DEPARTMENT OF PHYSIOTHERAPY

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY

HISAR – 125001 (HARYANA)

PROPOSED SYLLABUS FOR

MASTER OF PHYSIOTHERAPY

TWO YEARS DEGREE COURSE

BASED ON CREDIT BASED SYSTEM

REVISED SYLLABUS

TO BE IMPLMENTED FROM: 2018-2019

Note:-

- Weightage of minor and major tests etc. shall be conducted as per policy of University.

- All other rules and regulations for the students of Physiotherapy shall be applicable as per ordinance of the Department / University already in force and / or as amended from time to time.

Master of Physiotherapy -1st year (1st Semester)

(Common to all disciplines)

SEMESTER I										
S.No	**Course**	**Subject**	**Title**	**Teaching hrs/week**		**Marks**				
				L-T-P	**Credits**	**Theory**		**Practical**		**Total Marks**
						Internal	**External**	**Internal**	**External**	
1	**MPT 111**	Review of Basic Sciences (Anatomy)	PC	4-0-0	4	30	70	---	---	100
2	**MPT 112**	Review of Basic Sciences (Physiology)	PC	4-0-0	4	30	70	---	---	100
3	**MPT 113**	Applied Physiotherapy (Theory&Practical)	PC	6-0-6	9	30	70	30	70	200
4	**MPT 114**	Applied Biomechanics	PC	4-0-0	4	30	70	---	---	100
5	**MPT 115**	Biostatistics and Research Methodology	PC	4-0-0	4	30	70	---	---	100
6	**MPT 116**	Seminar /case presentations	PC	0-0-4	2	---	---	30	70	100
7	**MPT 117**	Clinical Training	PC	0-0-8	Qualifying	---	---	---	---	---
					27	150	350	60	140	700

Master of Physiotherapy -1st year

(Common to all Disciplines)

SEMESTER II										
S. No.	**Course**	**Subject**	**Title**	**Teaching hrs/week**		**Marks**				
				L-T-P	**Credits**	**Theory**		**Practical**		**Total Marks**
						Internal	**External**	**Internal**	**External**	
1	**MPT 211**	Review of Basic Sciences (Pathology)	PC	4-0-0	4	30	70	---	---	100
2	**MPT 212**	Review of Basic Sciences (Pharmacology)	PC	4-0-0	4	30	70	---	---	100
3	**MPT 213**	Advanced Physiotherapy (Theory&Practical)	PC	6-0-6	9	30	70	30	70	200
4	**MPT 214**	Ergonomics	PC	4-0-0	4	30	70	---	---	100
5	**MPT 215**	Professional development & Ethics	PC	4-0-0	4	30	70	---	---	100
6	**MPT 216**	Seminar /case presentations	PC	0-0-4	2	---	---	30	70	100
7	**MPT 217**	Clinical Training	PC	0-0-8	Qualifying	---	---	---	---	---
					27	150	350	60	140	700

Master of Physiotherapy

(Musculoskeletal Disorders) 2nd year

SEMESTER III										
S. No.	**Course**	**Subject**	**Title**	**Teaching hrs/week**		**Marks**				**Total Marks**
				L-T-P	**Credits**	**Theory**		**Practical**		
						Internal	**External**	**Internal**	**External**	
1	**MPT 331**	Medical &surgical Management in Musculoskeletal Disorders	PC	6-0-0	6	30	70	---	---	100
2	**MPT 332**	Vertebral Disorders and Rehabilitation	PC	6-0-0	6	30	70	---	---	100
3	**MPT 333**	Hand Rehabilitation	PC	6-0-0	6	30	70	---	---	100
4	**MPT 334**	Assessment &Physiotherapy Management in Musculoskeletal Disorders	PC	6-0-0	6	30	70	---	---	100
5	**MPT 335**	Practical Musculoskeletal Disorders, clinical / viva voce)	PC	0-0-8	4	---	---	30	70	100
6	**MPT 336**	Seminar /case presentations	PC	0-0-4	2	---	---	30	70	100
7	**MPT 337**	Clinical Training	PC	0-0-8	Qualifying	---	---	---	---	---
					30	120	280	60	140	600

SEMESTER IV										
S. No.	**Course**	**Subject**	**Title**	**Teaching hrs/week**		**Marks**				**Total Marks**
				L-T-P	**Credits**	**Theory**		**Practical**		
						Internal	**External**	**Internal**	**External**	
1	**MPT 338**	Dissertation (based on clinical / casepresentation including viva voce)	PC	0-0-24	12	---	---	---	100	100
2	**MPT 339**	Seminar	PC	0-0-4	2	---	---	30	70	100
Total Credits					14					200

Master of Physiotherapy

(Neurological Disorders) 2nd year

SEMESTER III										
S. No.	**Course**	**Subject**	**Title**	**Teaching hrs/week**		**Marks**				**Total Marks**
				L-T-P	**Credits**	**Theory**		**Practical**		
						Internal	**External**	**Internal**	**External**	
1	**MPT 441**	Medical & Surgical Management in Neurological Disorders	PC	6-0-0	6	30	70	---	---	100
2	**MPT 442**	Physiotherapy in Neurological Disorders	PC	6-0-0	6	30	70	---	---	100
3	**MPT 443**	Neurological Rehabilitation	PC	6-0-0	6	30	70	---	---	100
4	**MPT 444**	Physiotherapy in Pediatric Neurology	PC	6-0-0	6	30	70	---	---	100
5	**MPT 445**	Practical Neurological Disorder clinical / viva voce)	PC	0-0-8	4	---	---	30	70	100
6	**MPT 446**	Seminar /case presentations	PC	0-0-4	2	---	---	30	70	100
	MPT 447	Clinical Training	PC	0-0-8	Qualifying	---	---	---	---	---
		Total Credits			30	120	280	60	140	600

SEMESTER IV										
S. No.	**Course**	**Subject**	**Title**	**Teaching hrs/week**		**Marks**				**Total Marks**
				L-T-P	**Credits**	**Theory**		**Practical**		
						Internal	**External**	**Internal**	**External**	
1	**MPT 448**	Dissertation (based on clinical / case presentation including viva voce)	PC	0-0-24	12		---	---	100	100
2	**MPT 449**	Seminar	PC	0-0-4	2		---	30	70	100
Total Credits					14					200

Master of Physiotherapy

(Sports Physiotherapy) 2nd year

SEMESTER III										
S. No	**Course**	**Subjects**	**Title**	**Teaching hrs/week**		**Marks**				**Total marks**
				L-T-P	**credits**	**Theory**		**Practical**		
						Internal	**External**	**Internal**	**External**	
1.	**MPT 551**	Medical and surgical Management in Sports Injuries	PC	6–0-0	6	30	70			100
2.	**MPT 552**	Traumatology	PC	6–0-0	6	30	70			100
3.	**MPT 553**	Fundamentals in Sports	PC	6–0-0	6	30	70			100
4.	**MPT 554**	Rehabilitation in Sports	PC	6–0-0	6	30	70			100
5.	**MPT 555**	Practical(clinical viva/voce)	PC	0–0-8	4	----	---	30	70	100
6.	**MPT 556**	Seminar/Case presentation	PC	0–0-4	2	----	----	30	70	100
7.	**MPT 557**	Clinical Training	PC	0–0-8	Qualifying	----	---	---	---	------
	Total Credits				**30**	**120**	**280**	**60**	**140**	**600**

SEMESTER IV										
S. No	**Course**	**Subjects**	**Title**	**Teaching hrs/week**		**Marks**				**Total marks**
				L-T-P	**credits**	**Theory**		**Practical**		
						Internal	**External**	**Internal**	**External**	
1.	**MPT 558**	Dissertation Project work(Based on clinical/case presentation including viva voce	PC	0–0-24	12	---	---		100	100
2.	**MPT 559**	Seminar	PC	0–0–4	2	---	---	30	70	100
	Total Credits				**14**					**200**

Master of Physiotherapy

(Cardiothoracic and Pulmonary Disorders) 2nd year

SEMESTER III										
S. No.	**Course**	**Subject**	**Title**	**Teaching hrs/week**		**Marks**				**Total Marks**
				L-T-P	**Credits**	**Theory**		**Practical**		
						Internal	**External**	**Internal**	**External**	
1	**MPT 661**	Medical &surgical Management in Cardiovascular and Pulmonary Conditions	PC	6-0-0	6	30	70	---	---	100
2	**MPT 662**	Physiotherapy Management of Cardiovascular and Pulmonary Conditions	PC	6-0-0	6	30	70	---	---	100
3	**MPT 663**	Fundamental of Cardiovascular and Pulmonary System	PC	6-0-0	6	30	70	---	---	100
4	**MPT 664**	Cardiac & Pulmonary Rehabilitation	PC	6-0-0	6	30	70	---	---	100
5	**MPT 665**	Practical (clinical / viva voce)	PC	0-0-8	4	---	---	30	70	100
6	**MPT 666**	Seminar /Case Presentations	PC	0-0-4	2	---	---	30	70	100
7	**MPT 667**	Clinical Training	PC	0-0-8	Qualifying	---	---	---	---	---
		Total Credits			**30**	**120**	**280**	**60**	**140**	**600**

SEMESTER IV										
S. No.	**Course**	**Subject**	**Title**	**Teaching hrs/week**		**Marks**				**Total Marks**
				L-T-P	**Credits**	**Theory**		**Practical**		
						Internal	**External**	**Internal**	**External**	
1	**MPT 668**	Dissertation (based on clinical / case presentation including viva voce)	PC	0-0-24		12	---	---	100	100
2	**MPT 669**	Seminar	PC	0-0-4		2	---	30	70	100
Total credits						14				200

SEMESTER -I

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT 111	Review of Basic Sciences (Anatomy)	4-0-0	4

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rest of the eight questions is to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Q.no.1 shall carry equal marks.

Course objective and course outcomes

This course provides the student with the knowledge of the Human Anatomy related to the various regions of the body**.**

UNIT I

Basic human anatomy

i) Bone/joints (Osteo and Arthrology)

ii) Muscles (Myology)

iii) Nerve and nervous system

iv) Integumentary system

UNIT II

Section 1

Upper limb and lower limb

i) Bone and Joints

ii) Muscles

iii) Nerve and nervous system

iv) Vascular system

Various regions:

- Upper limb-Pectoral, Axilla, Scapular, Arm, Forearm, Cubital fossa and Hand.
- Lower limb-Thigh, Gluteal region, Popliteal fossa, Leg and Foot

Section 2

Introduction to trunk region

i) Bone and Joints (Vertebrae, Ribs and Sternum)

ii) Muscles

iii) Nerve and Plexuses

iv) Vascular structures

v) Various region-

Thoracic

Lumbar

Sacro-Coccygeal

Section 3

Head & Neck

i) Bone &Joints

ii) Muscles

iii) Nerve and Plexuses

iv) Vascular structures

v) Various regions-

- Head- Cranial cavity, Orbit, Nasal, cavity, Oral cavity
- Neck- Triangles (anterior& posterior) back of neck

Unit III

Cardio-Respiratory system

i) Pleura and Lungs

ii) Pericardium and Heart

iii) Vessels and Large vessels

Unit IV

Neuro-anatomy

i) Nervous System

- Central Nervous System (Brain and Spinal Cord)
- Somatic Nervous System (Cranial and Spinal)
- Autonomic Nervous System

ii) Meninges and Ventricular system of C.N.S.

iii) Blood supply to C.N.S.

Reference books

- Mcminn's Color Atlas of Human Anatomy./ Abrahams, Peter H.,Edition 5
- Cunningham's Manual of Practical Anatomy by GJ Romanes.,Edition 1,Vol 3(1986)
- Textbook of Human Neuroanatomy./ Singh, Inderbir.,Edition 10(2017)
- Clinical Anatomy for Medical students./ Snell, Richard S.,Edition 6(2000)
- Essential Clinical Anatomy./ More, Keith L.,Edition 5(2014)
- Human Anatomy: Color Atlas and Text/ by JA Gosling, PF Harris, I Whitmore and PLT Willan,Edition 3(1996)
- Human Anatomy: Regional and Applied/ by BD Chaurasia,Edition 7,Vol4,(2016)

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT 112	Review of Basic Sciences (Physiology)	4-0-0	4

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rest of the eight questions is to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks.

Course objective and course outcomes

This course provides the student with the knowledge of the Human Physiology related to the various regions and systems of the body**.**

UNIT I

Section 1

Cardiovascular System

i) Structure and Properties of Heart

ii) Cardiac Cycle

iii) The regulation of Heart's performance/circulation during Exercise

iv) Cardiac Output

v) The Arterial Blood Pressure

vi) The Physiology of Vascular System

vii) Lymphatic Circulation

viii) Protection from Coronary Heart disease

ix) Sudden Cardiac death in Sports

Section 2

Respiratory System

i) Ventilation and Control of Ventilation

ii) Alveolar air

iii) Regulation of Breathing/Respiration during Exercise

iv) Pulmonary Function Test

v) Air Conditioning

vi) Second wind

vii) Oxygen Debt

viii) Breath holding and Scuba Diving, High Pressure Ventilation

UNIT II

Muscle Physiology

i) Electrical properties of Neuron

ii) Classification of Nerve Injury

iii) Effects of Nerve Injury

iv) Structure of Skeletal Muscle

v) Electrical properties of Skeletal Muscle

vi) The Contractile Mechanism

vii) Length-Tension Relationship

viii) Fast and Slow Muscles

ix) Skeletal Muscle Metabolism

x) Growth and Exercise

xi) Repair and Adaptation during Exercise

xii) Training for Muscular Strength and Endurance

xiii) Muscle tissue Fiber types and their significance

UNIT III

Gastrointestinal tract& Endocrine:

i) Effects of Sports on G.I.T. and Liver

ii) Hormone regulation, Fluid and Electrolytes during Exercise

iii) Exercise and Menstrual Cycle

iv) Stress Hormones in Exercise

v) Effects of Exercise on various Hormones in the Body

vi) Opioids, Runner's high

UNIT IV

Nervous System

i) Elementary Neuro-Anatomy

ii) Neurons and Neuroglia

iii) Properties of nerve fibers, Synapse

iv) Spinal cord

v) Cerebral Cortex

vi) Pyramidal and Extra Pyramidal system

vii) The Cerebellum

viii) Autonomic Nervous System

ix) Cerebrospinal fluid

x) Cranial nerves

Reference books

- Principles of Exercise Physiology/Axen, Kenneth.,Edition 1(2000)
- Physiology of Sport and Exercise by Wilmore, Jack M,Edition 4(2008)
- Text book of Practical Physiology/ Ghai, CL,Edition 8th(2013)
- Concise Medical Physiology/Chaudhary, Sujit K.,Edition 7th
- Human Physiology/ by NM Muthayya/Muthayya, MN.,Edition 4th (2010)
- Samson Wright's Applied Physiology/Keele, Cyril A.,Edition 13th (2008)
- Textbook of Medical Physiology/Guyton, Arthur C,Edition 11(2007)
- Textbook of Physiology/ by AK Jain,Edition 5th ,Vol 1&2(2017)

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT 113	Applied Physiotherapy	6-0-6	6

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rest of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Q.no.1 shall carry equal marks.

Course objective and course outcomes

This course provides the student with the knowledge of the various exercise therapy and electrotherapy treatment techniques and therapeutic modalities along with their applications in various conditions.

UNIT I

i) Assessment techniques: Manual Muscle Testing and Goniometry

ii) Stretching and Mobilization

iii) Re-education and Strengthening

iv) Balance and Co-ordination Exercise

v) Gait Analysis and Training (Both Normal and Pathological Gaits)

UNIT II

i) Relaxation and Soft Tissue Manipulations

ii) Posture

iii) PNF and Neuromuscular Coordination

iv) Hydrotherapy

v) Joint Mobilization

UNIT III

i) General Review of Low, Medium and High frequency currents and their modifications like Di-dynamic and Russian Currents etc.

ii) Laser

iii) Cryo therapy

UNIT IV

i) UVR and IRR

ii) Other Thermal Modalities like SWD, MWD, Hydro Collator, Wax therapy and Fluido-therapy

Reference books

- The Principles of Exercise Therapy/ Gardiner, M Dena.,Edition 4th (2005)
- Therapeutic Exercise: Foundation and Techniques/ by Carolyn Kisner and Lynn Allen Colby.,Edition 6th (2012)
- Practical Exercise Therapy/ by Margaret Hollis &Phyl Fletcher- Cook,Edition 4th (1999)
- Electrotherapy Explained: Principles and Practice/ by John Low, Ann Reed and Mary Dyson,Edition 3rd (1999)
- Clayton's Electrotherapy/ edited by Sheila Kitchen and Sarah Bazin,Edition 10(2000)
- Muscles Testing and Function/ by Florence Peterson Kendall (et al.),Edition 5th,(2005)
- Therapeutic Modalities for Physical Therapists/ by William E Prentice, William Quillen and Frank Underwood,Edition 2,(2002)
- Therapeutic Exercise Moving toward Function/ by Carrie M Hall and Lori Thein Brody.,Edition 3(2010)
- Daniels and Worthingham's Muscle Testing Techniques of Manual Examination/ by Helen J Hislop and Jacqueline Montgomery,Edition 9,(2013)

Course No	Subject	Teaching Hours/ Week	
		L –T - P	Credits
MPT 113 P	Applied Physiotherapy Practical	0--0-- 6	3

Course Objective and Outcome Measures

This course provides the student with the practical knowledge of the various exercise therapy and electrotherapy treatment techniques and therapeutic modalities along with their applications in various conditions.

UNIT I

Exercise Therapy:

i) Musculoskeletal and Neurological Assessment

ii) Strengthening techniques

iii) Soft tissue Stretching and Mobilization

iv) Gait Analysis and Training

v) Postural assessment and Re-education

vi) Balance and Coordination

vii) Hydrotherapy

UNIT II

Electrotherapy

All types of Low and Medium Frequency Currents

i) Faradic

ii) Galvanic

iii) High Voltage Current

iv) Di Dynamic

v) Russian

vi) Interferential Therapy

vii) TENS

viii) Micro Currents

UNIT III

All types of High Frequency Currents and Modalities

i) Cryotherapy

ii) UVR

iii) IRR

iv) LASER

UNIT IV

Other modalities like Hydro-Collator, Wax-therapy, Fluido-therapy

Reference books

- The Principles of Exercise Therapy/ Gardiner, M Dena.,Edition5th (2002)
- Therapeutic Exercise: Foundation and Techniques/ by Carolyn Kisner and Lynn Allen Colby.,Edition 2nd
- Practical Exercise Therapy/ by Margaret Hollis &Phyl Fletcher- Cook,Edition 5th
- Electrotherapy Explained: Principles and Practice/ by John Low, Ann Reed and Mary Dyson,Edition 3rd
- Clayton's Electrotherapy/ edited by Sheila Kitchen and Sarah Bazin,Edition4th
- Muscles Testing and Function/ by Florence Peterson Kendall (et al.),Edition3rd
- Therapeutic Modalities for Physical Therapists/ by William E Prentice, William Quillen and Frank Underwood,Edition1st
- Therapeutic Exercise Moving toward Function/ by Carrie M Hall and Lori Thein Brody.,Edition 3rd
- Daniels and Worthingham's Muscle Testing Techniques of Manual Examination/ by Helen J Hislop and Jacqueline Montgomery,Edition 2nd.

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT 114	Applied Biomechanics	4-0-0	4

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rest of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno1 shall carry equal marks.

Course objective and course outcomes

This course provides the student with the knowledge of the Biomechanics and the students will be able to identify and apply principles of biomechanics while setting up individualized treatment protocols**.**

UNIT I

Fundamental Mechanics

i) Forces; Composition and Resolution of Forces; Force Systems

ii) Force of Gravity, LOG and COG

iii) Stability

iv) Reaction forces

v) Friction

vi) Moments

vii) Newton's laws

viii) Equilibrium: Static and Dynamic

ix) Simple Machines: Levers, Pulleys, Wheel and Axis

x) Work, Power and Energy

xi) Density and Mass

xii) Segmental dimensions

xiii) Poisson's effect

xiv) Stress and Strain

xv) Modulus of Rigidity and Modulus of Elasticity

xvi) Strain energy

xvii) Static and Cyclic Load behaviors

xviii) Load: Load sharing and Load transfer

Kinematics

i) Motion: Types, Location, Magnitude and Direction

ii) Angular Motion and its various parameters

iii) Linear Motion and its various parameters

iv) Projectile Motion

UNIT II

Muscle Mechanics

i) Structure and Composition of Muscle

ii) Fiber length and Cross-Section Areas

iii) Mechanical properties

iv) EMG changes during Fatigue and Contraction

v) Changes in Mechanical properties because of Aging, Exercise and Immobilization

vi) Clinical applications

Ligament and Tendon Mechanics:

i) Structure, Composition and Mechanical Properties

ii) Cross-Sectional Area measurement

a. Muscle Tendon properties

b. Temperature Sensitivity

c. Changes in Mechanical properties because of Aging, Exercise and Immobilization

d. Mechanoreceptors

e. Clinical application

Joint Mechanics

i) Joint design

ii) Joint categories

iii) Joint functions: Arthrokinematics, Osteokinematics and kinematics chains

a. Joint forces, Equilibrium and Distribution of these forces

b. Degenerative changes in Weight bearing Joints and Compensatory actions

c. Joint Stability and Its Mechanisms

d. Clinical applications

UNIT III

Measurement Instruments

i) Photo-Optical devices

ii) Pressure Transducers and Force Plates

iii) Gait Analyzer

iv) Isokinetic device

v) EMG (Electro Physiology of Muscle contraction, Recording, Processing

vi) Relationship between EMG and Biomechanical Variables

Mechanical energy. Work and Power

i) Definitions

ii) Positive and Negative Muscles Work

iii) Muscle Mechanical Power

iv) Causes of Inefficient, Movement Co-contractions, Isometric contractions, Against Gravity Jerky movement, Energy generation at one joint and Absorption at another, Energy flow

v) Energy Storage

Gait

i) Gait parameter: Kinetic, Kinematics, Time-Space

ii) Pathological Gait

iii) Running

iv) Stair Climbing

v) Changes in Gait following various Surgeries/Diseases/Disorders

UNIT IV

Cardiopulmonary Mechanics:

i) Cardio Mechanics

ii) Pulmonary Mechanics

iii) Vascular Mechanics

Joint structure and function of

i) Vertebral Column

ii) Hip Joint

iii) Knee Joint

iv) Ankle and Foot Complex

v) Shoulder Joint

vi) Elbow Joint

vii) Wrist and Hand Complex

Reference books:

- Introduction to Kinesiology/ Hoffman, Shirf, Edition 4th (2013)
- Kinesiology: The Mechanics &Patho mechanics of Human Movement/ by Carol A Oatis.,Edition2nd(2009)
- Joint Structure and Function Cynthia Norkins,Edition 5th (2010)
- Joint Structure and Function: AComprehensiveAnalysis./ Levangie, Pamela K,Edition5th (2010)
- Clinical Biomechanics of the Lower Extremities/ by Ronald L Valmassy,Edition 1(1996)
- Fundamentals of Biomechanics, Orkaya, N,Edition 2(2007)

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT 115	Biostatistics and Research Methodology	4-0-0	4

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rest of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks.

Course objective and course outcomes

This course provides the student with the knowledge of the Biostatistics and the students will be able to identify and apply principles of Research Methodology in Physiotherapy.

UNIT I

Research Methodology

i) How to Read and Critique Research

ii) Introduction to Research: Framework, Levels of Measurement and Variables

iii) Basic Research Concepts: Validity and Reliability

iv) Design Instrumentation and Analysis of Qualitative Research

v) Design Instrumentation and Analysis of Quantitative Research

vi) How to Write a Research Proposal

vii) The Use and Protection of Human and Animal Subjects

UNIT II

Biostatistics

i) Introduction

ii) Description and Interferential Statistics, Methods of Collection, Classification, Tabulation and Presentation of Data

iii) Central Tendency: Mean, Median, Mode and Standard deviation

UNIT III

i) Co-relation and Regression

ii) Karl Pearson's Co-relation method

iii) Rank Co-relation method

iv) Regression and Co-efficients

v) Hypothesis Testing

vi) Data collection

vii) Types of Sampling

viii) Tests

UNIT IV

- Probability, Binominal distribution, poison distribution, Normal distribution
- One way ANOVA &Two way ANOVA
- Test of Significance (t test, chi square test, f test, z test)
- Non Parametric Tests
- Simple Statistical Analysis using available Software

Reference books

- Research Methods in Physical Activity: Thomas, J,Edition 7th(2015)
- Statistical Application for Health Information Management: Osborn, CE,Edition 2(2005)
- Clinical Research for Health Professionals: AUser-friendly Guide: Batavia, Mitchell.,Edition1,(2000)
- Clinical Audit in Physiotherapy: From Theory into Practice./ Barnard, Sue.,Edition1(1998)
- Practical Research: AGuide for Therapists./ French, Sally,Edition2(2001)
- Rehabilitation Research: Principles and Applications: Elizabeth Domholdt,Edition 4th(2010)
- Methods in Biostatistics for Medical Students and Research Workers. Mahajan BK.,Edition 7th(2010)
- Manual of Biostatistics: Baride, JP,Edition 1(2003)
- Medical Biostatistics: Indrayan, A.,Edition 4th (2018)

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT 116	Seminars/ Case Presentations	0-0-4	2

Course Objectives & Course Outcomes

These will serve as platform for students to integrate various components of patient management and debate contentious issues on the efficacy of physiotherapy techniques. Students will give presentations on topic provided to them.

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT117	Clinical Training	0-0-8	Qualifying

Clinical Training

Students will engage in clinical training in hospital based medical and physiotherapy departments/ settings to enhance their clinical skills and apply contemporary knowledge gaining during teaching sessions.

SEMESTER –II

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT 211	Review of Basic Sciences (Pathology)	4-0-0	4

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rest of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno1 shall carry equal marks.

Course Objectives & Course Outcomes

This course provides the student with the knowledge of the Pathology related to the various regions of the body.

UNIT I

GENERAL PATHOLOGY

- Cell injury
- Inflammation
- Repair
- Immune system

UNIT II

NERVOUS SYSTEM

i) Infection:

- Meningitis
- Encephalitis

ii) Vascular Disease:

- Ischaemic Encephalopathy
- Cerebral Infarction
- Intracranial Infarction
- Intracranial Hemorrhage

iii) Degenerative Disease:

- Alzheimer's' Disease
- Huntington's Disease
- Parkinson's Disease
- Motor Neuron Disease

iv) Demyelinating Disease:

- Multiple Sclerosis

v) The Peripheral Nervous System

- Peripheral Neuropathy
- Acute Idiopathic Polyneuropathy
- Diabetic Neuropathy

UNIT III

MUSCULOSKELETAL SYSTEM

i) Bones

a. Hereditary and Metabolic Diseases (Osteoporosis, Rickets, Osteomalacia, OsteitisFibrosaCystica, renal Osteodystrophy)

b. Infections (Osteomyelitis and Tuberculosis)

ii) Joints:

- Degenerative Joint Disease
- Bursitis

iii) Skeletal Muscles:

- Muscle Atrophy
- Myositis
- Muscular Dystrophy
- Myasthenia Gravis

UNIT IV

CARDIOVASCULAR SYSTEM

i) Rheumatic Heart Disease

ii) Myocardial Infarction

iii) Atherosclerosis

iv) Congenital Heart Diseases

Reference books

- Textbook of Pathology./ Mohan, Harsh, Edition 7th (2015)
- Pathology Illustrated/ by Peter S Macfarlane, Robin Reid and Robin Callander, Edition 5th (2001)
- Pathology: Implications for the Physical Therapists/ by Catherine Cavallaro, D Goodmann and Williams G Boissonn,Edition 3rd (2009)
- Pathology, Quick Review, Harsh,Edition 2nd (2005)

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT212	Review of Basic Sciences (Pharmacology)	4-0-0	4

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rest of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno1 shall carry equal marks.

Course Objectives & Course Outcomes

This course provides the student with knowledge of the Pharmacology related to the various regions of the body.

UNIT-I

i) Drugs used in Pain

ii) Local Anesthetics

UNIT-II

i) Steroids

UNIT-III

i) MuscleRelaxants

ii) Drugs acting upon Central and Autonomic Nervous System

UNIT-IV

i) Topically acting upon Cardio Respiratory system

ii) Drugs acting upon Musculoskeletal system

Reference books

- Essential of Medical Pharmacology/ by KD Tripathi, Edition 3rd (2005)
- Pharmacology Drug Actions &Reactions, Edition 2nd
- Blueprints Notes &Cases: Pharmacology, Edition 1st
- Textbook of Pharmacology, Seth, SD, Edition 3rd

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT 213	Advanced Physiotherapy	6-0-6	6

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rest of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno1 shall carry equal marks.

Course Objectives & Course Outcomes

This course provides the student with knowledge of the advanced techniques of Physiotherapy including manual therapy related to the treatment of various conditions of the body.

UNIT-I

i) **Manual Therapy:** Introduction, History, Basic Classification, Assessment for Manipulation, discussion in brief about the concepts of Mobilization. Like Cyriax, Maitland, Mulligan, Butler, Kaltenborn, methodology in general with examples at view Joints/Nerves (Manipulation Studies and work according to their specialization)

ii) **Muscle Energy techniques and positional stretch:** The basic concept and Application of these techniques.

UNIT-II

i) **Positional Release Therapy:** The basic concept and Application of these techniques.

ii) **Myofascial Release:** Concept and Application.

UNIT-III

i) **Nerve Conduction Studies and Electromyography:** Normal, Abnormal Action Potentials, its recording Protocols Analysis, Application.

ii) **Geriatric Physiotherapy**.

UNIT-IV

i) **Biofeedback.**

ii) **Taping** for Injury Prevention and Rehabilitation

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT 213P	Advanced Physiotherapy Practical	0-0-6	3

Course Objectives & Course Outcomes

This course provides the student with knowledge of the advanced techniques of Physiotherapy including manual therapy related to the treatment of various conditions of the body.

UNIT-1

Demonstration of following Manual Therapy according to their specialization field:

i) Cyriax

ii) Maitland

iii) Mulligan

iv) Buttler

v) Nerve Mobilization etc.

UNIT-1I

Outline and Practical knowledge of

i) Muscle Energy Technique

ii) Positional Stretch

iii) Myofascial Stretch etc.

UNIT-1II

Demonstration and Practical knowledge of

i) NCV, EMG

ii) Bio Feedback etc.

Reference books

- Electrotherapy Explained: Principles and Practice/ by John Low, Ann Reed and Mary Dyson.,Edition4th (2006)
- Clayton's Electrotherapy/ edited by Sheila Kitchen and Sarah Bazin,Edition 10th (1995)
- Positional Release Techniques, DeigD,Edition 2nd .
- Muscle Energy Techniques, Chaitow, L,Edition3rd

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT 214	Ergonomics	4-0-0	4

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rest of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks.

Course Objectives & Course Outcomes

This course provides the student with knowledge of the ergonomics related to the various regions of the body.

UNIT-1

i) Definitions

ii) Physiological and Bio-mechanical Risk factors

UNIT-11

i) Job Design

ii) Developing and Implementing Work Site Programme

UNIT-III

i) Ergonomics in Home, Child Care and Leisure Activities

UNIT-IV

ii) Addressing Problems at Computer Workstation

Reference books

- Ergonomics for Therapists: Karen Jacobs, Carl M Bettencourt, Edition 3rd(2007)
- Hand book of Human Factors and Ergonomics: Gavriel Salvendy,Edition 4th(2012)
- Ergonomics: How to Design for Ease and Efficiency: KHE Kroemer, HB Kroemer, KE Kroemer-Elbert,Edition 2nd (2000)
- Ergonomics, Work and Health: Pheasant, Stephen,Edition(1991)
- A Guide to Human Factors and Ergonomics: Martin Helander,Edition2(2005)

Course No	Subject	Teaching Hours/ Week	
		L – T – P	Credits
MPT215	Professional Development & Ethics	4-0-0	4

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rest of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks.

Course Objectives & Course Outcomes

This course will provide students information on improving their teaching skills in the classroom and clinical settings, basic issues of management to assist the practitioner in efficiently addressing issues related to the organization and administration of the physiotherapy department.

UNIT-1

1.Concepts of Teaching and Learning

i) Meaning and Scope of Educational Psychology

ii) Meaning and Relationship between Teaching and Learning

iii) Learning Theories

iv) Dynamics of Behavior

v) Individual Differences

2. Curriculum

i) Meaning and Concepts

ii) Basis of Curriculum Formulation Development

iii) Framing Objectives for Curriculum

iv) Process of Curriculum Development and Factors Affecting Curriculum Development

v) Evaluation of Curriculum

3. Method and Techniques of Teaching

i) Lecture, Demonstration, Discussion, Seminar, Assignment, Project and Case Study.

4. Planning for Teaching

i) Bloom's Taxonomy of Instructional Objectives, Writing Instructional

ii) Unit planning and Lesson planning

5. Teaching Aides

i) Types of Teaching Aids

ii) Principles of Selection, Preparation & Use of Audio-Visual aids.

6. Measurement and Evaluation

i) Nature of Educational Measurement: Meaning, Process and Types of Tests

ii) Construction of an Achievement Test and its Analysis Standardized Test

iii) Introduction of some Standardized tools, Important Tests of Intelligence, Aptitude Personality.

iv) Continuous and Comprehensive Evaluation

UNIT-II

1. Guidance and Counseling

i) Meaning and Concepts of Guidance and Counseling

ii) Principles

iii) Guidance and Counseling Services for Students and Faculty members

iv) Faculty Development and Development of Personnel for PhysiotherapyServices

2. Clinical education

i) Awareness and Guidance to the Common people about Health DiseasesandAvailable Professional services

ii) Patient Education

iii) Education of the Practitioners

3. Functions of management

4.Managementprocess: Planning, Organization, Direction, Controlling, and Decision-making.

5.**Personal Management:** Staffing, Recruitment Selection Performance Appraisal, Collective Bargaining, Discipline, and Job Satisfaction.

UNIT-III

1. Quantitative methods of Management: Relevance of Statistical and/ or Techniques in Management.

2.Marketing: Marketing Segmentation, Marketing Research Production, Planning Pricing, and Channels of Distribution, Promotion, Consumer Behavior and Licenser.

3. Total Quality Management: Basis of Quality Management, Quality Assurance Program in Hospitals, Medical Audit and International Quality System.

4.Hospital as an Organization: Functions and types of Hospitals Selected, Clinical Supportive and Ancillary Staff of the Hospital, Emergency Department, Nursing, Physical Medicine and Rehabilitation, Clinical Laboratory, Pharmacy and Dietary Department.

5.Roles of Physiotherapy Director, Physiotherapy Supervisor, Physiotherapy Assistant, Physiotherapy Aide, Occupational Therapist, Home Health Aide and Volunteer.

6.Direct Care and Referral Relationships and Confidentiality.

UNIT-IV

1. Physiotherapy: Definition and Development

2. Implications and Conformation to the Rules of Professional Conduct

3.Legal Responsibility for their actions in the Professional Context and Understanding the Physiotherapist's Liability and Obligations in the Case of Medico-legal Action

4. Code of Ethics: Wider Knowledge of Ethics relating to Current Social and Medical Policy in the Provision of Health Care.

5. Function of Relevant Professional Associations Education Body and Trade Union

6. Role of the International Health Agencies such as the World Health Organization

7. Standards of Practice for Physiotherapy

8. Current issues

9. Basics of Computer-Hardware and Software

10. Basic Computer Applications-Windows, MS Word, Excel, Power Point, etc.

Reference books

- Fox Pro 2.5 Made Simple for DOS & Windows, Taxali, RK,Edition 2nd (2003)
- Computers and Commonsense, Hunt, R & Shelly, J,Edition 3rd ,(1983)
- Social Problems in India, Ahuja, R.,Edition 3rd (2014)
- Health Studies: An Introduction, Naidoo,Edition 3rd (2015)
- An Introduction to Sociology/ by VidyaBhushan and DR Sachdeva,Edition 2nd (2014)

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT216	Seminars/ Case Presentations	0-0-4	2

Seminar

These will serve as platform for students to integrate various components of patient management and debate contentious issues on the efficacy of physiotherapy techniques. Students will give presentations on topic provided to them.

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT 217	Clinical Training	0-0-8	Qualifying

Clinical Training

Students will engage in clinical training in hospital based medical and physiotherapy departments/ settings to enhance their clinical skills and apply contemporary knowledge gained during teaching sessions.

Master of Physiotherapy

(Musculoskeletal Disorders)3rd Semester

SEMESTER –III

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT 331	Medical and Surgical Management of Musculoskeletal Disorders	6-0-0	6

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rest of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks.

Course Objectives & Course Outcomes

This course provides the student with knowledge of the definition,technologies,epidemiology,pathology,clinicalfeatures,prevention,medical and surgical management of various orthopaedicconditions.It will also enable the students to use this information in planning and tailoring effective,specific and safe Physiotherapy treatment programmes.

Unit-I General Orthopedics

i) Infection Disorders of the Bones and Joints

ii) Metabolic Disorders of the Bones and Joints

iii) Congenital Disorders of the Bones and Joints

iv) Inflammation of the Bones and Joints

v) Degeneration of the Bones and Joints

vi) Developmental Disorders of the Bones and Joints

vii) Connective Tissue Disorders

viii) Neuromuscular Disorders

ix) Tumors of Bones

x) Complex Regional Pain Syndrome

Unit-II Traumatology (includes Fractures, Subluxations, Dislocations and Soft tissue injury)- Incidence, Etiology, Clinical Features, Complications, Assessment, Investigations and Physiotherapy Management of following:

i) Trauma of the Upper Limb

ii) Trauma of the Lower Limb

iii) Trauma of the Lower Spine

iv) Peripheral Nerve Injuries

Unit-III Orthopedic Surgeries:- Methodology of Different types of Some Common Surgeries and Their Rehabilitation

i) Osteotomy

ii) Arthrodesis

iii) Arthroplasty

iv) Tendon Transfers, Repairs and Grafting

v) Nerve Suturing

vi) Soft Tissue Release

vii) Spinal Stabilization

viii) Spinal Fusion

ix) Discectomy

x) Laminectomy

xi) Reattachment of Limbs

xii) Illizarov'sTechnique

xiii) Menisectomy

Unit-IVAmputation

i) Types, Level and Procedure

ii) Preoperative, Operative and Prosthetic management.

iii) Prevention and Treatment of Complication

Unit-VGeriatric Care

i) Theories of Ageing

ii) Examine and Assessment of Geriatric Patient

iii) Pathological and Physiological Changes of Ageing

iv) Disorders Specific to Ageing

Reference books

- Pediatric Orthopaedics: Core Knowledge in Orthopaedics./ Dormans, John P,Edition 3rd,2015
- Clinical Orthopaedic Examination./ Mcrae, Ronald,Edition5th,2003
- Apley's System of Orthopaedics and Fractures./ Solomon, Louis,Edition9th,2010
- Fractures of Upper Extremity./ Ziran, Bruce H. ed,Edition 1st,2003
- Musculoskeletal Disorders in the Workplace: Principles and Practice./Nordin, Margareta.,Edition 2nd,2012
- The Orthopaedic Physical Examination./ Reider, Bruce,Edition 2nd,1999
- Orthopaedic Physical Assessment: Magee, DJ,Edition 5th
- Essentials of Orthopaedics for Physiotherapists: Ebnezar, J,Edition 3rd,2016
- The Orthopaedic PhysicalExam: Reider, B,Edition 2nd,2004
- Chiropractic Care of the Older Patient./Gleberzon, Brian J. ed.,Edition 1st,2001
- Orthopaedics Principles of Basic and Clinical Science: Bronner, F &Warrell, RV,Edition 4th,2013
- Burnsides Working with Older Adults Group Process and Techniques: Haight, B,Edition 4th,2005.

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT 332	Vertebral disorders and Rehabilitation	6-0-0	6

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rest of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks.

Course Objectives & Course Outcomes

This course will provide the student with knowledge of the classification, pathophysiology, pathomechanics, causes, clinical features, complications, examination, management and physiotherapy treatment of various vertebral disorders. It also enables the student to apply knowledge of advanced techniques like Maitland ,Cyriax, PNFetc according to the requirement in clinical cases.

Unit-I:

Review of Anatomy and Biomechanics of Vertebral column.

Unit-II:

Congenital Disorders of Vertebral column & Vertebral Deformities, Inflammatory Disorders of Vertebrae, Vertebral Joints, Soft tissues, Disease of the Vertebral joints, Segmental Instability.

Disorders of Structural changes, Changes of Alignment of Bone, Joint of Vertebral column, Low Back Pain, Pain in Vertebral Column &Stiffness Disorders

Unit-III:Region wise conditions for Cervical, Lumbar, Thoracic and Sacral regions.

i) Soft tissue Injuries, Tightness, Structural changes

ii) Bone Injuries(Fractures &Dislocation of Spine)

iii) Pelvic Injuries

Unit-IV Spinal Cord Injuries

i) Types, Classifications

ii) Pathology

iii) Level

iv) Examination

v) Management &Rehabilitation

vi) Orthopaedic Surgeries

vii) Bio Engineering Appliances &Support Devices

viii) Pre &Post Operative Rehabilitation

Reference books

- Neck and Arm Pain/ by Rene Cailliet.,Edition 3rd,1991
- ABC Spinal Cord Injury/ by David Grundy and Andrew Swain,Edition 4th,2002
- Orthopedic Physical Assessment./ Magee, David J.,Edition 6th,2014
- Measurement of Joint Motion: A guide to Goniometry. Norkin, Cynthia C.,Edition 4th,2009.

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT 333	Hand Rehabilitation	6-0-0	6

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rest of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks.

Course Objectives & Course Outcomes

This course will provide student with knowledge of the classification,pathophysiology,pathomechanics,causes,clinicalfeatures,complications,examination,management and physiotherapy treatment of various hand disorders.

Unit-1

Functions of hand as Motor and Sensory Organ with Advanced Bio and Patho mechanics of Hand. Classification of Hand Injuries and Principles of Hand Rehabilitation (Functional and Vocational Training)

Unit-II

i) Tendon Injuries

ii) Nerve Injuries

iii) Crush Injuries

iv) Incision and Their effects on Later Rehabilitation, Fractures, Joint Injuries and Correction of Deformities.

Unit-III

i) Phantom Hand Pain

ii) Spastic Hand

iii) Rheumatoid Hand

iv) Hand in Hansen's Disease

v) Reflex Sympathetic Dystrophy

Unit-IV

i) Phantom Hand Pain

ii) Prosthetic Hand

iii) Orthosis for Hand and Their uses.

Reference books

- Cash's Textbook of Orthopaedics and Rheumatology for Physiotherapists: Downie, PA,Edition 1st,1987
- Physical Rehabilitation in Arthritis: Walker, JM &Heleura, A.,Edition 2nd,2004
- Hand Therapy Principles and Practice: Salter, M &Chishire, L,Edition 1st,2017
- Hand Fractures Repair Reconstruction &Rehabilitation: Freeland, AE,Edition 3rd,2000

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT 334	Assessment and Physiotherapy Management of Musculoskeletal Disorders	6-0-0	6

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rest of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks.

Course Objectives & Course Outcomes

This course will provide student with knowledge of the classification,pathophysiology,pathomechanics,causes,clinicalfeatures,complications,examination,management and physiotherapy treatment of various disorders.

UNIT-1

Orthopedic Assessment: Assessment and Evaluation of a Patient to Plan a Therapeutic program for various orthopedic conditions

i) Patient History

ii) Observation

iii) Examination-Active and Passive Movements, FunctionalAssessment, Special Tests,Reflexes and cutaneous Distribution Joint Play Movements Palpation

iv) Gait-Definitions, Gait Cycle, Abnormal Gait patterns

v) Posture-Normal and Abnormal, Spinal Deformities

vi) Disability Evaluation

vii) Assessment of Amputees

viii) Examinations and Assessment of Geriatric Patient

UNIT-11

Regional Examination with Special Emphasis on Special Tests and Physiotherapy Management of Orthopedic Conditions of the following regions:

i) Head and Face

ii) Cervical Spine

iii) Shoulder

iv) Elbow

v) Forearm, Wrist and Hand

vi) Thoracic Spine

vii) Lumbar Spine

UNIT-III

Regional Examination with Special Emphasis on Special Tests and Physiotherapy Management of Orthopedic Conditions of the following regions:

i) Pelvis

ii) Hip

iii) Knee

iv) Lower Leg, Ankle and Foot

UNIT-IV

Orthopedic Diagnosis (for practical purposes only)

i) Biomechanical measurements-Limbs and Spine

ii) Haematology and Serology

iii) Biopsy

iv) Plain Radiography

v) Contrast Radiography

vi) Myelography

vii) Radioactive Scanning

viii) Discography

ix) Tomography

x) Magnetic Resonance Imaging

xi) Arthroscopy

xii) Electromyography, Nerve Conduction Velocity, Strength Duration Curve

xiii) BMO-Bone Densitometry-Ultrasound densitometer and Dual Energy X-ray Absorptiometry (DEXA)

Reference books

- Orthotics in Rehabilitation: Splinting the Hand and Body/ McKee, Pat,Edition 1st,1998
- Physiotherapy in Orthopaedics: A Problem Solving Approach./ Atkinson, Karen.,Edition 2nd,2005
- Examination of Musculoskeletal Injuries: Shultz, SJ,Edition 4th,2015
- Clinical OrthopaedicRehabilitation./ Brotzman, S. Brent,Edition 1st,1996
- Orthopedic Physical Therapy: Donatelli, RA & Wooden, MJ,Edition 2nd,2009
- Joint Structure and Function: AComprehensiveAnalysis: Levangie, PK &Norkin, CC,Edition 5th,2012
- Essentials of Orthopedics &Applied Physiotherapy: Joshi, J &Kotwal, P,Edition 3rd,2017

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT 335	Practical (Musculoskeletal Disorder, Clinical/ Viva voice)	0-0- 8	4

Course Objectives & Course Outcomes

The students will be equipped with clinical knowledge.They will be able to apply advanced knowledge of clinical skills in problem solving related to assessments,investigations and Physiotherapy management of all the above conditions.Students will be judged on one elective and one non-elective case.They will be expected to assess,diagnose and plan effective treatment plan for both cases.

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT 336	Seminars/ Case Presentations	0-0-4	2

Seminar

These will serve as platform for students to integrate various components of patient management and debate contentious issues on the efficacy of physiotherapy techniques. Students will give presentations on topic provided to them.

Course No	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
MPT 337	Clinical Training		0-0-8	Qualifying

Clinical Training

Students will engage in clinical training in hospital based medical and physiotherapy departments/ settings to enhance their clinical skills and apply contemporary knowledge gained during teaching sessions.

Course No	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
MPT338	Dissertation(Based on Clinical/ Case presentation including Viva voice)	PC	0-0-24	12

As part of their requirement for the Master Degree the student is required to undertake a research study under the guidance of Guide and Co-guide. Research study must be selected only from the chosen specialization i.e Musculoskeletal conditions and to be studied on patients or normal individuals. Students have to undergo a dissertation viva-voice by examining committee.

Course No	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
MPT339	Seminar	PC	0-0-4	2

Course objectives and outcomes

These will serve as platform for students to integrate various components of patient management and debate contentious issues on the efficacy of physiotherapy techniques. Students will give presentations on topic provided to them.

M.P.T. (Neurological Disorders)

3rd Semester

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT 441	Medical and Surgical Management in Neurological Disorders	6 – 0-0	6

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rest of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks.

Course Objectives & Course Outcomes

Students will be able to use this information in Planning and Tailoring Effective, specific, safe, Physiotherapy Treatment programs and In-depth Knowledge of the Central Nervous System(CNS) and Conditions caused by Damage to or Disease in the CNS such as stroke, MS, Parkinson, Cerebral Palsy, Spina bifida and Mental Retardation.

Unit-1

1. Congenital and Hereditary disorders

2. Head injury

i) Comatose Patient

ii) Closed Skull Fractures

iii) Haematomas, Subdural, Epidural and Intracerebral

iv) Open Cranio-cerebral Injuries

v) Reconstruction Operations in Head injuries

3. Disorders of Spinal Cord and CaudaEquina

i) Acute Traumatic Injuries

ii) Haematomyelia and Acute Central Cervical Cord Injuries

iii) Slow Progressive Compression of the Spinal Cord

iv) Syringomyelia

v) Ischaemia and Infarction of the Spinal Cord and Cauda

vi) Spina-Bifida

4. Disorders of Cranial Nerves

Unit-2

1. Disorders of Peripheral Nerves

i) Peripheral Neuropathies

ii) Causalgia

iii) Reflex Sympathetic Dystrophy

iv) Irradiation Neuropathy

v) Peripheral Nerves Tumors

vi) Traumatic, Compressive and Ischaemic Neuropathy

vii) Spinal Radiculitis and Radiculopathy

viii) Hereditary Motor and Sensory Neuropathy

ix) Acute Idiopathic Polyneuritis/Chronic

x) Neuropathy due to Infections

xi) Vasculomotor Neuropathy

xii) Neuropathy due to Systemic Medical Disorders

xiii) Drug Induced Neuropathy

2. Disorders of Muscle

i) The Myotonic Disorders

ii) Inflammatory Disorders of the Muscle

iii) Myasthenia Gravis

iv) Endocrine Dystrophy

3. Cerebellar Disorders

i) Ataxia

ii) Motor Neuron Disease

4. Demyelinating Disorders

i) Multiple Sclerosis

ii) Diffuse Sclerosis

5. Deficiency and Nutritional Disorders

i) Deficiency of Vitamins and Related Disorders

ii) Other Nutritional Neuropathies

6. Disorders of Cerebral Circulation-Stroke

UNIT-1II

1 Infectious Disorders

i) Meningitis

ii) Encephalitis

iii) Brain Abscess

iv) Syphilis

v) Herpes Simplex

vi) Chorea

vii) Poliomyelitis

viii) Tuberculosis

ix) Transverse Myelitis

2 Disorders of the Vestibular System

3 Extra Pyramidal Disorders

i) Parkinsonism

ii) Balance Disorders

4. **Epilepsy, Dementia, Alzheimer's Disease**

5. **Development of Child**- Weight, Height, Circumference Measurement related to Age in Normal child, Developmental Milestones, Neonatal Reflexes, Factors influencing Growth and Development, Types of Body Built, Physical Examination of the Child, Growth Patterns

6. **Nutrition and immunization of a normal child**- Normal Nutrition Requirement of a Child, Infant Feeding, Prevention of Nutritional Disorders, Immunization

7. **General Principles of Neurosurgery**

8. **Tumors**

Tumors of Cranial bones

i) Meningiomas

ii) Tumors in Spinal Cord

iii) Intra-cranial Tumors

iv) Other Space-occupying Lesions

UNIT-1V

1 **Intracranial Abscess**

2 **Hydrocephalus**

3 **Vascular Disease of the Brain**

i) Aneurysms

ii) Thrombosis

4 **Stereo tactic Surgery**

5 **Cerebral Malformations**

6 **Operations of the Discs-Cervical and Lumber Disc Operations**

7 **Malformations of the Spine and Spinal Cord**

8 **Lumber and Cisternal Punctures Technique and Complication**

9 **General rules of Surgical Repair of the Peripheral Nerves**

10 **Muscle Lengthening/ Release Operations**

11 Spasticity Reductions

12 Intensive Care Unit Management of the Neurologically Impaired Patient

Reference Books-

- Merrit's Neurology, Elan D Louis,13th Edition
- Clinical Neuropathology, Text and Colour atlas, Catherine Haberland, Ist Edition
- Brain's Disease of nervous System, Michael Donaghy,12th Edition
- Current therapy in Neurologic disease, Richard T Johnson,6th Edition
- High Yield Neuroanatomy, James D,2nd Edition
- Clinical Neurology. John W. Scadding and Nicholas A. Losseff. 4th edition.
- Bradley's Neurology in Clinical Practice. Robert B. Daroff. 6th edition.

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT 442	Physiotherapy in Neurological Disorders	6– 0-0	6

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rest of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Q.no.1 shall carry equal marks.

Course Objectives & Course Outcomes

Students will be able to use this information in Planning and Tailoring Effective, specific, safe, Physiotherapy Treatment programs and In-depth Knowledge of the Central Nervous System(CNS) and Conditions caused by Damage to or Disease in the CNS such as stroke, Multiple sclerosis, Parkinson, Cerebral Palsy, Spina bifida and Mental Retardation.

Unit-1:

1. Introduction

i) The History of the Illness.

ii) Examination of the Patient.

iii) Investigation of the Patient with Neurological Disease EMG, EEG, Nerve Conduction test, Radiology X-ray, CT., MRI., Laboratory test etc.

iv) Physiotherapy Assessment & Rehabilitation (Advanced Therapeutic Techniques like Bobath, Motor Relearning, Rood, PNF, Mobilization etc.)

2. Cranial Nerves

i) Testing of Cranial Nerves

ii) Disorders of Cranial Nerves, Cranial Neuropathy

iii) Rehabilitation Protocol.

3. Stupor and Coma

i) The Neural basis of Consciousness

ii) Clinical Terminology

iii) Lesions Responsible for Stupor and Coma

iv) The Assessment and Investigation of the Unconscious Patient.

v) The Diagnosis of Brain Death

vi) The Management of the Unconscious Patient

vii) Total Rehabilitation Protocol.

4.Disorders of the Cerebral Circulation

i) Epidemiology of the Stoke

ii) Causes, Types, Pathophysiology

iii) Clinical Features and Investigation

iv) Treatment of Different Type of Stroke

v) Recovery and Rehabilitation

vi) Stroke Prevention

Unit-II

1.Infectious Disorders:

Classification,Causes,Pathophysiology,Clinicalfeatures,Complication of following disorder:

i) Meningitis

ii) Encephalitis

iii) Brain Abscess

iv) Syphilis

v) Herpes Simplex

vi) Chorea

vii) Tuberculosis

viii) Transverse Myelitis

ix) Poliomyelitis

Classification, Causes, Pathophysiology, Clinicalfeatures, Complication

2.Demyelinating Diseases of the Nervous System

i) Classification of Demyelinating Diseases

ii) Multiple Sclerosis

iii) Diffuse Sclerosis

3.Movement Disorders

i) Akinetic- Rigidity Syndromes Disorders

ii) DyskinesiasDisorders

4.Degenerative disease of the spinal cord and cerebellum

i) All Type of Ataxia

ii) Motor NeuroneDisease

iii) Spinal Muscular Atrophies.

Unit-III

1.Disorders of the SpinalCord&CaudaEquina

i) Acute Traumatic Injuries of the Spinal Cord

ii) Haematomyelia and Acute Central Cervical Cord Injuries

iii) Slow Progressive Compression of the Spinal Cord

iv) Syringomyelia

v) Ischaemia and Infarction of the Spinal Cord and Cauda Equine

vi) Rehabilitation of above mentioned disorders

vii) Spina bifida

2.Deficiency and Nutritional Disorders

i) Deficiency of Vitamins &Related Disorders

ii) Other Nutritional Neuropathies

3.Disorders of Higher Cerebral Cortical Function

Disorders of Different Lobes

i) Frontal lobes

ii) Temporal lobes

iii) Parietal lobes

iv) Occipital lobes

v) Sub Cortical lesions

Unit-IV

1.Disorders of Peripheral Nerves

i) Clinical Diagnosis of Peripheral Neuropathy

ii) All Type of Level of Peripheral Neuropathy and Brachial Plexus

iii) Causalgia

iv) Reflex Sympathetic Dystrophy

v) Peipheral Nerve Tumours and Irradiation Neuropathy

vi) Traumatic, Compressive and Ischaemic Neuropathy

vii) Spinal Radiculitis and Radiculopathy

viii) Hereditary Motor and Sensory Neuropathy (HMSN) (Type I, II, IV & V)

ix) Acute Idiopathic Polyneuritis Chronic

x) Neuropathy due to Infections

xi) Vasculo motor Neuropathy

xii) Neuropathy due to Systemic Medical Disorders

xiii) Drug-induced Neuropathy

xiv) Outline Metal-poisoning Chemical Neuropathies

2.Disorders of Muscle

i) Classification of the Muscular Dystrophies

ii) The MyotonicDisorders of Muscle

iii) The Myotonic Disorders

vi) Myasthenia Grevis

v) Endocrine and Metabolic Myopathies

3. Autonomic Nervous Disorders

i) Disorders of Autonomic Function after Lesions of the Spinal Cord.

4. Seizures

i) Epidemiology, Classification, Causes, Precipitating factors, Diagnosis

ii) Myoclonus.

Unit-XV:Disorders of Higher Cerebral Cortical Function

Disorders of Different Lobes:

i) Frontal Lobes

ii) Temporal Lobes

iii) Parietal Lobes

iv) Occipital Lobes

v) Sub Cortical Lesions

Reference Books-

- Physical Rehabilitation,Assessment and Rehabilitation, Susan B O Sullivan, Thomas J Schmitz,George D Fulk,6th Edition
- Steps to Follow, the Comprehensive treatment of patients with Hemiplegia,Patricia M Davies,2nd Edition
- Adult Hemiplegia, Evaluation and Treatment, Berta Bobath,3rd Edition
- ABC of Spinal Cord Injury, David Grundy. 4th edition.
- Neurodevelopmental Technique,a guide to NDT Clinical Practice, Judith C Bierman,
- Campbell Rehabilitation for traumatic Brain Injury, Physical Therapy Practice in Context
- Neurological Rehabilitation,Optimizing motor performance,JanetCarr,Roberta Shepherd,2nd Edition.
- Cash Textbook of Neurology for Physiotherapist. Dame Ciely Saunders. 4th edition.

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT 443	Neurological Rehabilitation	6 – 0-0	6

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rest of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks.

Course Objectives & Course Outcomes

Students will be able to use this information in Planning and Tailoring Effective, specific, safe, Physiotherapy Treatment programs and In-depth Knowledge of the Central Nervous System(CNS) and Conditions caused by Damage to or Disease in the CNS such as stroke, MS, Parkinson, Cerebral Palsy,Spina bifida and Mental Retardation.

Unit-I

1.Epidemiology, Pathology, Symptoms, Signs,Investigation,Management,Pre and Post Operative Physiotherapy, Complication of Cranial Cerebral Injury (Head & Brain Injury)

i) Closed Skull Fractures

ii) Haematomas, Epidural, Subdural, Intra-cerebral

iii) Open Cranio-cerebral Injuries

iv) Re-construction Operation in Head Injuries

2.Tumours

i) Tumors of Cranial Bones

ii) Menigiomas

iii) Tumors in Spinal Cord

iv) Intra Cranial Tumors

UNIT-II

1. Pre &Post Operative Rehabilitation protocol of Conditions related to Raised Intra Cranial Pressure

i) Hydrocephalus

ii) Intracranial Abscess

iii) Central Oedema

Pathophysiology, Classification, Effects of Mass lesion, Symptoms and Sign, Examination Management, Pre &Post Operative Rehabilitation protocol

2.Vascular Disease of the Brain

i) Aneurysms

ii) Thrombosis

Unit-III

1.Decompression Surgery of Spinal cord

i) Disc Operation (Cervical, Lumbar)

ii) Stenosis

iii) Oedema, Abscess

iv) Lumber Puncture

Unit VI

1.Peripheral Nerves

i) De-compression

ii) Nerve Suture

iii) Nerve Grafting

Reference books:

- Handbook of Neurosurgery. Mark S Greenberg. 8th edition.
- Neurology and Neurosurgery Illustrated. Kenneth W Lindsay. 5th edition.

- Umphred's Neurological Rehabilitation. Darcy A Umphred. 6th edition.
- Manual of Traumatic Brain Injury Assessment and Management. Felise S. Zollman. 2nd edition.
- Neurological Clinical Examination A Concise Guide
- Atlas of Neurosurgical Techniques. Laligam N. Sekhar. 2nd edition.
- Principles of Neurosurgery. Robert G. Grossman. 2nd Edition.
- Kempe's Operative Neurosurgery. Michael Salcman. Volume one. 2nd edition.

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT 444	Physiotherapy in Pediatric Neurology	6 – 0-0	6

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rest of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks.

Course Objectives & Course Outcomes

This course provides Students with information on the Epidemiology, Pathomechanics, Clinical presentation and Medical Surgical Management in paediatric neurology. Students will be able to use this information in Planning and Tailoring Effective, specific,safe, Physiotherapy Treatment programs and In-depth Knowledge of the Central Nervous System(CNS) and Conditions caused by Damage to or Disease in the CNS such as stroke,MS,Parkinson,CerebralPalsy,Spina bifida and Mental Retardation.

Unit-1:

1.General Developmental sequence of Normal Child: Weight, Height and Circumference Measurements related to Age in Normal Child, Developmental Milestones, Neonatal Reflexes, Factors Influencing Growth &Development, Various Periods of Growths Post Natal Growth Patterns, Types of Body Built, Physical Examination of a Child.

Unit-II:

1.Nutrition and Immunization: Normal Nutritional requirement of a Child,InfantFeeding,Prevention of Some Nutritional Disorders,Nutritional Deficiency Diseases. Immunization (Salk and Sabin DPT and against Some Common Viral Diseases)

Unit-III:

1.Cerebral Palsy: Types,Aetiology, Clinical features, Management and Rehabilitation of Various Types of Cerebral Palsies.

2.Seziures,Epilepsy of Child hood

Unit-IV:

1.Neurological Infection of Childhood: Poliomyelitis, Spinabifida,Hydrocephalus, Encephalitis-Aetiology, Clinical features &Rehabilitation, Peripheral Nerve Injuries in Early Child hood.

2.Muscular Disorders: Types of Muscular Dystrophies and Myopathies of Childhood,The Floppy Infant Syndrome

Reference Books-

- Clinical Pediatrics Physical Therapy,Ratliffe,Catherine t,2nd Edition
- Physiotherapy in Pediatrics,Roberta Shepherd,3rd Edition
- Motor Assessment of the developing infant,MarthaPiper,Ist Edition
- Clinical Pediatric Neurology A Sign and Symptom Approach. Gerald M Fenichel. 5th edition.
- Treatment of Cerebral Palsy and Motor Delay. Ann Reiner. 5th edition.
- Swaiman's Pediatric Neurology, Principle and Practice. Kenneth Swaiman's. 6th edition.
- Fenichel's Clinical Pediatric Neurology A Signs and Symptoms Appriach. J. Eric Pina-Garza.
- Pediatric Rehabilitation; Principle and Practice. Michael A. Alexander. 5th edition.

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT 445	Practical (Neurology, Clinical/ Viva voice)	0-0-8	4

Course Objectives & Course Outcomes

The students will be equipped with clinical knowledge. They will be able to apply advanced knowledge of clinical skills in problem solving related to assessments, investigations and Physiotherapy management of all the above conditions. Students will be judged on one elective and one non-elective case. They will be expected to assess, diagnose and plan effective treatment plan for both cases.

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT 446	Seminars/ Case Presentations	0-0-4	2

Course Objectives & Course Outcomes

These will serve as platform for students to integrate various components of patient management and debate contentious issues on the efficacy of physiotherapy techniques. Students will give presentations on topic provided to them.

Course No	Subject	Title	Teaching Hours/ Week	
			L – T – P	Credits
MPT447	Clinical Training		0-0-8	Qualifying

Clinical Training

Students will engage in clinical training in hospital based medical and physiotherapy departments/ settings to enhance their clinical skills and apply contemporary knowledge gained during teaching sessions.

Course No	Subject	Teaching Hours/ Week	
		L – T – P	Credits
MPT448	Dissertation(Based on Clinical/ Case presentation including Viva voice)	0-0-24	12

As part of their requirement for the Master Degree the student is required to undertake a research study under the guidance of Guide and Co-guide. Research study must be selected only from the chosen specialization i.e Neurological conditions and to be studied on patients or normal individuals. Students have to undergo a dissertation viva-voice by examining committee.

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT449	Seminar	0-0-4	2

Seminar

These will serve as platform for students to integrate various components of patient management and debate contentious issues on the efficacy of physiotherapy techniques. Students will give presentations on topic provided to them.

M.P.T. (Sports Physiotherapy)

3rd Semester

Course No	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
MPT 551	Medical and Surgical Management of Sports injuries	PC	6-0-0	6

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rest of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks.

Course objective and course outcomes

This course provides the study of the Definition, Terminologies, Epidemiology, Pathomechanics, Clinical features, Prevention, Medical and Surgical Management of all Sports Injuries but not limited to the following. It will also enable the students to use this information in Planning and Tailoring Effective, Specific, Safe Physiotherapy treatment programs.

Unit I:

Medical Problems

Definitions and Terminologies.

Medical problems of Athletes- Fungal Infections, Viral Infections, Common Cold, Diarrhea, Dysentery, T.B.,Amoebiasis etc.

Special consideration:

i) Female athlete- Female Athlete Triad (Sports Amenorrhea, Anorexia and Osteoporosis), Anemia, Injury to Female Reproductive Tract, Menstrual Asynchrony

ii) Adolescent Athlete

iii) Disabled Athlete

Doping amongst Athlete

Protective Equipment Considerations.

Emergency Care, athletic First-aid and Cardiopulmonary Resuscitation.

Weight Management

Sports Injuries-

i) Frequency and Site of Injury

ii) Etiological Factors

Prevention of Injury

Mechanism of Injury

Role of Teachers and Coaches in Prevention of Injury

Physiology of Sports Rehabilitation.

Unit II

Sports Specific Injury Pattern

i) Acute, Overuse and Traumatic injuries related to Cricket

ii) Acute, Overuse and Traumatic injuries related to Judo

iii) Acute, Overuse and Traumatic injuries related to Throw Ball

iv) Acute, Overuse and Traumatic injuries related to Basket Ball

v) Acute, Overuse and Traumatic injuries related to Discus Throw

vi) Acute, Overuse and Traumatic injuries related to Javelin

Unit III

i) Acute, Overuse and Traumatic injuries related to Foot Ball

ii) Acute, Overuse and Traumaticinjuries related to Base Ball

iii) Acute, Overuse and Traumatic injuries related to Bad Minton

iv) Acute, Overuse and Traumatic injuries related to Tennis

v) Acute, Overuse and Traumatic injuries related to Gymnastics

Unit IV

i) Sports Injuries of Upper limb

ii) Sports Injuries of Lower limb

iii) Sports Injuries of the spine

iv) Sports Injuries of head and neck

Reference books

- Sports Injuries Diagnosis and Management, Norris, CM,Edition 1st,2004
- Physical Aspects of Sports Training and Performance, Hoffman, Jay,Edition 2nd,2014
- Sports Psychology, Yadvinder Singh,Edition2nd,2005
- Sports Medicine, Jain, R,Edition 1st,2005
- Evidence Based Sports Medicine, Macauly, D &Best,Edition 2nd,2007
- Sports Medicine in Primary Care, Johnson, R,Edition4th,2013
- Sports Medicine of the Lower Extremity, Subotmick,Edition 2nd,1992
- Surgical Atlas of Sports Medicine/ by Mark D. Miller, Richard F. Howard and Kevin D. Plancher,Edition 3rd,2003

Course No	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
MPT 552	Traumatology	PC	6-0-0	6

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rest of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks.

Unit-1: Assessment Principles: Detailed Physical Assessments of Spine, Hip &Thigh, Knee &Leg, Foot &Ankle, Shoulder &Arm, Elbow &Forearm, wrist & hand. Common Back Problem and Injuries: PIVD, Spondylosis, Spondylolisthesis, Spinal Canal Stenosis, Postural Strain, Back Injuries in Sports, Ankylosing Spondylitis, Scoliosis, Whiplash Injuries-Cervical Spine etc.

Unit-II: Hip & Thigh Problems and Injuries: Perthes diseases, Coxa Vera, Ligament and Muscle Injuries in Sports, Irritable Hip, Arthritis, Congenital Dislocation of Hip etc. Knee &Leg Problems and Injuries: Arthritis, Genu Valgum and Varum, Meniscal injuries, Ligament and Muscle Injuries, Loose Bodies, Bursitis etc.Ankle & Foot Problems and Injuries:Pain in Heel, Pain behind Heel, Plantar Fascitis, Morton's Neuralgia, Pes Planus and Pes Cavus, CTEV, Muscle and Ligament Injuries.

Unit-III: Shoulder &Arm Problem and Injuries: Rotator Cuff Injuries, Periarthritis, Bursitis, and Painful Arc Syndrome. Elbow &Forearm Injuries and Problems: Cubitus valgusandvarus, Arthritis, Tennis and Golfer Elbow and Other Injuries. Wrist and Hand: Claw Hand, Dupuytren'sContracture, Trigger Finger, Arthritis, Dequervain'sdisease,BaseballFinger etc.

Unit IV: Common Fractures and Dislocations:Fractures and Dislocations of Upper Limb, Lower Limb, Spine and Stress Fractures. Diagnosis and Management of Common Skin conditions.FungalInfections,Boils, Cellulites, Sunburn

etc.Female Specific Problems: Sports Amenorrhoea, Injury to Female Reproductive Tract, Menstrual Problems. Common Diseases: Common Cold, Fever, Diarrhoea, Amoebiasis, SoreThroat, Stress Ulcers.

Reference books

- Athletic Injuries, Kanika, K,Edition 3rd,2011
- Sports Injuries Diagnosis & Management: Norris, CM,Edition 2,1999
- Sports Injury Management: Andreson, MK,Edition 2,1998
- Evidence Based Sports Medicine: Macauly, D & Best, I,Edition 2nd,2007
- Sports Medicine Handbook: Wallace, WA & Hackney, RG,Edition 2nd,2012
- Office Sports Medicine: Mellion, MB,Edition 1st,2005
- Sports Medicine in Primary Care: Johnson, R,Edition1st,1998
- Sports Medicine of the Lower Extremity: Subotmick, SI,Edition1st,2008
- Encyclopedia of Sports Medicine: Narang, Priyanka,Edition2nd 2004
- Ethics, Injuries and the Law in Sports Medicine./ Grayson, Edward,Edition1st 1999
- Magnetic Resonance Imaging and Spectroscopy in Sports Medicine: Osteaux, M,Edition 3rd,2014
- Sports Medicine Secrets/ by Morris B. Mellion.,Edition 1st,1994
- Athletic Training and Sports Medicine/ Storkey, Chad,Edition 4th,2016

Course No	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
MPT 553	Fundamentals in Sports	PC	6-0-0	6

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rest of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks.

Unit-I: Brief idea about Some Common Sports: Terminology, Methodology, Rules, Equipments and Infrastructure. Cricket, Football, Hockey, Tennis, Badminton, Table Tennis, Wrestling, Boxing, Track and Field, Gymnastics, Volleyball, Basketball and Aquatic sports.

Unit-II: **Physics in sports:** Type of Motion, Distance, Speed, Velocity, Angular Motion, Acceleration, Inertia, Mass, Newton's Law of Motion, Force and Its Characteristics, Classification of Force System, Force Couple, Composing and Resolution of Force System, Function, Projectile Motion, Levers and Fluid Mechanics.

Unit-III: Biomechanics:

Biomechanics of Running; Biomechanics of Throwing; Biomechanics of Swimming; Biomechanics of Jumping; Introduction to Analysis Equipment

Unit-IV: Misc.

i) Psychological aspect in Sports

ii) Spirit and Moral Values, Doping in Sports

iii) Special Aids in Performance

iv) Body Composition, Its Analysis and Effects of Sports

Reference books

- Basic Biomechanics: Hall, SJ,Edition 2nd,2006
- Principles of Mechanics and Biomechanics: Bell, F,Edition 1st,1998
- Biomechanics of Sport and Exercise: McGinnis, PM,Edition 3rd,2013
- Fundamentals of Biomechanics: Orkaya, N,Edition 4th,2016
- Clinical Biomechanics of the Lower Extremity/ by Ronald L. Valmassy.,Edition 2nd, 1995
- Sports Psychology: Yadvinder Singh,Edition3rd,2005
- Sports Psychology: Jain, R,Edition 3rd,2005

Course No	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
MPT 554	Rehabilitation in Sports	PC	6-0-0	6

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rest of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno1 shall carry equal marks.

Unit-I:Physiological Responses to Exercise: Exercise effects on Metabolism, Muscle Fatigue, Respiratory,Cardiovascular and Hormonal changes during Exercise, Second Wind, Water and Electrolyte Regulation during Sports, Altitude Training, UnderWater Training, Hypoxic and Hyperoxic training etc.

Response to Injury: Muscle Trauma, Contusions, Strains and Rupture, Effects of Immobilization and Detraining, Bone Trauma, Ligament and Tendon Injury, Structure, Mechanical Properties and Injury to Articular relationship between Injury and Nervous tissues.

Unit-II: Prevention of Injuries:

Risk Factors in Sports (Intrinsic and Extrinsic)

Strategies of Injury Prevention.

Injury Evaluation and Management: Sporting Emergencies, Onfield Assessment, Clinical Assessments, Principles of Management. (Acute Management, Remodeling and Conditioning, Maintenance of Fitness and Rehabilitation).

Fitness Testing and Its analysis, Flexibility Defects and Its Correction.StrengthTraining for Children and Adolescents, Environmental Effects on Training.

Nutrition in Sports: Requirements of Athletes, Diet needs for Individual Sports, Pre Game Meal, Carbohydrate Loading.

Unit-III: Some common injuries related to some common and popular sports and their management.

i) Injuries in football and soccer.

i) Track and field

ii) Long distance running.

iii) Aquatic sports

iv) Baseball and cricket

Unit-IV: Some common injuries related to some common and popular sports and their management

i) Hockey

ii) Basketball

iii) Volleyball

iv) Table tennis

v) Badminton and tennis

vi) Gymnastics

Reference books

- Rehabilitation of Sports Injuries: Scientific Basis: Frontera, WR,Edition 3rd,2010
- Prevention &Treatment of Sports Injuries: Anbast, Anju,Edition 3rd,2000
- Physical Rehabilitation of the Injured Athlete: Andrews, JR,Edition 4th ,2012
- Sports Injuries Mechanized Prevention &Treatment/ by Freddie H F,Edition 4th,2016
- Sports Injuries Recognition and Management/ edited by MA Hutson,Edition 3rd,2001

Course No	Subject	Title	Teaching Hours/ Week	
			L – T – P	Credits
MPT 555	Practical (Sports Physiotherapy, Clinical/ Viva voice)	PC	0-0-8	4

Related to assessments, investigations and Physiotherapy management of all the above conditions.

Students will be judged on one elective and one non-elective case. They will be expected to assess, diagnose and plan effective treatment plan for both cases.

Course No	Subject	Title	Teaching Hours/ Week	
			L – T – P	Credits
MPT 556	Seminars/ Case Presentations	PC	0-0-4	2

Seminar/ Case Presentation

These will serve as platform for students to integrate various components of patient management and debate contentious issues on the efficacy of physiotherapy techniques. Students will give presentations on topic provided to them.

Course No	Subject	Title	Teaching Hours/ Week	
			L – T – P	Credits
MPT 557	Clinical Training		0-0-8	Qualifying

Clinical Training

Students will engage in clinical training in hospital based medical and physiotherapy departments/ settings to enhance their clinical skills and apply contemporary knowledge gained during teaching sessions.

Course No	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
MPT 558	Dissertation Project Work (Based on Clinical/ Case presentation including Viva voice)	PC	0-0-24	12

As part of their requirement for the Master Degree the student is required to undertake a research study under the guidance of Guide and Co-guide. Research study must be selected only from the chosen specialization i.eSports injuries and to be studied on patients or normal individuals. Students have to undergo a dissertation viva-voice by examining committee.

Course No	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
MPT 559	Seminars	PC	0-0-4	2

Seminar

These will serve as platform for students to integrate various components of patient management and debate contentious issues on the efficacy of physiotherapy techniques. Students will give presentations on topic provided to them.

MPT (Cardiothoracic and Pulmonary Disorders)2nd year

Course No.	Subject Title (PC)	Teaching Hours/week L-T-P	Credits
MPT 661	**Medical and Surgical Management of Cardiovascular and Pulmonary Conditions**	**6-0-0**	**6**

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Units). It will contain Seven Short Answer Type questions, each of two marks. Rest of the eight questions are to be given by setting two questions from each of the Four Units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including QNo.1 shall carry equal marks.

Course Objectives & Course Outcomes

This course provides the student with information on the epidemiology, pathomechanics,clinical presentation and medical and surgical management of various cardiovascular andpulmonary disorders.

Unit I

CARDIOVASCULAR CONDITIONS

i) Assessment of system of heart disease

ii) Disorders of cardiac rate rhythm and conduction

iii) Cardiac Arrest

iv) Shock

v) Rheumatic Fever/ Rheumatic\C Heart Disease

vi) Congenital Heart Disease

vii) Valvular Disorders

viii) Infective Endocarditis, Pericarditis

ix) Ischaemic Heart Disease

x) Hypertension

xi) Ortho static Hypertension

xii) CPR

xiii) Heart disease in Pregnancy

xiv) Degenerative arterial Disease

xv) Inflammatory Arterial Disease

xvi) Raynaud's Disease

xvii) Venous Thrombosis/ DVT

xviii) Peripheral Vascular Disease

xix) Cardiomyopathy

xx) Diseases of the pericardium

xxi) Buerger's Disease

xxii) Varicose Vein/ Ulcer

xxiii) Congestive Heart Failure

xxiv) Pulmonary and Systemic Hypertension

xxv) Phlebothrombosis

Unit II

PULMONARY DISORDERS

i) Obstructive Pulmonary Disease

ii) Infections of Pulmonary System

iii) Interstitial & Infiltrative Pulmonary Disease

iv) Pulmonary Disease due to Exposure of Organic & Inorganic Pollutants

v) Pulmonary Disorders due to Systemic Inflammatory Disease

vi) Pulmonary Vascular Disease

vii) Diseases of Pleura

viii) Respiratory Failure

ix) Supplementary Oxygen and Oxygen Delivery Devices in chronic Respiratory disease

x) Neuromuscular and Skeletal Disorders leading to Global alveolar Hypoventilation, Myopathies, Spinal muscular Atrophies, Poliomyelitis, Motor Neuron Diseases, Kyphoscoliosis, Pectus carinatum, Pectus Excavatum

xi) Pathophysiology of Paralytic-Restrictive Pulmonary Syndromes

xii) Conventional Approaches to Managing Neuromuscular Ventilatory Failure

xiii) Mechanical Ventilation: Concepts, Physiological effects and Complications.

xiv) Pulmonary Embolism

Unit III

PRE/POST OP ASSESSMENT AND MEDICAL & SURGICAL MANAGEMENT OF CARDIAC SURGERIES

i) Closed versus Open Heart Surgeries

ii) Incisions

iii) Preoperative Assessment of Patients

iv) Pre and Post Operative Blood Gas Exchange

v) Haemodynamics Performance of CTVS Patient

vi) Emergencies in CTVS

vii) AV Shunt

viii) Cardiac Transplantation

ix) Left Ventricular Assistive Devices

x) Procedure on Sternum, Chest Wall, Diaphragm Mediastinum and Oesophagus

xi) Cardiopulmonary Bypass

xii) Maintaining and Removing Artificial Airway

xiii) CABG

xiv) Repair of Septal Defect

xv) Aneurysectomy

xvi) Pericardiactomy

Unit IV

PRE/POST OP ASSESSMENT AND MEDICAL & SURGICAL MANAGEMENT OF PULMONARY SURGERIES

ALL PULMONARY SURGERIES i.e.

i) Thoracoscopy, Thoracotomy

ii) Lobectomy, Pneumonectomy

iii) Pleurodesis, Plurectomy, Blebectomy etc.

Reference Books:

- Textbook of general medical and surgical conditions for physiotherapists - Downie Bros., 2ndEdition.
- Essential of Cardiopulmonary physical therapy – Hillegass and Sadowsky.., 2nd Edition
- Text book of Chest, Heart and Vascular Disorders for Physiotherapists –Downie Bros.,3rd Edition.
- Cardiopulmonary physical therapy – Irwin and Tecklin – Mosby., 2nd Edition
- Vascular and respiratory physiotherapy – Smith and Ball – Mosby.,3rd Edition
- Physiotherapy in Intensive Care Unit – Mackenzic et al – Williams andWilkins.,1st Edition

Course No.	Subject Title (PC)	Teaching Hours/week L-T-P	Credits
MPT 662	**Physiotherapy Management of Cardiovascular& Pulmonary Conditions**	**6-0-0**	**6**

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Units). It will contain Seven Short Answer Type questions, each of two marks. Rest of the eight questions are to be given by setting two questions from each of the Four Units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including QNo.1 shall carry equal marks.

Course Objectives & Course Outcomes

This course provides the student with information on the Physiotherapy Management of various Cardiovascular and Pulmonary disorders using principle of management.

Unit I

CARDIOVASCULAR CONDITIONS

i) Assessment of system of heart disease

ii) Disorders of cardiac rate rhythm and conduction

iii) Cardiac Arrest

iv) Shock

v) Rheumatic Fever/ Rheumatic\C Heart Disease

vi) Congenital Heart Disease

vii) Valvular Disorders

viii) Infective Endocarditis, Pericarditis

ix) Ischaemic Heart Disease

x) Hypertension

xi) Ortho static Hypertension

xii) CPR

xiii) Heart disease in Pregnancy

xiv) Degenerative arterial Disease

xv) Inflammatory Arterial Disease

xvi) Raynaud's Disease

xvii) Venous Thrombosis/ DVT

xviii) Peripheral Vascular Disease

xix) Cardiomyopathy

xx) Diseases of the pericardium

xxi) Buerger's Disease

xxii) Varicose Vein/ Ulcer

xxiii) Congestive Heart Failure

xxiv) Pulmonary and Systemic Hypertension

xxv) Phlebothrombosis

Unit II

PULMONARY DISORDERS

i) Obstructive Pulmonary Disease

ii) Infections of Pulmonary System

iii) Interstitial & Infiltrative Pulmonary Disease

iv) Pulmonary Disease due to Exposure of Organic & Inorganic Pollutants

v) Pulmonary Disorders due to Systemic Inflammatory Disease

vi) Pulmonary Vascular Disease

vii) Disease of Pleura

viii) Respiratory Failure

ix) Paralytic-Restrictive Pulmonary Syndromes

x) Pulmonary Embolism

Unit III

PRE/POST OP ASSESSMENT AND MEDICAL & SURGICAL MANAGEMENT OF CARDIAC SURGERIES

i) Cardiopulmonary Bypass

ii) CABG

iii) Cardiac Transplantation

iv) Repair of Septal Defect

v) Aneurysectomy

vi) Pericardiactomy

vii) AV Shunt

Unit IV

PRE/POST OP ASSESSMENT AND MEDICAL & SURGICAL MANAGEMENT OF PULMONARY SURGERIES

ALL PULMONARY SURGERIES i.e.

i) Thoracoscopy

ii) Thoracotomy

iii) Lobectomy

iv) Pneumonectomy

v) Pleurodesis

vi) Plurectomy

vii) Blebectomy etc.

Reference Books:

- Textbook of general medical and surgical conditions for physiotherapists – DownieBros.,2nd Edition
- Essential of Cardiopulmonary physical therapy – Hillegass and Sadowsky.,2nd Edition
- Text book of Chest, Heart and Vascular Disorders for Physiotherapists – DownieBros,3rd Edition
- Cardiopulmonary physical therapy – Irwin and Tecklin – Mosby.,3rd Edition
- Vascular and respiratory physiotherapy – Smith and Ball – Mosby.,5th Edition
- Physiotherapy in Intensive Care Unit – Mackenzic et al – Williams and Wilkins.,2nd Edition

Course No.	Subject Title (PC)	Teaching Hours/week L-T-P	Credits
MPT 663	**Fundamental of Cardiovascular & Pulmonary System**	**6-0-0**	**6**

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Units). It will contain Seven Short Answer Type questions, each of two marks. Rest of the eight questions are to be given by setting two questions from each of the Four Units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including QNo.1 shall carry equal marks.

Course Objectives & Course Outcomes

This course provides the student with information on the Physiotherapy Management ofvarious Cardiovascular and Pulmonary disorders using Principle and Fundamentals of management.

Unit I

Brief Introduction of Cardiovascular and Pulmonary System

i) Cardio-Thoracic Applied Anatomy

ii) Intrauterine Development of Cardiovascular & Pulmonary System

iii) Difference between Adult And Pediatric Cardiovascular & Pulmonary System

iv) Respiratory & Cardiovascular Physiology

Unit II

BIOMECHANICS

i) Biomechanics of Respiration/ Respiratory Mechanics

ii) Biomechanics of Cardiac System/ Cardiac Mechanics

Unit III

EXERCISE PHYSIOLOGY

i) Cardiovascular Responses to Exercise

ii) Respiratory Regulation during Exercise

iii) Ventilation & Energy Metabolism

iv) Respiratory Limitation to Performance

v) Exercise Testing and Condition

vi) Exercise Testing for Adult with Pulmonary Dysfunctions

vii) Exercise Testing for Children with Pulmonary Dysfunctions

viii) Abnormal Exercise Physiology

Unit IV

i) Pharmacological Consideration

ii) Cardiopulmonary Changing with Aging

Reference Books:

- Textbook of general medical and surgical conditions for physiotherapists – DownieBros.,2nd Edition
- Essential of Cardiopulmonary physical therapy – Hillegass and Sadowsky.,3rd Edition
- Text book of Chest, Heart and Vascular Disorders for Physiotherapists – DownieBros.,2nd Edition
- Cardiopulmonary physical therapy – Irwin and Tecklin – Mosby.,3rd Edition
- Vascular and respiratory physiotherapy – Smith and Ball – Mosby.,5th Edition

Course No.	Subject Title (PC)	Teaching Hours/week L-T-P	Credits
MPT 664	**Cardiac & Pulmonary Rehabilitation**	**6-0-0**	**6**

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Units). It will contain Seven Short Answer Type questions, each of two marks. Rest of the eight questions are to be given by setting two questions from each of the Four Units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including QNo.1 shall carry equal marks.

Course Objectives & Course Outcomes

This course provides the student with information on the Physiotherapy Management ofvarious Cardiovascular and Pulmonary disorders using Cardiac & Pulmonary Rehabilitation.

Unit I

i) Mechanical Ventilation: Concepts, Physiological Effects, Complications

ii) Supplementary Oxygen: Administration, Principle, Devices and Techniques

iii) Maintaining and Removal of Artificial Airways

iv) Emergencies in CTVS: Principle, Management, Indication of Surgical Intervention,

v) Stabilization of Vital Function

Unit II

i) Chest PT Techniques and Respiratory Muscle Training

ii) Conventional Approaches to Managing Neuromuscular Ventilatory Failure

iii) PT Management in ICU: Concept & Set-Up, Equipments, Monitoring and Patient

iv) Management

v) Cardiopulmonary Resuscitation

vi) Rehabilitation Program for:

a) Patients with Thoracic and Abdominal Surgery

b) Patients with Spinal Cord Injury

c) Patients with COPD

d) Patients with Peripheral Vascular Disease

e) Neonate with Respiratory Disorders

f) Children with Respiratory Disorders

Unit III

Section 1: PHYSICAL ACTIVITY, BODY COMPOSITION, ENERGY BALANCE AND

WEIGHT CONTROL

i) Significance & Measurement of Body Composition

ii) Body Composition & Physical Performance

iii) Effect of Diet & Exercise on Body Composition

iv) Weight Standards & Achieving Optimal Weight

Section 2: PRESCRIPTION OF EXERCISE FOR HEALTH AND FITNESS

i) Medical Clearance

ii) Exercise Prescription

iii) Monitoring Exercise Intensity

iv) Exercise Program

v) Exercise and Rehab of People with Disease

Section 3: CARDIOVASCULAR AND PULMONARY ADAPTATION TO TRAINING

i) Endurance Muscular and Cardiorespiratory

ii) Evaluating Cardiorespiratory Endurance Capacity

iii) Cardiovascular Adaptation to Training

iv) Respiratory Adaptation to Training

v) Metabolic Adaptation to Training

vi) Long Term Improvement in Cardiopulmonary Endurance

vii) Factor Affecting the Responses to Aerobic Training

viii) Cardiopulmonary Endurance and Performance

Unit IV

CARDIOVASCULAR DISEASE AND PHYSICAL ACTIVITY

i) Forms of Cardiovascular Disease

ii) Understanding the disease process

iii) Determining Individual Risk

iv) Reducing Risk through Physical Activity

v) Risk of Heart Attack and Death during Exercise

Reference Books:

- Textbook of general medical and surgical conditions for physiotherapists – DownieBros.,2nd Edition
- Essential of Cardiopulmonary physical therapy – Hillegass and Sadowsky.,3rd Edition
- Text book of Chest, Heart and Vascular Disorders for Physiotherapists – DownieBros.,2nd Edition
- Cardiopulmonary physical therapy – Irwin and Tecklin – Mosby.,2nd Edition
- Vascular and respiratory physiotherapy – Smith and Ball – Mosby.,3rd Edition

Course No.	Subject Title (PC)	Teaching Hours/week L-T-P	Credits
MPT 665	**Practical (Cardiothoracic & Pulmonary conditionsclinical/ practical)**	**0-0-8**	**4**

Course Objectives & Course Outcomes

Related to Assessments, Investigations and Diagnostic Tests for Cardiovascular andPulmonary Conditions.

Students will be judged on one elective and one non-elective case. They will be expected to assess, diagnose and plan effective treatment plan for both cases.

Unit I

i) General Principle of Assessment

ii) Evaluation and Method of Evaluation

iii) History Taking

iv) Objective and Subjective Assessment (Auscultation, Palpitation, Percussion Etc.)

v) Documentation

vi) Invasive and Non Invasive Techniques

Unit II

DIAGNOSTIC TESTS FOR CARDIOVASCULAR CONDITIONS

i) Examination of Heart: Clinical Examination

ii) Heart Rate Monitoring

iii) ECG/Exercise ECG

iv) Echocardiography

v) Holter Monitoring

vi) Exercise Tolerance Testing / Stress Testing

vii) Cardiac Catheterization

viii) Lipid Profile, Angiography, Color Doppler

Unit III

DIAGNOSTIC TESTS FOR PULMONARY CONDITIONS

i) Examination of Lungs: Clinical Examination

ii) ABG Analysis

iii) Spirometry

iv) Bronchography

v) Lung Function Testing

Unit IV

RADIOLOGICAL EXAMINATION

i) Chest X-Ray

ii) Cardiac CT Scan

iii) Cardiac MRI

iv) Radio Nucleide Scanning

Reference books:

- Physiology Part I by C.C.Chatterjee,1st Edition
- Cunnigham'sAnatomy,Edition 3rd,vo1,2,3
- Elizabeth Dean, 12th edition
- Cash's Chest physiotherapy, 5thEdition
- Alexander Haugh, Chest Physiotherapy, 1stEdition

Course No.	Subject Title (PC)	Teaching Hours/week L-T-P	Credits
MPT 666	**Seminar/ case presentations**	**0-0-4**	**2**

Course Objectives & Course Outcomes

These will serve as platform for students to integrate various components of patientmanagement and debate contentious issues on the efficacy of physiotherapy technique.students will give presentations on topic provided to them.

Course No.	Subject Title (PC)	Teaching Hours/week L-T-P	Credits
MPT 667	**Clinical Training**	**0-0-8**	**Qualifying**

Course Objectives & Course Outcomes

Students will engage in clinical training in hospitals based medical and physiotherapydepartments/ setting to enhance their clinical skills and applying contemporary knowledgegained during teaching sessions.

SEMESTER IV

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT 668	Dissertation(Based on Clinical/ Case presentation including Viva voice)	0-0-24	12

As part of their requirement for the Master Degree the student is required to undertake a research study under the guidance of Guide and Co-guide. Research study must be selected only from the chosen specialization i.e Neurological conditions and to be studied on patients or normal individuals. Students have to undergo a dissertation viva-voice by examining committee.

Course No	Subject	Teaching Hours/ Week	
		L – T - P	Credits
MPT 669	Seminar	0-0-4	2

Seminar

These will serve as platform for students to integrate various components of patient management and debate contentious issues on the efficacy of physiotherapy techniques. Students will give presentations on topic provided to them.