUS FOR MPT SPORTS

14. Biofeedback training

15. Mental imagery

16. Stress management

- a. Principles of Stress Management
- b. Stress Management techniques

17. Concentration training in sports.

- a. Basic principles of concentration
- b. Concentration training
- c. Concentration awareness exercises

18. Motivational orientation in sports.

- a. Athlete's needs of motivation
- b. Motivational inhibitors
- c. Motivational techniques

19. Relaxation Training.

- a. Definition
- b. Types of relaxation trainings
- c. Progressive muscle relaxation
- d. Breathing exercises
- e. Yognidra
- f. Transcendental meditation

References:

<i>Sr. No.</i>	<i>Author</i>	<i>Title</i>	<i>Publisher</i>	<i>Year</i>	<i>Vol.</i>
1	Morgan and King	Introduction to Psychology	Tata McGraw Hill	1986	7
2	Suinn	Psychology in Sports: Methods and applications	Surjeet Publications	1980	1
3	Grafiti	Psychology in contemporary sports	Prentice Hall	1996	2
4	Sanjiv P. Sahni	Handbook of Sports Psychology – A comprehensive manual of Mental Training	Jaypee Publications	1998	2

SYLLABUS FOR MPT SPORTS

ASSESSMENT & EVALUATION IN SPORTS PHYSIOTHERAPY

Course code MPT (S) 151

L-0

T/P-6

CREDITS-6

1. Importance of assessment & evaluation, Methods of evaluation – Interview, Clinical Examination, Reliability & Validity of the tests, Investigative Procedures, Field Tests.
2. Evaluation of Physical Fitness:
3. Musculoskeletal screening
4. Assessment of lower limb complex: Pelvis, hip, thigh, knee, leg, ankle and foot
5. Assessment of upper limb complex: Shoulder girdle, shoulder, arm, elbow, forearm, wrist and hand.
6. Assessment of spinal column: Cervical, thoracic and lumbosacral, Tests of neural tension.
7. Assessment of Gait deviations.
8. Basic Wheelchair skills
 - a. Assessment and Training.
 - b. Fundamentals of wheelchair Sports.
9. First Aid, Emergency medical skills and On field Management.
10. EMG evaluation, diagnostic and kinesiological

References:

<i>Sr. No.</i>	<i>Author</i>	<i>Title</i>	<i>Publisher</i>	<i>Year</i>	<i>Vol.</i>
1	Norkin & White	Measurement of Joint Motion – A Guide to Goniometry	F.A. Davis	2003	3
2	Dvir	Isokinetics: Muscle Testing, Interpretation and Clinical Applications	W.B. Saunders	2004	2
3	Reid	Sports Injuries – Assessment and Rehabilitation	W.B. Saunders	1992	2
4	Lillegard, Butcher & Rucker	Handbook of Sports Medicine: A symptom – Oriented Approach	Butterworth & Heinemann	1999	2
5	Baker	The Hughston Clinic Sports Medicine Book	Williams & Wilkins	1995	2
6	Jose Antonio & Jeffrey R. Stout	Sports Supplements	Lippincott Publications	2008	1

SYLLABUS FOR MPT SPORTS

CLINICS, SYMPOSIA, PRESENTATION & COMPUTER FUNDAMENTALS

Course code MPT (S) 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.

SYLLABUS FOR MPT SPORTS

Pedagogy in Physiotherapy Education

Course Code MPT (S) 201

L-2

T/P-0

Credit-4

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

1) Education

- a. Introduction
- b. Educational Philosophy – Idealism, Naturalism, Pragmatism
- c. Aims of Education
- d. Functions of Education
- e. Formal, informal and non-formal education
- f. Agencies of Education
- g. Current issues and Trends in Higher Education
- h. Issue of quality in Higher Education
- i. Autonomy and Accountability
- j. Privatization of Education

2. Concept of Teaching and Learning

- a. Meaning and scope of Educational Psychology
- b. Meaning and Relationship between teaching and learning
- c. Learning theories
- d. Dynamics of behaviour
- e. Individual differences

3. Curriculum

- a. Meaning and concept
- b. Basis of curriculum formulation
- c. Framing objectives for curriculum
- d. Process of curriculum development and factors involved
- e. Evaluation of curriculum

4. Method and techniques of teaching

- a. Lecture
- b. Demonstration
- c. Discussion
- d. Seminar
- e. Assignment
- f. Project
- g. Case study

5. Planning for teaching

- a. Bloom's taxonomy of instructional objectives
- b. Writing instructional objectives in behavioral terms
- c. Unit planning
- d. Lesson planning

6. Teaching Aids

- a. Types of teaching aids
- b. Principles of selection, preparation and use of audio-visual aids

SYLLABUS FOR MPT SPORTS

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 Counselling

- Meaning and concepts of guidance and counselling
- Principles of guidance and counselling

9. Awareness of Programme

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

References:

Sr. No.	Author	Title	Publisher	Year	Vol.
1	John Lougran	Developing a Pedagogy of Teacher education: Understanding teaching and learning about teaching.	Routledge	2005	3
2	AACTE Committee on Innovation and Technology	Handbook of Technological pedagogical content knowledge (TPCK) for educators	Taylor and francis group	2008	3
3	María Estela Brisk	Language, Culture and community in Teacher education.	Lawrence Erlbaum associates	2007	2
4	Kenneth M. Zeichner, Marilyn Cochran-Smith	Studying Teacher Education The Report of the AERA Panel on Research and Teacher Education	Taylor and francis group	2005	2
5	Cynthia Lewis, Patricia E. Enciso, Elizabeth Birr Moje	Reframing Sociocultural Research on Literacy Identity, Agency, and Power	Lawrence Erlbaum associates	2007	3
6.	Vetukuri P S Raju	Education of the masses: A Quest for Pedagogy	Shipra Publication	2007	2
7.	Somekh	Pedagogy and Learning with ICT	Routledge	2007	2
8.	Paulo Freire	Changing Mins: Pedagogy of Hope	Continuum (epz)	1998	1
9.	Edwin C Hewett	Treatise on Pedagogy	Cosmo	2005	3
10.	Brenda Smith	ChoralPedagogy	Plural Pub	2007	3

SYLLABUS FOR MPT SPORTS

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Administration, Management & Ethics

Course Code- MPT(S) 202

L-2

T/P-0

Credits-4

Unit – 1 – Sports Management

- History of Sports
- Sports and Recreational Events
- Financial and Corporate Management in Sports – clubs, events
- Marketing and Management
- International Relations and Business
- Organizational Behavior and Culture
- Sports Economics

Unit –II – Administration

- Functions of management
- Fundamentals of hospital administration
- Management Process – Planning, Organization, Direction, Controlling, Decision Making
- Personnel Management – Staffing, Recruitment Selection, Performance appraisal, Collective bargaining, Job Satisfaction.
- Total Quality management – basics, quality control, quality assurance programme in hospitals and medical audit, International Quality System, Six Sigma approach
- Just in Time approach.

Unit – III – Ethics & Legal Issues

- Rules of Professional conduct
- Legal responsibility
- Code of ethics
- Functions of Physiotherapy associations
- Role of International health agencies
- Standards of practice for Physiotherapists
- Liability and obligations in the case of medical legal action
- Law of disability and discrimination
- Confidentiality of the Patient's status
- Consumer Protection Law, Health law, MCI, DCP

References

<i>Sr. No.</i>	<i>Author</i>	<i>Title</i>	<i>Publisher</i>	<i>Year</i>	<i>Vol.</i>
1	Rainer Martens	Directing Youth Sports Programs	Human Kinetics	2001	2
2	Thomas H Sawyer	The Management of Clubs, Recreation and Sports: Concepts and Applications	Sagamore Publishing	1998	1
3	William F Stier Jr	Managing Sport, Fitness and Recreation Programs: Concepts and Practices	Banjamin Cummings	1999	1
4	Janet B Parks	Contemporary Sport Management	Human Kinetics	2006	3
5	Michael A Leeds, Peter von Allmen	Economics of Sports	The Addison – Wesley Series in Economics	1998	3 rd Edition
6	Lisa Pike	Principles and Practice of	Jones and Bartlett	2004	2

SYLLABUS FOR MPT SPORTS

	Masteralexis, Carol A Barr, Mary A Hums	Sport Management			
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MEDICAL CONDITIONS IN SPORTS PERSONS

Course code MPT (S) 203

L-3

T/P-0

CREDITS-6

Unit – I

Illness, Infections, Hypertension, Urine abnormalities; Venereal Diseases; Exercise induced Asthma; Anemia, Delayed onset muscle soreness (DOMS), Runner's high & exercise addiction. G.I.T. Diseases, Exercises and congestive heart failure, exercise for post coronary & bye-pass patients, exercise for diabetics.

Unit – II

Diagnosis and management of skin conditions of Athletes, Bacterial infections, Fungal infections, Viral infections, boils and cellulitis.

Unit – III *Female Specific problems*

1. Sports Amenorrhea.
2. Injury to female reproductive tract.
3. Menstrual Synchrony.
4. Sex determination.
5. Exercise and pregnancy.
6. Eating disorders in athletes.

Unit – IV

1. Common Diseases: Common Cold, Diarrhea, Dysentery, Typhoid, Cholera, Amoebiasis, Food Poisoning, Tuberculosis, Malaria, Hepatitis etc.
2. AIDS in sports people.

Unit – V *Geriatric disorder*

1. Older Athletes
2. Osteoarthritis and other geriatric conditions.

Unit – VI *Exercise and Common Pulmonary Conditions*

- a. Exercise induced bronchial obstruction
- b. Exercise in chronic airway obstruction
- c. Air pollution and exercise

Unit – VII *Exercise and Cardiac Conditions*

- a. Exercise prescription for heart disease
- b. Exercise in primary prevention in ischemic heart disease
- c. Exercise for secondary prevention of ischemic heart disease

Unit – VIII *Doping in Sports*

- a. Banned drugs
- b. Procedure of dope testing
- c. Control of doping abuse

Unit – IX *Diabetes and Exercise*

- a. Exercise in diabetic patients
- b. Exercise as a method of control of diabetes

SYLLABUS FOR MPT SPORTS

- Unit – X** *Exercises for special categories*
- Child and adolescent athlete's problems
 - Special problems of older athletes
 - Special concerns for handicapped athletes

- Unit – XI** *Misc. Conditions*
- Hazards of cold water
 - Exercise for mood enhancement
 - Spinal deformity and sports
 - Time zone shift and sleep deprivation problems
 - Exercise in pregnancy and post partum

References:

<i>Sr. No.</i>	<i>Author</i>	<i>Title</i>	<i>Publisher</i>	<i>Year</i>	<i>Vol.</i>
1	Morris B. Mellion	Office Sports Medicine	Hanley & Belfus	1996	2
2	Richard B. Birrer	Sports Medicine for the primary care Physician	CRC Press	2004	3
3	Torg, Welsh & Shephard	Current Therapy in Sports Medicine	Mosby	1989	2nd Ed
4	Zuluaga et al	Sports Physiotherapy	W.B. Saunders	1995	
5	Brukner and Khan	Clinical Sports Medicine	McGraw Hill	2007	3 rd Ed
6	Reid	Sports Injuries – Assessment and Rehabilitation	W.B. Saunders	1992	
7	Gould	Orthopedic Sports Physical Therapy	Mosby	1997	3
8	C. Norris	Sports Injuries – Diagnosis and Management for Physiotherapists	Heinmann	1997	2nd Ed
9	D. Kulund	The Injured Athlete	Lippincott	1982	
10	Nicholas Hershman	1. The Upper Extremity in Sports Medicine. 2. The Lower Extremity and Spine in Sports Medicine. 3. The Lower Extremity and Spine in Sports Medicine	Mosby	1995 1995 1995	Vol. I Vol. II Vol. III
11	Fu and Stone	Sports Injuries: Mechanism, Prevention and Treatment	Williams and Wilkins	1994	2
12	Scuderi, McCann, Bruno	Sports Medicine – Principles of Primary Care	Mosby	1997	
13.	Lars Peterson and Per Renstron	Sports Injuries – Their prevention and treatment	Dunitz	2000	3
14.	Lee & Dress	Orthopaedic Sports	W.B Saunders	1995	1

SYLLABUS FOR MPT SPORTS

		Medicine			
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SPORTS INJURIES DIAGNOSIS & MANAGEMENT-II

Course code MPT (S) 204

L-3

T/P-0

CREDITS-6

Unit – I – Trauma Management

1. Emergency Situations, Primary and secondary emergency assessment, emergency plan, moving the injured participant.
2. Cardio Pulmonary Resuscitation; Shock management, Internal and External bleeding, Splinting, Stretcher use-Handling and transfer, Management of Cardiac arrest, Acute asthma, Epilepsy, Drowning, Burn, Medical management of mass participation. Heat stroke and Heat illness.
3. Sports specific injuries, with special emphasis on the specific risk factor, nature of sports, kind of medical intervention anticipated and prevention with respect to individual sports
 - a. Individual events: Field & Track
 - b. Team events: Hockey, Cricket, Football
 - c. Contact and Non-contact sports
 - d. Water sports
4. Protective Equipments:
 - Principles of protective equipment
 - Protective Equipment for: Head & Face, Upper & Lower Extremity

References:

<i>Sr. No.</i>	<i>Author</i>	<i>Title</i>	<i>Publisher</i>	<i>Year</i>	<i>Vol.</i>
1	Morris B. Mellion	Office Sports Medicine,	Hanley & Belfus	1996	2
2	Richard B. Birrer	Sports Medicine for the primary care Physician	CRC Press	2004	3
3	Torg, Welsh & Shephard	Current Therapy in Sports Medicine III	Mosby	1989	2
4	Zulunga et al	Sports Physiotherapy	W.B. Saunders	1995	3
5	Brukner and Khan	Clinical Sports Medicine	McGraw Hill	2007	3
6	Reide	Sports Injuries – Assessment and Rehabilitation,	W.B. Saunders	1992	2
7	Gould	Orthopaedic Sports Physical Therapy	Mosby	1997	3
8	C. Norris	Sports Injuries – Diagnosis and Management for Physiotherapists,	Heinmann	1997	2
9	D. Kulund	The Injured Athlete	Lippincott	1982	1
10	Nicholas Hershman	Vol. I. The Upper Extremity in Sports Medicine	Mosby	1995	
		Vol. II. The Lower Extremity and Spine in Sports Medicine		1995	

SYLLABUS FOR MPT SPORTS

		Vol. III. The Lower Extremity and Spine in Sports Medicine			
<i>11</i>	Lee & Dress	Orthopaedic Sports Medicine	W.B Saunders	<i>1995</i>	<i>1</i>
<i>12</i>	K. Park	Preventive and Social Medicine	Banarsi Dass Bhanot - Jabalpur	<i>2007</i>	<i>3</i>
<i>13</i>	Fu and Stone	Sports Injuries: Mechanism, Prevention and Treatment,	Williams and Wilkins	<i>1994</i>	<i>2</i>
<i>14</i>	Scuderi, McCann	Bruno: Sports Medicine – Principles of Primary Care	Mosby	<i>1997</i>	<i>2</i>
<i>15</i>	Lars Peterson and Per Renstron	Sports Injuries – Their prevention and treatment,	Dunitz	<i>2000</i>	<i>3</i>
<i>16</i>	Marcia K. Anderson, Susan J. Hall	Sports Injury Management	Lippincott	<i>1995</i>	<i>2</i>

SYLLABUS FOR MPT SPORTS

LATEST ADVANCEMENTS IN SPORTS MEDICINE

Course code MPT (S) 205

L-2

T/P- 0

CREDITS-4

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

2. *Emergency Medical Planning and cover for Sports Events*

- Treatment of collapsed athlete
- Severe head injury
- The athlete with spinal injury
- Chest injuries
- Abdominal injuries
- Injuries to the extremities
- Causes of Collapse

3. *Exercise for growing bones*

4. *Effect of Physical activity intervention in youth*

- Cardiac Adaptations
- Exercise and the skeleton
- Respiratory adaptations of athletes to exercise
- Training induced adaptation in skeletal muscles

5. *Precision heart rate training*

- a. Heart rate monitoring and training
- b. Training in heart zones
- c. Precision heart rate training for specific sports
- d. Multi Activity training
- e. Monitoring of training effects

6. *Current concepts in obesity management*

- a. Childhood obesity etiology and role of exercise
- b. Obesity correlation with lipidogram
- c. Intra-abdominal obesity hazards
- d. Management of obesity

7. *Electromyography and Rehabilitation*

- a. Principles of EMG Rehab
- b. Muscular tone, fatigue and neural influences
- c. EMG in the evaluation of Sports Trauma

8. *Isokinetics in Rehabilitation*

- Introduction to isokinetics
- Isokinetic Technology: A global exchange
- Applications

9. *Hyperthermia and Shockwave: New methods in the treatment of Sports injuries.*

SYLLABUS FOR MPT SPORTS

Seminars and Groups Discussions

It will be mandatory for the students to conduct seminars on the latest trends in sports medicine & sports physiotherapy.

References:

<i>Sr. No.</i>	<i>Author</i>	<i>Title</i>	<i>Publisher</i>	<i>Year</i>	<i>Vol.</i>
1	Mallarkey	Managing Obesity	Adis Publications	1999	2
2	Burke	Precision Heart rate training	Human Kinetics	1998	2
3	Jull	Segmental stabilization of spine	Churchill Livingstone	1999	2
4	Mishra	Clinical Neurophysiology	B.I. Churchill Livingstone	1998	1
5	G.Puddu, A Giombini and A.Selvanettr	Rehabilitation of Sports Injuries	Springer Publications	2001	1

SYLLABUS FOR MPT SPORTS

APPLIED EXERCISE PHYSIOLOGY

Course code MPT (S) 206

L-3

T/P-0

CREDITS-6

1. **Body composition**

- a. Composition of human body.
- b. Somatotyping
- c. Various methods to estimate body composition
- d. Water displacement method
- e. Under water weighing methods
- f. Kin anthropometric determination of the body composition (skin fold thickness)
- g. Application of surface anthropometry (the body profile)
- h. Bioelectrical impedance analysis
- i. Ultrasound assessment of fat
- j. Arm X-ray assessment of fat
- k. Computed tomography (CT) assessment of fat

2. ***Aging and Exercise***

- a. Aging and Physiological function.
- b. Exercise and Longevity.
- c. Coronary Heart Disease and Exercise.
- d. Exercise Stress Testing for Diagnosis of CHD.
- e. Exercise prescription for healthy aged.
- f. Exercise prescription for sedentary adults.
- g. Cost and benefits of exercise prescription in Osteoporosis.

3. ***Temperature Regulation***

- a. Heat Balance.
- b. Methods of Assessing Heat Balance.
- c. Effects of Climate.
- d. Effects of Exercise on Temperature Regulation.
- e. Limit of Tolerance of Heat.
- f. Acclimatization.
- g. Avoidance in Heat illness during exercise.
- h. Exercises in cold.

4. ***Misc. Topics***

- a. High Altitude Training.
- b. Sports Diving, Hazards of underwater environment.
- c. Special Aids to Athletic Performance: - MORA, Oxygen Inhalation, Sleep.
- d. Sex and performance.
- e. Assessment of Age.
- f. Muscle tissue fibre typing and its significance.
- g. Exercise for mood enhancement & anxiety.

5. ***Physiological Basis and Principles of Training and Conditioning***

- a. Principles of endurance and strength training
 - i. Recovery training intensities in heart rate

SYLLABUS FOR MPT SPORTS

- ii. Manipulation of training principles
- iii. Training sub-phases

- b. Fundamentals that aid training and performance
 - i. Warm up and Cool down
 - ii. Flexibility and stretching
 - iii. Missing workouts
 - iv. Overtraining

- c. Analysis of Training

References

Sr. No.	Author	Title	Publisher	Year	Vol.
1	Mc Ardle, Katch, Katch	Exercise Physiology	<i>Lippincott williams and wilkins</i>	2007	Edition IV
2	Era Volinski	Nutrition and exercise in Sports	CRC Press, New York	2003	4
3	George A. Brooks, Thomas D. Fahey	Exercise Physiology – Human Bioenergetics and its applications	John Wiley & Sons New York	2004	4
4	Erston and Reilly	Kinanthropometry and Exercise Physiology Laboratory Manual tests, Procedures and Data	F & FN Spon Madras	2001	1
5	Rowland	Developmental Exercise Physiology	Human Kinetics	1996	1
6	Clarke	Exercise Physiology	Prentice Hall	1975	1
7	Astrand & Rodahl	Text Book of Work Physiology	McGraw Hill	2003	4
8	Fox and Mathews	The Physiological Basis of Physical Education and athletics	Holt Saunders	1971	1
9	Ronald J. Maughan	Nutrition In Sport	<i>Blackwell Science</i>	2000	3

SYLLABUS FOR MPT SPORTS

ASSESSMENT, EVALUATION & MANAGEMENT IN SPORTS PHYSIOTHERAPY

Course code MPT (S) 251

L-0

T/P-6

CREDITS-6

1. Importance of assessment & evaluation, Methods of evaluation – Interview, Clinical Examination, Reliability & Validity of the tests, Investigative Procedures, Field Tests.
2. Assessment & management of lower limb complex: Pelvis, hip, thigh, knee, leg, ankle and foot
3. Assessment & management of upper limb complex: Shoulder girdle, shoulder, arm, elbow, forearm, wrist and hand.
4. Assessment & management of spinal column: Cervical, thoracic and lumbosacral, Tests of neural tension.
5. Assessment & management of Gait deviations
6. Advanced wheelchair skills
 - a. Assessment and Training
 - b. Wheelchair sports

References:

Sr. No.	Author	Title	Publisher	Year	Vol.
1	Norkin & White	Measurement of Joint Motion – A Guide to Goniometry	F.A. Davis	2003	3
2	Dvir	Isokinetics: Muscle Testing, Interpretation and Clinical Applications	W.B. Saunders	2004	2
3	Reid	Sports Injuries – Assessment and Rehabilitation	W.B. Saunders	1992	2
4	Lillegard, Butcher & Rucker	Handbook of Sports Medicine: A symptom – Oriented Approach	Butterworth & Heinemann	1999	2
5	Baker	The Hughston Clinic Sports Medicine Book	Williams & Wilkins	1995	2
6	Jose Antonio & Jeffrey R. Stout	Sports Supplements	Lippincott Publications	2008	1

SYLLABUS FOR MPT SPORTS

CLINICS, SYMPOSIA & PRESENTATION

Course code MPT (S) 252

L-0

T/P-6

CREDITS-6

Course objective: The student will learn approach to patient, collection of demographic data, art of history taking and bedside/ OPD/ on-field manners & management 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 & management of the patients visiting the respective destinations.

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.

SYLLABUS FOR MPT SPORTS

DISSERTATION

Course code MPT (S) 253 L-0 T/P-8 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, 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 the study of the research methodology and biostatistics. Each candidate shall submit three typed written copies of a dissertation and it should be submitted well in advance before the date of written, oral, clinical & practical examination. Acceptance of the dissertation by the examiners should be a precondition to sit in the annual examination.

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