

KRISHNA VISHWA VIDYAPEETH, (DEEMED TO BE UNIVERSITY),

KRISHNA COLLEGE OF PHYSIOTHERAPY

KARAD, MAHARASHTRA.



MASTER OF PHYSIOTHERAPY (M. P. Th)

CBCS PATTERN SYLLABUS

M.P.Th: (MUSCULOSKELETAL SCIENCES)

PROGRAMME CODE: 3201

RULES FOR EXAMINATION SCHEME LEADING TO

POST GRADUATE PHYSIOTHERAPY PROGRAMME IN THE FACULTY OF PHYSIOTHERAPY

(Approved by the Board of Management)

MASTER OF PHYSIOTHERAPY (M. P. Th.)

PREAMBLE:-

The Department of Human Resource Development, Government of India, on the recommendation of the University Grants Commission (UGC) has accorded the status of a Deemed University to Krishna Vishwa Vidyapeeth, (Deemed To Be University), Karad for Faculty of Medicine, Dentistry, Physiotherapy Nursing, Allied Sciences and Pharmacy respectively.

The Degrees, Diploma and the Fellowship programmes of Krishna Vishwa Vidyapeeth, (Deemed To Be University), Karad shall have the same status as of those given by any Statutory University duly recognized by the University Grants Commission. (UGC).

The Master of Physiotherapy Programme is directed towards rendering training in Specialty discipline so as to enhance professional competence in order to fulfill requirement for Physiotherapy Education and Practice.

1. This shall apply to all the examinations leading to Post Graduate Physiotherapy namely Programmes offered: - Total Programmes offered: 10 Programmes.

Sr No	Programme Code	Programme Name
1.	3201	M.P.Th in Musculoskeletal Sciences
2.	3202	M.P.Th in Neuro Sciences
3.	3203	M.P.Th in Cardio Pulmonary Sciences
4.	3204	M.P.Th in Pediatric Neurology
5.	3205	M.P.Th in Community Health Sciences
6.	3206	M.P.Th in Oncology Physiotherapy
7.	3207	M.P.Th in Sports Physiotherapy
8.	3208	M.P.Th in Geriatric Physiotherapy
9.	3209	M.P.Th in Orthopedic Manual Therapy
10.	3210	M.P.Th in Obstetrics and Gynecology

SEMESTER WISE SUBJECTS:

Sr No	Course Code	Year	Semester	SUBJECT
1	3201-11	M.P.Th - I Year	I	1. Basic Sciences
2	3201-12			2. Basic Therapeutics
3	3201-21	M.P.Th - I Year	II	1. Advanced therapeutics in Specialty Subject
4	3201-22			2. Biostatistics and Research Methodology
5	3201-31	M.P.Th - II Year	III	1. General Physiotherapy in Specialty Subject – Paper 1
6	3201-32			2. Advances in Specialty Subject – Paper 1
7	3201-41	M.P.Th - II Year	IV	1. General Physiotherapy in Specialty Subject- Paper 2
8	3201-42			2. Advances in Specialty Subject – Paper 2

Duration: Master of Physiotherapy shall be a full time programme with duration of TWO academic years divided into FOUR semesters.

2. Eligibility for admission:

Applicant for admission to the programme, Master of Physiotherapy should have the Bachelor degree from I.A.P recognized institution or from the recognized university. Selection of candidate is strictly through Krishna PGAIET, which is conducted by Krishna Vishwa Vidyapeeth, (Deemed To Be University), Karad.

3. ELIGIBILITY FOR APPEARING FOR THE EXAM:

- The examination for the degree, Master of Physiotherapy shall be conducted twice in a academic year (i.e. Semester Pattern).
- Every student should present his / her dissertation at least three months prior to the fourth semester university examination. The acceptance of the dissertation by the examiners is important for the student's admission for the Written & Clinical (Practical) examination.
- Dissertation should be based on the Specialty Subject. A student who has submitted his / her dissertation once will not be required to submit a fresh dissertation if he / she re- appears for the examination in the same branch on a subsequent occasion, provided that the dissertation has

been accepted by the examiners.

- The Degree of Master of Physiotherapy shall not be conferred upon a student unless he / she have passed in the Written, Practical and the Dissertation prescribed for the examination in accordance with the provision.
- The dissertation has been evaluated and approved AND
- Has passed both the headings i.e.

(With minimum of 50%) in Theory and Practical including Internal Assessment for both.

4. GOALS OF THE M.P.TH PROGRAMME:

- The goal of training post- graduate candidate in the respective specialty is to enable him / her to function as a consultant in the respective Physiotherapy specialty. This requires a thorough knowledge of the fundamental and recent advances.
- He/she should be able to make logical decisions regarding patient management & adapt interventions independently.
- During this period he/she will be expected to acquire skills in teaching technology & gain experience in research methodology.
- He/she should practice Physiotherapy in respective specialty and maintain the highest regards for ethical aspect.
- The programme shall focus on clinical reasoning, problem solving and measurement of treatment outcome, emphasizing on the recent diagnostic & therapeutic trends and skill specific Physiotherapy.

5. OBJECTIVES OF THE PROGRAMME: -

At the end of the programme the candidate shall be able to:

- Acquire the in-depth knowledge of structure and function of human body related to the respective branch of specialty.
- Acquire the in-depth knowledge of movement dysfunction of human body & principles underlying the use of physiotherapeutic interventions for restoring movement dysfunction towards normalcy.
- Ability to demonstrate critically appraises recent physiotherapeutic and related medical literature from journals & adapts diagnostic & therapeutic procedures based on it.
- Ability to perform skill in Physical & functional diagnosis pertaining to patient under care.
- Ability to make clinical decision & select appropriate outcome measures based on the comprehensive knowledge of theoretical aspects of specialty.
- Expertise in evidence-based skill in the management of movement dysfunction.
- Expertise in health promotion & quality restoration of functional movement pertaining to specialty.

- Planning and implementation of treatment programme adequately and appropriately for all clinical conditions related to respective specialty in acute and chronic stage, in intensive care, indoor and outdoor institutional care, independent practice, on fields of sports and community and during disaster or natural calamities.
- Proficiency in planning and executing Physiotherapy services and teaching technology skills.
- Develop managerial and administrative skills.
- Develop the knowledge of legislation applicable to compensation for functional disability & appropriate certification.

POSTGRADUATE PROGRAMME OUTCOMES

M.P.TH (Master of Physiotherapy)

The course is of two years duration (Divided into 4 Semesters) advanced learning programme in Physiotherapy with CBCS Pattern.

Total Specialties offered: 10 Specialties

1. M.P.Th In Musculoskeletal Sciences
2. M.P.Th In Neuro Sciences
3. M.P.Th In Cardio Pulmonary Sciences
4. M.P.Th In Pediatric Neurology
5. M.P.Th In Community Health Sciences
6. M.P.Th In Oncology Physiotherapy
7. M.P.Th In Sports Physiotherapy
8. M.P.Th In Orthopedic Manual Therapy
9. M.P.Th In Obstetrics And Gynecology
10. M.P.Th In Geriatric Physiotherapy

M.P.Th - IST YEAR INCLUDES TWO SEMESTERS NAMELY,

- **I - Semester:** It is common for all the specialties which include the two subjects Basic Sciences & Basic Therapeutics.
- **II - Semester:** Biostatistics and Research Methodology is a common subject for all specialties & Advanced Therapeutics in Specialty Subject is the second one.

M.P.Th – IIND YEAR INCLUDES TWO SEMESTERS NAMELY,

- **III - Semester:** It includes two subjects which are specialty specific namely, General Physiotherapy in Specialty Subject - Part I & Advances in Specialty Subject - Part I
- **IV - Semester:** It includes two subjects which are specialty specific namely, General Physiotherapy in Specialty Subject- Part II & Advances in Specialty Subject - Part II
- ***Dissertation:** An individual research project preferentially interventional study is mandatory to be completed before appearing for the IV - Semester examination.

M.P.Th (FIRST YEAR): I - SEMESTER

1. BASIC SCIENCES (3201-11)

COURSE OBJECTIVES:

- The student should be able to know the background of Physiotherapy profession, basic ethics and its principles.
- To understand and apply the principles of exercise physiology and nutrition
- To master various assessment tools, test.
- To obtain knowledge of Orthotics & Prosthetics.

COURSE OUTCOMES:

At the end of the course the student should be able to apply the basic principles and ethics of Physiotherapy profession, Biomechanics, Patho-mechanics and in depth Kinesiology of human body, all the assessments and clinical tests, diagnosis of various conditions, in depth knowledge of the Orthotics and Bio-engineering.

2. BASIC THERAPEUTICS (3201- 12)

COURSE OBJECTIVES:

The student should be able to obtain detail knowledge with evidence base of all the Electrotherapeutic modalities, Electro-Diagnostic tests with its application for diagnosis and treatment of Physiotherapy conditions

COURSE OUTCOMES:

At the end of the course the student should have in depth knowledge of the Basic Electrotherapeutics, Physical And Functional Diagnosis, EMG / NCV and Radiological investigations.

M.P.Th (FIRST YEAR): II - SEMESTER

1. ADVANCED THERAPEUTICS SPECIALITY SPECIFIC (3201- 21)

COURSE OBJECTIVES:

- To interpret various therapeutics used in the treatment of speciality specific conditions.
- To evaluate and generate a diagnosis and differential diagnosis of all related conditions related to speciality and its complications.
- Demonstrate condition specific various skills in the treatment.

COURSE OUTCOMES:

At end of the session the student will be able to learn the conditions pertaining to the speciality, the diagnostic test for the same. The students shall learn to make a correct diagnosis and also a differential diagnosis and learn the advanced techniques to treat the same.

2. BIOSTATISTICS AND RESEARCH METHODOLOGY (3201- 22)

COURSE OBJECTIVES:

- To understand the statistical measures used for analysis and interpretation of research data.
- Enhanced training to apply the information on research design and their implementation
- To identify, read, critique research articles and understand and apply the principles of research to perform a guided research.

COURSE OUTCOMES:

- At the end of the course the student should have a sound knowledge regarding the basic concept of research, research designs, types of data, sampling methods, interpretation of result, and various statistical tests.
- The student will be able to identify appropriate statistical technique reference, use of various software packages for analysis and data management. Interpretation of the results and its application in Physiotherapy.
- The student will be able to learn fundamental of reading and understanding research methods, design and statistics.
- Special emphasis is given to Biostatistics and Research methodology and for completing a scientific research project in the second year as per their elective subject.

M.P.Th (SECOND YEAR): III - SEMESTER

1. GENERAL PHYSIOTHERAPY IN SPECIALTY SUBJECT – PAPER 1 (3201- 31)

COURSE OBJECTIVES:

- Evoke and interpret clinical signs and symptoms of speciality specific disorders & interpret various diagnostic tests, clinical and special investigations used in the diagnosis of the conditions.
- Management of patient, consultation, identifying the problem, derive a provisional diagnosis with differential diagnosis and to chalk out a treatment plan.
- Maintain a precise patient documentation.
- Discuss and develop a specific exercise prescriptions plan with their clinical use, and the sequence of treatment.

COURSE OUTCOMES:

- Be able to apply the knowledge for planning and evaluation of teaching methods in Physiotherapy.
- Be able to apply the knowledge on clinical education to spread awareness and guidance to common people about health and disease.
- Understand the pathophysiology of common conditions, their management and its effects on body systems.
- Assess patients' physical function, considering disease and treatment-related impairments.
- Design and implement evidence-based Physiotherapy interventions as per the health issues.

2. ADVANCES IN SPECIALTY SUBJECT – PAPER 1 (3201- 32)

COURSE OBJECTIVES:

- Understand the application of the information regarding recent advances in Physiotherapy for patient care.
- Application and proper implementation of specific evidences available for assessment and management appropriate to the health conditions.

COURSE OUTCOMES:

- The students learn and excel in various aspects of Physiotherapy as per their speciality in theoretical and practical knowledge with a solid platform and tend to train them to be the best in the field.
- To analyse and undertake data for research purpose and its documentation for long life learning in Physiotherapy.
- To develop educational experience for proficiency in profession and promote Preventive and Rehabilitative aspect on the society.

M.P.Th (SECOND YEAR): IV - SEMESTER

1. GENERAL PHYSIOTHERAPY IN SPECIALTY SUBJECT- PAPER 2 (3201- 41)

COURSE OBJECTIVES:

To equip Physiotherapy students with the knowledge and skills necessary to provide problem specific effective rehabilitation and supportive care for patients.

COURSE OUTCOMES:

- Recognize and manage potential complications specific to the condition.
- Demonstrate knowledge of protocol specific principles and their application in Physiotherapy practice.
- Communicate effectively with patients, their families, and the multidisciplinary team.
- Critically evaluate current research in the area of rehabilitation to inform clinical decision-making.

2. ADVANCES IN SPECIALTY SUBJECT – PAPER 2 (3201- 42)

COURSE OBJECTIVES:

To provide students with an in-depth understanding of recent developments and emerging trends in the specialty subject, focusing on innovative diagnostic techniques, treatment modalities, and research breakthroughs.

COURSE OUTCOMES:

- Analyze cutting-edge research and its potential clinical applications.
- Evaluate novel diagnostic technologies and their impact on early detection and personalized treatment.
- Critically assess emerging advanced and targeted therapies.
- Explain advancements in Prevention strategies and Risk assessment.
- Interpret complex clinical trial data and their implications for patient care.
- Describe innovations and apply knowledge of recent advances to case studies and clinical scenarios.

END OF PROGRAMME:

After completion of PG (M.P.Th) Programme, with the above mentioned Programme features the Post-Graduates will be equipped with advanced knowledge in respective specialty related to Technical, Problem Solving and Scientific skills to practice with Evidence Based Physiotherapy Practice through firm decision making process in assessment and treatment, establish advance research hypotheses and undertake research works effectively within the healthcare sectors and community safely and efficiently inculcating effective communication skills.

TOTAL HOURS: MPT h

Semester	Subject	Theory	Theory Credit point	Practical	Practical Credit point	Total Credit point
I - MPT h						
I - Semester	Basic Sciences	100	7	100	7	14
	Basic Therapeutics	100	7	100	7	14
II - Semester	Advanced Therapeutics in Speciality	100	7	150	5	12
	Biostat & Research	100	7			7
II - MPT h						
III – Semester	General PT in Speciality Paper - 1	200	13	225	8	21
	Advances in Speciality Paper - 1	200	13	250	8	21
IV – Semester	General PT in Speciality Paper - 2	200	13	225	8	21

	Advances in Speciality Paper - 2	200	13	250	8	21
		1200	80	1300	51	131
Total Hrs: 2500				Total Credit point: 131		

EXAMINATION SCHEME:

	Theory		Practical	IA	
				Theory	Practical
Sem. I	Basic Sciences (100 Marks)	Basic Therapeutics (100 Marks)	-	50 marks x 2 Subjects	-
Sem. II	Advanced Therapeutics in Speciality (100 Marks)	Biostatistics & Research Methodology (100 Marks)	Advanced Therapeutics in Speciality (250 Marks)	50 marks x 2 Subjects	50 Marks
Sem. III	General Physiotherapy in Speciality Paper – 1 (100 Marks)	Advances in Speciality Paper – 1 (100 Marks)	-	50 marks x 2 Subjects	
Sem. IV	General Physiotherapy in Speciality Paper – 2 (100 Marks)	Advances in Speciality Paper – 2 (100 Marks)	Specialty Practical (300 Marks)	50 marks x 2 Subjects	50 Marks
Total: 1850 marks					

EXAMINATION PATTERN:

THEORY: (ALL SEMESTERS)

Q1. 10 BAQ (All compulsory)

10 x 5 = 50 marks

Q2. 2 LAQ (All compulsory)

2 x 25 = 50 marks

Total: 100 marks

***** INTERNAL ASSESSMENT: Out of 50 MARKS for each Subject**

PRACTICAL: (II & IV SEMESTER)

SEMESTER II PATTERN

- | | |
|-------------------------------|-----------|
| 1. Long Case (Specialty) | 100 marks |
| 2. Short Case 1. (Assessment) | 50 marks |
| 3. Short Case 2. (Management) | 50 marks |
| 4. Spots | 50 marks |

**Total: 250 marks + IA: 50 marks
= 300 Marks**

SEMESTER IV PATTERN

- | | |
|------------------------------|-----------|
| 1. Long Case (Specialty) | 100 marks |
| 2. Short Case (Assessment) | 50 marks |
| 3. Short Case (Management) | 50 marks |
| 4. Dissertation Presentation | 50 marks |
| 5. Microteaching | 50 marks |

**Total: 300 marks + IA: 50 marks
= 350 Marks**

MPT_h - I: SEMESTER: I

COURSE: MPT_h IN MUSCULOSKELETAL SCIENCES

SUBJECT: BASIC SCIENCES

Subject	Theory	Credit	Practical	Credit	Total Credits
Basic Sciences	100	7	100	7	14

Sr. No	Content	Teaching Hours (200 Hrs.)		MK	DK	NK
		Didactic (100 Hrs.)	Practical (100 Hrs.)			
1.	PRINCIPLES AND ETHICS: a. Theoretical background of Physiotherapy profession.	5 hrs	-	MK		
	b. Professional sources in the community.					
	c. Principles and practice of physiotherapy in India.					
	d. Ethical background of physiotherapy.					
	e. Ethics of IAP & WCPT. Professional ethics.					
	f. Modified Referral ethics in the practice of Physiotherapy					
	g. Governing body of Physiotherapy Profession state & central level.					
2	EXERCISE PHYSIOLOGY AND NUTRITION: a. Nutrition and physical performance.	15 hrs	15 hrs	MK		
	b. Energy transfer.					
	c. Systemic adaptation during exercise.					
	d. Physical performance.					
	e. Factors affecting physical					

	performance.					
	f. Fatigue and lactate.					
	g. Training.					
	h. Fitness and testing.					
	i. Obesity.					
	j. Diabetes.					
	k. Applied exercise physiology.					
3.	PATHOMECHANICS AND CLINICAL KINESIOLOGY: Review of mechanical principles and applied biomechanics of human body.	10 hrs	5 hrs	MK		
4.	Review of various types of exercises, principles and its applications for joint mobility, muscle re-education, strengthening and endurance training.	15 Hrs	5 Hrs	MK		
5.	Posture, analysis of normal and abnormal posture, posture training.	5 hrs	10 hrs		DK	
6.	Gait, analysis of normal and abnormal gait, gait training.	5 hrs	15 hrs			NK
7.	ADL, assessment and training of ADL.	5 hrs	10 hrs		DK	
8.	Clinical assessment, clinical tests and diagnosis of: <ul style="list-style-type: none"> • Musculoskeletal conditions • Manual Therapy clinical reasoning • Sports conditions • Neurological conditions • Cardio-pulmonary conditions • Obstetrics and Gynecology conditions • Pediatric conditions • Geriatric conditions • Oncology conditions • Community Health conditions 	10 hrs	15 hrs	MK		
9.	Measuring tools in therapeutics: Goniometry, accelerometer, pressure transducers, force plates, spondylometer, Body composition,	5 hrs	10 hrs	MK		

	anthropometric measurements, etc.					
10.	ORTHOTICS, PROSTHETICS & BIOENGINEERING:	25 hrs	15 hrs	MK		
	a. Orthosis of spine.					
	b. Orthosis of upper limb.					
	c. Orthosis of lower limb.					
	d. AK and BK Prosthesis.					
	e. Prosthetic fitting and training.					
	f. Biomechanical principles governing them.					

BASIC SCIENCES - RECOMMENDED BOOKS:

1. Ross and Wilson Anatomy and Physiology in Health and Fitness – Kathleen. J, Churchill Livingstone.
2. Samson Wright's Applied Physiology – Neil and Joel, Oxford press.
3. Principles of Anatomy – Harper Collins College Publications
4. Anatomy and Physiology for Physiotherapists – Mottram, Moffat, Blackwell Scientific
5. Atlas of Anatomy – Tank Patrick, Lippincot Williams
6. Surface and Radiological Anatomy – Halim A, CBS

REFERENCE BOOKS:

1. Clinical Kinesiology for the Physical therapist Assistants – Lippert L, Jaypee.
2. Brunnstrom's Clinical Kinesiology – Letimkuni W, Jaypee.
3. Clinical Kinesiology – Laura Weiss, Jaypee.
4. Joint Structure & Function – Levangie P, Norkin C, Jaypee.
5. Basic Biomechanics of the musculoskeletal system – Nordin M, Lippincot Williams.
6. Biomechanical Basis of Movement – Hamill J & Krutzen K M, Lippincot Williams.
7. Measurements of Joint Motion – Norkin C, F. A. Davis.
8. Principles of Mechanics & Biomechanics – Bell, Frank, Stanley Thornes Pvt. Ltd.
9. Basic Biomechanics – Hall, Susan J, McGraw hill.
10. Kinesiology – Oatis, Carol A, Lippincot Williams.
11. Applied Kinesiology – Robert Frost, North Atlantic Books.
12. Biomechanics of Spine – White and Punjabi, Lippincot Williams

MPT_h - I: SEMESTER: I

COURSE: MPT_h IN MUSCULOSKELETAL SCIENCES

SUBJECT: BASIC THERAPEUTICS

Subject	Theory	Credit	Practical	Credit	Total Credits
Basic Therapeutics	100	7	100	7	14

Sr. No	Content	Teaching Hours (200 Hrs.)		MK	DK	NK
		Didactic (100Hrs)	Practical (100Hrs)			
1.	Basic Electrotherapeutics: Review the principles and applications of the following electrotherapy modalities and justify the effects and uses of it with evidence	25 hrs	25 hrs	MK		
	1. Short wave diathermy.					
	2. Microwave diathermy.					
	3. Ultrasonic therapy.					
	4. Ultraviolet radiation.					
	5. Infrared radiation.					
	6. Iontophoresis.					
	7. Electric stimulation.					
	8. Di - Dynamic currents.					
	9. Interferential therapy.					
	10. Cryotherapy.					
	11. TENS.					
	12. LASER Therapy.					
	13. Paraffin wax bath.					
	14. Hydrotherapy.					
	15. Hydro collator packs.					
	16. Contrast bath.					
	17. Traction.					
	18. Mechanical external Compression therapy.					
	19. Fluidotherapy.					
	20. Phonophoresis.					
	21. Shock Wave Therapy					
3.	Pain and pain modulation.	5 hrs	5 hrs		DK	
4.	Conventional electro diagnosis.	5 hrs	5 hrs	MK		

	1) FG Test.					
	2) SD Curve.					
5.	Electrocardiogram.	10 hrs	10 hrs		DK	
6.	Echocardiography.	10 hrs	10 hrs			NK
7.	Physical & functional diagnosis.	25 hrs	25 hrs	MK		
	1. Clinical examination in general and detection of movement dysfunction.					
	2. Principles of pathological investigations and imaging techniques related to neuromuscular, skeletal and cardiopulmonary disorders with interpretation					
	3. Development screening development diagnosis, neurodevelopment assessment and motor learning-voluntary control assessment					
	4. Physical fitness assessment: <ul style="list-style-type: none"> • Cardiac efficiency tests and spirometry • Fitness test for sport 					
	5. Electro diagnostics-EMG/NCV A. Electromyography (EMG) Electro-diagnosis, clinical and kinesiological electromyography and evoked potential studies. <ol style="list-style-type: none"> 1. Instrumentation. 2. Types of electrodes. 3. Cathode ray oscilloscope digital processing. 4. Electrical safety. 5. Artifacts. 6. Normal and abnormal motor action potential. 7. EMG Examination. <ol style="list-style-type: none"> a. Muscle at rest. b. Insertional activity. c. Minimum effort. d. Maximum effort. 8. Motor unit's potential in disease. <ul style="list-style-type: none"> • Motor neuron disease. • Hereditary motor neuron disease. • Poliomyelitis. • Muscular dystrophy. 					

	<ul style="list-style-type: none"> • Inflammatory myopathies. • Congenital myopathies • Myotonia. • Metabolic myopathies. <p>9) Quantitative methods in EMG.</p>					
	<p>B. Nerve conduction studies (NCV):</p> <p>I. Motor and sensory conduction.</p> <p>II. Physiology of nerve conduction.</p> <p>III. General factors affecting nerve conduction.</p> <p>IV. Nerve stimulation.</p> <p>V. H wave.</p> <p>VI. F wave.</p> <p>VII. Entrapment syndromes.</p> <p>a) Carpel tunnel syndrome.</p> <p>b) EMG studies in Myasthenia gravis.</p> <p>c) EMG studies in Decremental studies Lambert myasthenia syndrome.</p> <p>d) Electro diagnosis in Radiculopathy.</p> <p>e) Peripheral neuropathies.</p> <p>- Nerve conduction changes in peripheral neuropathy.</p> <p>- EMG changes in peripheral neuropathy.</p>					
8	<p>Radiological investigation.</p> <p>1) X – ray.</p> <p>2) CT / MRI Scan.</p> <p>3) Blood investigation (routine)</p>	20 hrs	20 hrs	MK		

BASIC THERAPEUTICS - RECOMMENDED BOOKS:

1. Exercise Physiology, energy, nutrition and human performance – McArdle, Katch & Katch, Lippincot Williams.
2. Illustrated principles of exercise physiology – Axen. K, Kathleen. V, Prentice Hall.
3. Essentials of Exercise Physiology – Shaver Larry. G, Surjeet Publications.
4. Physiology of Sports and Exercise – Majumdar. P, New Central Book.
5. Exercise and the Heart – Frolicher, Victor. F, Elsevier.
6. Textbook of Work Physiology – Astrand and Rodahl, McGraw Hill.
7. Kinanthropometry and Exercise Physiology Laboratory manual tests, procedures and data-Erston, Reilly, F & FN Spon.

REFERENCE BOOKS:

1. Communication Skills in Clinical Practice – Sethuraman K. R.
2. Handbook of Educational Technology – Elington Henry, Kogan Page.
3. Physical Therapy Administration & Management – Hickok, Robert J, Williams & Wilkins.
4. Clinical Decision making in Rehabilitation – Basmajian, John V, Churchill Livingstone.
5. Handbook of Clinical Teaching – Watts Nancy, Churchill Livingstone.
6. Physical Therapy Ethics by Gabard and Martin (Sep 2, 2010)
7. Management in Physical Therapy Practices by Catherine G. Page (Sep 23, 2009)
8. Physical Rehabilitation: Evidence-Based Examination, Evaluation, and Intervention by Michelle H. Cameron and Linda Monroe (Apr 5, 2007)
9. Physical Therapy Management by Ronald W. Scott and Christopher L Petrosino (Sep 1, 2007)



MPT_h – I: SEMESTER: II

COURSE: MPT_h IN MUSCULOSKELETAL SCIENCES

SUBJECT: BIostatISTICS AND RESEARCH METHODOLOGY

Sr No.	Contents	TEACHING HOURS Theory (100 Hrs)	Must Know	Desirable to Know	Nice to Know
1	Research methodology: I. How to read critique research. II. Introduction to research: frame work: levels of measurement: variables III. Basic research concepts: validity and reliability. IV. Design, instrumentation and analysis for qualitative research. V. Design, instrumentation and analysis for quantitative research VI. Design, instrumentation and analysis for quasi-experimental research VII. How to write research proposal VIII. Ethics in research IX. Importance of software in research X. Importance of SPSS, PowerPoint, etc in research.	60 hrs	MK		
2	Biostatistics: I. Descriptive and inferential statistics II. Types of data qualitative and quantitative III. Frequency distributions IV. Describing data with graphs V. Describing data with averages mode median mean VI. Describing variability variance standard deviation etc VII. Normal distributions VIII. Interpretations of result	40 hrs	MK		

	IX. Hypothesis testing X. T tests XI. ANOVA XII. Probability XIII. Type I and type II errors XIV. Parametric and non-parametric tests XV. Simple statistical analysis using available software.				
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TEXT BOOKS FOR RESEARCH METHODOLOGY AND BIOSTATISTICS:

1. Research Methodology .Methods and Techniques C.R. Kothari New Age InternationalPublishers.2nd edition 2008
2. Rehabilitation Research: Principles And Applications By Elizabeth Domholdt(ElsevierScience Health Science Div, 2004)
3. Research Methods for clinical therapists by Hicks Carolyne, Churchill
4. Foundations of clinical Research by Portney & Watkins,Davis
5. Research methodology by Kothari New Age international
6. Research Methodology for health professionals by Goyal,Jaypee
7. Methods in Biostatistics By Mahajan,B.K Jaypee
8. Principles & practice of Biostatistics By Dixit ,J.V Bhanot

TEACHING TECHNOLOGY:

1. Public Power And Administration – Wilenski, Hale And Iremonger, 1986
2. Physical Therapy Administration And Management – Hickik Robert J
3. A Practical Guide for Medical Teachers : John A Dent& Ronald M Harden: ElsevierHealth Sciences: 2009
4. International Handbook of Medical Education : Abdul W Sajid, Christie H McGuire et al:Greenwood Press 1994
5. Principles Of Medical Education by. Tejinder Singh, Piyush Gupta,DaljitSingh.year: 2009. Edition: 3rd edition Publisher: Jaypee brothers.

IMPT_h - SEMESTER: II

MPT_h IN MUSCULOSKELETAL SCIENCES

SUBJECT :ADVANCED THERAPEUTICS IN MUSCULOSKELETAL SCIENCES

Subject	Theory	Credit	Practical	Credit	Total Credits
Advanced Therapeutics in Musculoskeletal Sciences	100	7	150	7	14

Sr no.	Topic	Teaching hours		Must know	Desire to know	Nice to know
		250				
		Didactic (100 Hrs)	Practicals (150 Hrs)			
1	Clinical decision making based on musculoskeletal dysfunction	5 hrs	5 hrs	MK		
2	Orthopedic special tests and outcome Measures	5 hrs	10 hrs	MK		
3	Fractures: General principles Fracture treatment – Past, Present & Future. Stress shearing / shielding devices. Fracture healing (normal & Pathological) Upper Quarter Fractures- Clavicle, Scapula, Humerus, Fore arm bones, Hand, Rib fracture, Vertebral fracture, Lower Quarter Fractures- Fracture Neck of femur, Fracture Acetabulum, Fracture Pelvis, Fracture trochanter, Shaft of femur, Patellar fracture, Intercondylar fracture of shaft of tibia, Pott's fracture, Calcaneal fracture, Metatarsal fracture, Phalanges fracture. (clinical presentation, evaluation & general principles of rehabilitation management)	10 hrs	15 hrs	MK		
4	Dislocation: Acromioclavicular joint., sternoclavicular joint, Recurrent dislocation of shoulder, elbow, wrist & phalanx. Recurrent	5 hrs	5 hrs	MK		

	<p>dislocation of patella.</p> <p>Hip, ankle, dislocation.</p> <p>(clinical presentation, evaluation & general principles of rehabilitation management)</p>					
5	<p>Soft Tissue Injuries:</p> <p>Injury & repair (clinical presentation, evaluation & general principles of rehabilitation management)</p> <p>Upper limb:</p> <p>Sprains of shoulder, Bursitis, Tendonitis, Snapping & winged scapula, Tennis elbow, Tenosynovitis, Carpal tunnel syndrome, Dupuytren's contracture, VIC, Reflex Sympathetic Dystrophy, Periarthritis of shoulder, Thoracic outlet syndrome, Shoulder hand syndrome.</p> <p>Lower Limb:</p> <p>Fat pad inflammation, Baker's cyst, ACL, PCL, Meniscal injury, Chondromalacia patella. Deltoid Fibrosis, Trigger Finger & Thumb, Quadriceps Fibrosis, Bursitis around the knee, Plantar Fasciitis, Calcaneal Spur, IT Syndrome, TMJ dysfunction.</p>	10 hrs	10 hrs	MK		
6	<p>Deformities Spine and extremities - Scoliosis, Kyphosis, lordosis, Flat back.</p> <p>-Traumatic deformities.</p>	5 hr	5 hrs	MK		
7	<p>Arthritic & Rheumatic Diseases –</p> <p>Rheumatoid arthritis, Osteoarthritis, Ankylosing spondylitis.</p>	5 hr	10 hrs	MK		

8	Spine – Low Back Pain (mechanical), LBP(Pathological) Disc prolapse, Cord compression, Spondylosis, Ankylosing spondylitis, Spinal injuries, Cranio Vertebral dysfunction, Sacralisation, Lumbarisation, Lumbar Canal Stenosis, Sciatica, Failed Back syndrome, SI joint dysfunction, Zygapophyseal joint arthropathy, Thoracolumbar junction dysfunction, Coxydynia	10 hrs	10 hrs	MK		
9	Neuro-musculo skeletal conditions – Spasticity, Neural compression, Compartment syndromes. Entrapment Neuropathies.	5 hr	10 hrs		DK	
10	Differential diagnosis in various musculoskeletal Conditions	5 hrs	5 hrs		DK	
11	Application of advanced musculoskeletal approaches for common musculoskeletal problems: I. Pain II. Joint mobility III. Muscle power, strength and endurance IV. Limb edema, swelling and effusion V. Flexibility VI. Gait/postural dysfunction VII. Soft tissue dysfunction	5 hrs	10 hrs	MK		

12	Manual therapy skills: <ul style="list-style-type: none"> • Introduction and orientation to all the manual skills. • Principles and practice of Maitland manipulation, Mulligan concept, McKenzie's regime of exercises, Kaltenborn, Cyriax manipulation, MET, PRT, MFR, Neural tissue mobilization, etc. 	5 hrs	30 hrs	MK		
13	Psychosocial effects and illness behavior in chronic pain.	5 hr			DK	
14	Exercise planning and Exercise Prescription	5 hr			DK	
15	Orthopedic implants - designs, materials indications, post – operative assessment and training.	5 hr	10 hrs		DK	
16	Home program and counselling for caregivers.	5 hr	5 hrs			NK
17	Ergonomics in musculoskeletal dysfunction	5 hrs	10 hrs			NK

RECOMMENDED BOOKS:

- 1) Practical Fracture Treatment by Ronald McRae, Max Esser – Churchill Livingstone
- 2) Oxford Textbook of Orthopaedic & Trauma by Christopher Bulstrode, Joseph Buckwalter – Oxford University Press
- 3) Campbell's operative orthopedics. - By S. Terry Canale, James H. Beaty - Mosby
- 4) Fractures & joint injuries By Watson Jones – Churchill Livingstone
- 5) Clinical Orthopaedic Examination by Ronald McRae – Churchill Livingstone
- 6) Daniels and Worthingham's muscle testing: Techniques of manual examination By Helen J Hislop, Jacqueline Montgomery Barbara – Elsevier
- 7) Muscles – Testing and Function by Florence Peterson Kendall – Lippincott
- 8) Joint Range of Motion and Muscle length testing By Nancy Berryman Reese - Saunders
- 9) Orthopedic Physical Assessment, By David J. Magee, PhD, BPT - Saunders
- 10) Illustrated Orthopedic Physical Assessment, 3e By Ronald C. Evans, - Mosby
- 11) Diagnostic Imaging for Physical Therapists by James Swain, Kenneth W. Bush, and Juliette Brosing – Elsevier
- 12) Cervical and Thoracic spine : Mechanical Diagnosis & Therapy Vol I & II By Robin McKenzie
- 13) The Lumbar Spine: Mechanical Diagnosis & Therapy Vol I & II By Robin McKenzie
- 14) The Human Extremities: Mechanical Diagnosis & Therapy by Robin McKenzie
- 15) Manual Therapy by Brian R Mulligan
- 16) Clinical Application of Neuromuscular Techniques: The Upper Body by Leon Chaitow, and Judith DeLany, - Elsevier
- 17) Manual Mobilization of the Joints – The Kaltenborn Method Volume I, II By Freddy kaltenborn

SEMESTER: III – MPT_h IN MUSCULOSKELETAL SCIENCES

GENERAL PHYSIOTHERAPY IN MUSCULOSKELETAL SCIENCES PAPER 1

Subject	Theory	Credit	Practical	Credit	Total Credits
General Physiotherapy in Musculoskeletal Sciences paper 1	200	13	225	8	21

Sr.no	Content	Teaching hrs.		Must know	Desirable to know	Nice To know
		Didactic (200Hrs)	Practical (225 Hrs)			
1.	Patho-mechanics of various Orthopedic disorders: a. Traumatic conditions b. Degenerative disorders c. Inflammatory conditions d. Infectious conditions e. Metabolic conditions f. Congenital conditions g. Miscellaneous conditions	55 hrs	50 hrs	MK		
2.	Screening of Orthopedic problems based on Patho-mechanism. -Anatomical, Physiological and Biomechanical basis for assessment of movement dysfunctions -Patho-physiological and Patho-mechanical basis for management of movement dysfunctions a. Extremities b. Spine c. Advances in functional diagnostic procedures & various outcome measures relevant to musculo-skeletal dysfunctions	40 hrs	55 hrs	MK		

3.	<p>Basis for Therapeutic decision making: Planning and implementation of Physiotherapytreatment for various musculoskeletal problems</p> <ul style="list-style-type: none"> a. Degenerative disorders b. Inflammatory conditions c. Infectious conditions d. Traumatic conditions e. Miscellaneous conditions f. Clinical decision making skills in evaluation & management of all pediatric, adult and geriatric dysfunctions. 	20 hrs	25 hrs	MK		
4.	<p>Long term consequences of chronic orthopedic disorders on various systems</p> <ul style="list-style-type: none"> a. Muscle weakness b. Movement dysfunction c. Impaired functional disability d. Changes in the Neuro- physiological functions & Cardiorespiratory status. e. Women’s specific & age induced f. Assessment, clinical reasoning and management of Integumentary impairments due to musculoskeletal dysfunction 	20 hrs	35 hrs	MK		
5.	<p>Disability evaluation in detail withSpecial emphasis to:</p> <ul style="list-style-type: none"> a. Amputation Spinal cord injuries b. Brachial plexus c. Chronic inflammatory conditions d. Congenital disorders 	10 hrs	30 hrs	DK	DK	

6.	Physiotherapy assessment & Management of Miscellaneous conditions <ul style="list-style-type: none"> a. Wound healing in diabetes mellitus, leprosy, pressure sores b. Obesity c. Burns d. HIV e. Skin conditions f. Diabetes mellitus g. Malignancy 	15 hrs	30 hrs	DK	DK	
7.	National & International health programs for Musculoskeletal Physiotherapy interventions. -Legislation and social care - Medico legal issues	20 hrs	-			NK
8.	Professional marketing strategies – Entrepreneurship <ul style="list-style-type: none"> a. Specialty clinics b. Independent Practice c. Joining organizations d. Groups e. NGO f. Specialty references g. Community Practice 	20 hrs	-			NK

RECOMMENDED BOOKS:

- 1) Kinesiology of the Musculoskeletal System: Foundations for Rehabilitation, By Donald A. Neumann, PhD, PT – Mosby
- 2) Maitland's Peripheral Manipulation, By Elly Hengeveld, and Kevin Banks, - ButterworthHeinemann
- 3) Maitland's Vertebral Manipulation, By Geoff D. Maitland, - ButterworthHeinemann 31
- 4) Hand and Upper Extremity Rehabilitation: A Practical Guide, By Susan L. Burke, - Churchill Livingstone
- 5) Manual Therapy for the Peripheral Nerves By Jean-Pierre Barral, DO(UK) and Alain Croibier, Osteopathe DO, MRO (F) – Churchill Livingstone

- 6) Neuromuscular Rehabilitation in manual and physical therapies: Principles and Practice by Eyal Lederman – Churchill Livingstone
- 7) Orthopaedic Physical therapy Secrets by Jeffrey D Place - Elsevier
- 8) Principles and Practice of orthopedics and sports medicine by Garret
- 9) A Physiotherapist's Guide to Clinical Measurement by John Edward Fox, and Richard Jasper Day – Elsevier
- 10) Therapeutic Exercise, Moving Towards Function By Carrie M. Hall And Lori Thein Brody

SEMESTER: III - MPT IN MUSCULOSKELETAL SCIENCES

ADVANCES IN MUSCULOSKELETAL SCIENCES- PAPER 1

Subject		Theory	Credit	Practical	Credit	Total Credit	
Advances in Musculoskeletal Sciences PAPER 1		200	13	250	8	21	
Sr no	Contents	Teaching hours 450 Hrs		Must Know	Desir able to know	Nice To know	
		Didactic (200 hrs)	Practical (250 hrs)				
1.	Advanced Orthopedic Physiotherapy approaches for various musculoskeletal problems: Spine and Extremities.	30 hrs	50 hrs	MK			
	A] Non traumatic: a. Degenerative disorders b. Sero - ve & + ve disorders c. Metabolic disorders d. Infective arthritis e. Inflammatory arthritis like RA, AS, etc.,	15 hrs	15 hrs	MK			
	B] Traumatic: a. Fractures b. Amputations c. Soft tissue injuries d. Cumulative trauma disorders	15 hrs	20 hrs	MK			
	C] Surgical orthopedic conditions: a. Joint replacement b. Tendon injuries c. Extremities & Spine	10 hrs	20 hrs	MK			

	<p>D] Miscellaneous conditions:</p> <ul style="list-style-type: none"> a. Hansen's disease b. Burns c. Chronic edematous conditions d. RSD 	5 hrs	20 hrs	MK		
2.	<p>Sports orthopedics –</p> <ul style="list-style-type: none"> -Principles of musculo-skeletal health and performance related fitness and Physiotherapeutic management of musculo-skeletal injuries & dysfunctions in various sports -Doping & performance enhancing drugs. -On-field assessment & decision making -Injury prevention in sports 	10 hrs	15 hrs	MK		
3.	<p>Evidence based practice to formulate effective assessment and treatment program for orthopedic conditions.</p>	10 hrs	10 hrs	MK		
4.	<p>Pediatric orthopedics:</p> <ul style="list-style-type: none"> a. Physiotherapy assessment and management of Pediatric musculoskeletal disorders b. Congenital disorders – CTEV, CDH, etc c. JRA d. Soft tissue injuries. Overuse injuries. e. Traumatic conditions. f. Pediatric orthopedic surgeries and Physiotherapy. 	10 hrs	20 hrs		DK	
5	<p>ADVANCED ORTHOPEDICS:</p>					

a d)	<p>Advances in the field of Manual Therapy: Manual Therapy for various orthopedic disorders</p> <p>Clinical Reasoning for application of various manual therapy skills:</p> <p>Maitland manipulation, Mulligan concept, McKenzie's regime of exercises, Kaltenborn, Cyriax manipulation, MET, PRT, MFR, Neural tissue mobilization etc</p> <p>I. Neuro dynamics and neural tissue mobilization</p> <p>a. Basic anatomy, physiology, biomechanics of neural tissue</p> <p>b. Clinical reasoning, principles of subjective, objective, treatment and re-assessment in spinal and extremity adverseneural tension disorders.</p> <p>c. Clinical presentation of intra neuraland extra neural pathology.</p> <p>d. Indications and contra indications and precautions in neural tension testing andmanagement of upper limb, lower limb and spine.</p>	(15 hrs)	(25 hrs)	MK		
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RECOMMENDED BOOKS:

- 1) Differential Diagnosis for Physical Therapists: Screening for Referral, ByCatherine C. Goodman, and Teresa Kelly Snyder – Saunders
- 2) Gait Analysis : Theory And Application By Rebecca Craik and Carol A Oatis – Mosby
- 3) Skeletal Growth and development: Clinical issues and basic science advances. The Symposium Series by Joseph A Buckwalter – AAOS
- 4) Introduction to Physical Therapy, By Michael A. Pagliarulo - Mosby
- 5) Kinesiology: The mechanics and Pathomechanics of Human Movement by Carol A Oatis - Lippincott
6. Cash Text Book for Orthopedics and rheumatology for physiotherapist by John Elizabeth Cash & Patricia A Downie – Lippincott
- 7) Joint Mobilization / Manipulation: Extremity and Spinal Techniques by Susan L Edmond – Mosby
- 8) Grieve's Modern Manual Therapy: The Vertebral Column, By Jeffrey Boyling and Gwendolen Jull – Churchill Livingston
- 9) Practical Evidence-Based Physiotherapy Rob Herbert, GroJamtvedt, Judy Mead, KareBirger Hagen Elsevier Butter Worth Heinemann; Oxford UK

10) Guide To Evidence-Based Physical Therapy Practice By Dianne V. Jewell, PT, Phd, Virginia Commonwealth University, Virginia

11) Principles and Practice of orthopedics and sports medicine by Garret.

RECOMMENDED JOURNALS

1) Clinical Kinesiology

2) Journal of biomechanics

3) Journal of Paediatric Orthopaedics

4) Journal of Orthopaedic & Sports Physical Therapy (JOSPT).

5) Journal of Manual Therapy

6) Journal of Manual & Manipulative Therapy

7) Spine

8) Qualitative Research in Sport, Exercise and Health

9) American Journal of Sports

10) American Journal of Sports Medicine.

11) British Journal of Sports Medicine.

12) Journal Of Rehabilitation – Research And Development

13) Physical Therapy

14) European Journal of Physical and Rehabilitation Medicine

15) Archives Of Physical Medicine And Rehabilitation

16) Sports Biomechanics

17) Journal of Strength and Conditioning Research

18) Journal of Head Trauma Rehabilitation

SEMESTER: IV - MPT_H IN MUSCULOSKELETAL SCIENCES
GENERAL PHYSIOTHERAPY IN MUSCULOSKELETAL SCIENCES PAPER 2

Subject	Theory	Credit	Practical	Credit	Total Credit
General Physiotherapy In Musculoskeletal Sciences paper 2	200	13	225	8	21

Sr.no	Content	Teaching hrs. Mustknow		Must Know	Desirable to know	Nice to know
		Didactic (200 Hrs)	Practical (225 Hrs)			
1.	Physiotherapy Management strategies for Orthopedic Disorders: Musculoskeletal Dysfunction of Upper and Lower Quadrant	55 Hrs	65 hrs	MK		
2.	Preventative Physiotherapy for orthopedic disorders and team approach.	35 hrs	45 hrs	MK		
3.	Posture and Gait a) Advances in functional diagnostic procedures & various outcome measures relevant to musculo-skeletal dysfunctions. b) Muscle imbalance patterns , related dysfunction with corrective measures c) Fatigue assessment and scientific organization of work-rest regimes to control fatigue.	25 hrs	25 hrs	MK		
4.	Chronic pain- a)Pathophysiology b)Principles of Tissue healing, c) Clinical manifestations, d) Recent advances, e) Assessment and management	15 hrs	25 hrs	MK		

5.	Exercise planning a) Exercise Prescription b) Home program c) counselling for care givers.	5 hrs	5 hrs	MK		
6.	Assistive technology used for stability and mobility to enhance function. a) Aids and appliances, b) Adaptive functional devices to improve movement dysfunction.	10 hrs	10 hrs			NK
7.	Orthopedic implants – a) Designs and materials b) Indications and Precautions c) Prevention of implant failure, d) Post-operative assessment and management.	25 hrs	25 hrs		DK	
8.	Acute care & Rehabilitation in Musculoskeletal dysfunctions : a) Principles of musculoskeletal health b) Physical Functioning c) Physical performance and fitness	25 hrs	10 hrs		DK	
9.	Ergonomics in musculoskeletal dysfunction- a) Principles of assessment of industrial fitness b) Assessment & Management of musculoskeletal dysfunctions related to various industries.	5 hrs	15 hrs			NK

RECOMMENDED BOOKS:

- 1) Orthopaedic Physical therapy Secrets by Jeffrey D Place - Elsevier
- 2) Principles and Practice of orthopedics and sports medicine by Garret
- 3) A Physiotherapist's Guide to Clinical Measurement by John Edward Fox, and Richard Jasper Day – Elsevier
- 4) Orthotics and Prosthetics in Rehabilitation, By Michelle M. Lusardi, PhD, PT and Caroline C. Nielsen, PhD - Butterworth-Heinemann
- 5) Clinical Application of Neuromuscular Techniques: The Upper Body by Leon Chaitow, and Judith DeLany, - Elsevier
- 6) Handbook of Postsurgical Rehabilitation Guidelines for the Orthopedic Clinician By Hospital for Special Surgery – Mosby
- 7) An Illustrated Guide to Taping Techniques – Principles & Practice By Thomas John Hewetson – Mosby
- 8) Therapeutic exercises using swiss ball By Caroline corning creager – Executive Physical therapy

SEMESTER: IV - MPT_h IN MUSCULOSKELETAL SCIENCES

ADVANCES IN IN MUSCULOSKELETAL SCIENCES PAPER 2

Subject	Theory	Credit	Practical	Credit	Total Credit
Advances in Musculoskeletal Sciences paper 2	200	13	250	8	21

OBJECTIVES:

Sr no	Contents	Teaching hours 450 Hrs		Must Know	Desir able to know	Nice To know
		Didactic (200 hrs)	Practical (250 hrs)			
1.	Evidence Based physiotherapy in management of metabolic and hormonal, neoplastic and infective conditions of bones and joints.	15 hrs	25 hrs	MK		
2	Recent Advances in Physiotherapy following arthroplasty, modern orthopedic implants and soft tissue repairs	20 hrs	35 hrs	MK		

3.	EBP and recent advances in physiotherapy after tendon transfer, Electrical stimulation and biofeedback procedures.	15 hrs	30 hrs	MK		
4.	EBP in Rehabilitation of congenital conditions and malformation of musculoskeletal disorders	15 hrs	25 hrs	MK		
5.	Recent Advances and Controversies in musculoskeletal Physiotherapy	15 hrs	30 hrs	MK		
6.	Evidence based physiotherapy practice in musculoskeletal Physiotherapy. I. Medico legal issues II. Effective documentation III. Effective communication	25 hrs	20 hrs	MK		
7.	Current trends in orthopedic implants - designs, materials, indications, post-operative physiotherapy.	25 hrs	20 hrs	MK		
8.	Current trends in Fractures, joint instabilities, soft tissue disorders, deformities, nerve injuries and physiotherapy.	25 hrs	20 hrs		DK	
9.	Recent advances in Amputation - physiotherapy management and prosthetic prescription.	20 hrs	25 hrs		DK	
10.	Problem based learning relevant to orthopedic clinical conditions	25 hrs	20 hrs			NK

RECOMMENDED BOOKS:

- 1) Manual Mobilization of the Joints – The Kaltenborn Method Volume I, II By Freddy kaltenborn
- 2) Treat your own Neck by Robin Mckenzie
- 3) Cervical and Thoracic spine : Mechanical Diagnosis & Therapy Vol I & II By Robin Mckenzie
- 4) The Lumbar Spine: Mechanical Diagnosis & Therapy Vol I & II By R obinMckenzie
- 5) The Human Extremities: Mechanical Diagnosis & Therapy by Robin Mckenzie
- 6) Manual Therapy by Brain R Mulligan
- 7) Documentation for Rehabilitation: A Guide to Clinical Decision Making, By Lori Quinn, and James Gordon - Saunders
- 42) Clinical Orthopaedic Rehabilitation by S Brent Brotzman

- 8) Treatment and rehabilitation fractures by Vasantha L Moorthy & Stanley Hoppenfield - Lippincott
- 9). Physiotherapy for Amputees: The Roehampton Approach by Barbara Engstrom – Churchill Livingstone
- 10) Textbook of orthopedic medicine Vol I & II by James Cyriax – Bailliere
- 11) Orthotics and Prosthetics in Rehabilitation, By Michelle M. Lusardi, PhD, PT and Caroline C. Nielsen, PhD - Butterworth-Heinemann

RECOMMENDED JOURNALS

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| 1) Clinical Kinesiology | 2) Journal of biomechanics |
| 3) Journal of Paediatric Orthopaedics | 4) Journal of Orthopaedic & Sports Physical Therapy (JOSPT). |
| 5) Journal of Manual Therapy | 6) Journal of Manual & Manipulative Therapy |
| 7) Spine | 8) Qualitative Research in Sport, Exercise and Health |
| 9) American Journal of Sports | 10) American Journal of Sports Medicine. |
| 11) British Journal of Sports Medicine. | 12) Journal Of Rehabilitation – Research And Development |
| 13) Physical Therapy | 14) European Journal of Physical and Rehabilitation Medicine |
| 15) Archives Of Physical Medicine And Rehabilitation | 16) Sports Biomechanics |
| 17) Journal of Strength and Conditioning Research | 18) Journal of Head Trauma Rehabilitation |