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 - (NEURO SCIENCES)

PROGRAMME CODE:3202

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 Orthopedic Manual Therapy
9.	3209	M.P.Th in Obstetrics and Gynecology
10.	3210	M.P.Th in Geriatric Physiotherapy

SEMESTER WISE SUBJECTS:

Sr No	Course Code	Year	Semester	SUBJECT
1	3202-11	M.P.Th - I Year	I	1. Basic Sciences
2	3202-12			2. Basic Therapeutics
3	3202-21	M.P.Th - I Year	II	1. Advanced therapeutics in Specialty Subject
4	3202-22			2. Biostatistics and Research Methodology
5	3202-31	M.P.Th - II Year	III	1. General Physiotherapy in Specialty Subject – **Paper 1**
6	3202-32			2. Advances in Specialty Subject – **Paper 1**
7	3202-41	M.P.Th - II Year	IV	1. General Physiotherapy in Specialty Subject- **Paper 2**
8	3202-42			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 (3202-11)**

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 (3202-12)**

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 (3202-21)**

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 (3202-22)**

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 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 (3202-31)**

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 (3202-32)**

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 (3202-41)**

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 (3202-42)**

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: MPTh

Semester	Subject	Theory	Theory Credit point	Practical	Practical Credit point	Total Credit point
I - MPTh						
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 - MPTh						
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 - I: SEMESTER: I

COURSE: MPT IN NEURO 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 abnormalgait, 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: • 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, anthropometric measurements, etc.	5 hrs	10 hrs	MK		
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 - I: SEMESTER: I

COURSE: MPT IN NEURO 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 thefollowing 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. D i - 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. Phonophorosis.					
	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, neurodevelopmentassessment and motor learning-voluntary control assessment					
	4. Physical fitness assessment: • 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. 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. a. Muscle at rest. b. Insertional activity. c. Minimum effort. d. Maximum effort. 8. Motor unit's potential in disease. • Motor neuron disease. • Hereditary motor neuron disease. • Poliomyelitis. • Muscular dystrophy. • Inflammatory myopathies. • Congenital myopathies					

	• Myotonia. • Metabolic myopathies. 9) Quantitative methods in EMG.					
	B. Nerve conduction studies (NCV): I. Motor and sensory conduction. II. Physiology of nerve conduction. III. General factors affecting nerve conduction. IV. Nerve stimulation. V. H wave. VI. F wave. VII. Entrapment syndromes. a) Carpel tunnel syndrome. b) EMG studies in Myasthenia gravis. c) EMG studies in Decremental studies Lambert myasthenia syndrome. d) Electro diagnosis in Radiculopathy.					

	e) Peripheral neuropathies. - Nerve conduction changes in peripheral neuropathy. - EMG changes in peripheral neuropathy.					
8.	Radiological investigation. 1) X – ray. 2) CT / MRI Scan. 3) Blood investigation (routine)	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 – Froliecher, Victor. F, Elsevier.
6. Textbook of Work Physiology – Astrand and Rodahl, McGraw Hill.
7. Kinanthropometry and Exercise Physiology Laboratory manual tests, procedures anddata-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 byMichelle H. Cameron and Linda Monroe (Apr 5, 2007)
9. Physical Therapy Management by Ronald W. Scott and Christopher L Petrosino (Sep 1,2007

MPT – I: SEMESTER: II

COURSE: MPT IN NEURO 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 andquantitative III. Frequency distributions IV. Describing data with graphs V. Describing data with averages modemedian mean VI. Describing variability variancestandard deviation etc VII. Normal distributions VIII. Interpretations of result 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.	40 hrs	MK		

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.

****

MPT-SEMESTER: II

MPT IN NEUROSCIENCES

PAPER: I– ADVANCED THERAPEUTICS IN NEUROSCIENCES

Subject	Theory	Credit	Practical	Credit	Total Credits
Advanced Therapeutics in Neuro Sciences	100		150		

Sr.No	Content	TeachingHours		Must know	Desirabletoknow	Nice tok now
		Didactic(100hrs)	Practical(150hrs)			
1	Neuro specific electrotherapeutic modalities: a. EMG biofeedback b. Gait Analyzers c. Pressure Biofeedback	**15**	**15**			
2	Investigations specific to Neurological disorders. A. Advanced electrotherapeutic modalities	**10**	**15**			
	B. Advanced electro diagnostics: EMG/NCV	**15**	**15**			
	1) Instrumentation.					
	2) Types of electrodes.					
	3) Cathode ray oscilloscope digital processing.					
	4) Electrical safety.					
	5) Artifacts.				NK	
	6) Normal and abnormal motor action potential.					
	7) EMG Examination.					

	1. Muscle at rest.					
	2. Insertional activity.					
	3. Minimum effort.					
	4. Maximum effort.					
	5. Motor units potential in disease.					
	I. Motor neuron disease.				NK	
	II. Hereditary motor neuron disease.				NK	
	III. Poliomyelitis.				NK	
	IV. Muscular dystrophy.				NK	
	V. Inflammatory myopathies.				NK	
	VI. Congenital myopathies				NK	
	VII. Myotonia.				NK	
	VIII. Metabolic myopathies.					DK
	6. Quantitative methods in EMG.					
3	Nerve conduction studies.	**10**	**20**			
	I. Motor and sensory conduction.					
	II. Physiology of nerve conduction.					
	III. General factors affecting nerve conduction.					
	IV. Nerve stimulation.					
	V. H wave.					
	VI. F wave.					
	VII. Entrapment syndromes.					
	VIII. Carpel tunnel syndrome.					

	IX. EMG studies in Myasthenia gravis.					
	X. EMG studies in Decremental studies Lambert myasthenia syndrome.					DK
	XI. Electro diagnosis in Radiculopathy.					
4	Peripheral neuropathies.	**15**	**15**			
	I. Nerve conduction changes in peripheral neuropathy.					
	II. EMG changes in peripheral neuropathy.					
5	Various Neuro physiological approaches with special emphasis to Neuronal Plasticity.	**20**	**35**			
6	Clinical decision making in relation to common neurological problems of UMN / LMN lesions.	**15**	**35**			

RECOMMENDEDBOOKS:

1) Text book of clinical neuroanatomy by Vishramsingh (Elsevier 2007)

2) Clinical Neuroanatomy for Medical Students by Richard S Snell, 5th Edition (Lippincott

Williams & Wilkins, 2001)

3) Neurophysiology by RHS Carpenter, 4th edition (Arnold 2003)

4) Pathophysiology of the motor systems: Principles and Clinical presentations by Christopher M. Fredericks and Lisa K. Saladin (F.A. Davis Company 1996)

5) Brain's diseases of the nervous system by John Walton, 12th edition (Oxford University

press)

6) A physiological approach to clinical neurology by James W. Lance and James G. McLeod, 3rd edition (Butterworth's 1981)

7) Muscle and its diseases: An outline primer of basic science and clinical methods by Irwin M. Siegel (Year book medical publishers 1986)

8) Neuroscience fundamental for rehabilitation by Laurie Lundy Ekman (W.B Saunders 1998)

9) Illustrated neurology and neuro surgery by Kenneth Lindsay and Ian Bone (Churchill

Livingston, 2004) 7. Basic neurology by John Gilroy (Elsevier)

10) Hand book of neurologic rating scales by Robert M.Herndon, 2nd edition , (Demos

publications 2005) 2. Bickerstaff's neurological examination in clinical practice by John

Spillane, 6th edition (Blackwell science limited 1996)

11) Physical rehabilitation laboratory manual: Focus on functional training by Susan B O Sullivan and Thomas J Schmitz. (F.A. Davis Company)

12) The development of the infant young child: Normal and Abnormal by R.S. Illingworth, 9th edition (Churchill Livingstone 1996)

13) Functional Movement Reeducation – A contemporary model for stroke rehabilitation by

Susan Ryerson and Kathryn Levit (Churchill Livingston and Elsevier, 1997)

14) Pediatric Physical Therapy , Jan Stephen Tecklin, 3rd (1999) and 4th (2008) editions,

Lippincott Williams & Wilkins.

15) Physical Therapy for Children , Suzann K.Campbell, 3rd edition, 2006, Saunders Elsevier.

SEMESTER: III - MPT IN NEUROSCIENCES

GENERAL PHYSIOTHERAPY IN NEURO SCIENCES (PART – I)

Subject	Theory	Credit	Practical	Credit	Total Credits
General Physiotherapy In Neurosciences **Part - I**	200		225		

Sr.no	Content	Teachinghrs.		Mustk now	Desirable toknow	Nice tokno w
		Didactic(200 Hrs)	Practical (225 Hrs)			
1.	Patho-mechanics of various Neurological disorders : Special emphasis to – Etiology, Risk factors & Disease progression	20	25	MK		
2.	Screening of Neurological disorders based on Patho-mechanism. a. CNS b. PNS c. ANS	30	50	MK		
3.	Basis for Therapeutic decision making a. Neuro anatomy and neuro physiology b. Normal sequential behavior and physiological changes throughout the developmental arc. c. Motor control, theories of motor control and motor development & principles of motor learning. d. Reflex maturation – neuro physiological basis. e. Basic evaluation tools in neurology. f. Movement dysfunction secondary to UMN Lesion, LMN Lesion, cerebellum & basal ganglion lesions. g. Musculoskeletal treatment concept applied to neurology. Adverse neural tissue tension test in upper & lower limb. h. Physiotherapy management for sensory - motor dysfunction, tonal disorders & bladder	100	50	MK MK MK MK MK	DK	

	dysfunction			MK		
4.	Long term consequences of various Neurological disorders on various systems. - Neuro physiological abnormalities.	25	25	MK		
5.	Neurological Disability evaluation in detail secondary to illness: a. Brain injury b. Spinal cord injury c. Peripheral Nerve injury	25	75	MK		

BOOKS OF NEURO PHYSIOTHERAPY:

1) Textbook of clinical neuroanatomy by Vishram singh (Elsevier2007)
2) Clinical Neuroanatomy for Medical Students by Richard S Snell, 5th Edition(Lippincott Williams & Wilkins,2001)
3) Neurophysiology by RHS Carpenter,4th edition (Arnold2003)
4) Pathophysiology of the motor systems: Principles and Clinical presentations by Christopher
M. Fredericks and Lisa K. Saladin (F.A. Davis Company 1996)
5) Brain's diseases of the nervous system by John Walton, 12th edition (Oxford University press)
6) The development of the infant young child: Normal and Abnormal by R.S. Illingworth, 9th edition (Churchill Livingstone1996)
7) Functional Movement Reeducation – A contemporary model for stroke rehabilitation by Susan Ryerson and Kathryn Levit (ChurchillLivingstonandElsevier,1997)
8) Pediatric Physical Therapy , Jan Stephen Tecklin, 3rd (1999) and 4th (2008) editions, Lippincott Williams &Wilkins.
9) Physical Therapy for Children , Suzann K.Campbell, 3rd edition, 2006,Saunders Elsevier.
10) Physiotherapy for Children, Teresa Pountney, 2007, Butterworth Heinemann Elsevier.
11) Meeting the Physical Therapy Needs of Children, Susan K. Effgen, 2005, F.A. Davis Company, Philadelphia.
12) Physiotherapy in Pediatrics, Roberta B. Shepherd, 3rd edition, 1995, Butterworth Heinemann.
13) Neurologic Intervention for Physical Therapist Assistant, Martin Kessler, 1st &2nd Edition, 2008, W.B.Saunders CompanyLtd.
14) Physiotherapy and the growing child , Yvonne R Borns& Julie MacDonald, 1996, W.B.Saunders CompanyLtd.
15) Pediatric Rehabilitation, Gabriella E. Molnar,3rd edition, 1999. Hanly & Belfus, Philadelphia.
16) Treatment of Cerebral Palsy & Motor Delay, Sophie Levett, 4th edition, 2004. Blackwell Publishing.
17) Pediatric Therapy, A Systems Approach, Susan Miller Porr, 1999, F.A. Davis Company.
18) Reflex and Vestibular Aspects of Motor Control, Motor Development and Motor Learning, R.Barnes, Carolyn A Crutchfield, 1990, Stokes ville Publishing Company.
19) Neurological Rehabilitation, Darcy A. Umphred, 4th & 5th edition,2007,2001, MOSBY Elsevier.
20) Physical Rehabilitation, Susan B. OSullivan, 4th & 5th editions, 2007, Jaypee Brothers.
21) Cash's Textbook of Neurology for Physiotherapists, Patricia A. Downie, 4th edition, 1992, Jaypee Brothers.
22) Cardiovascular & Pulmonary Physical Therapy evidence & practice Elizabeth (Dean & Donna frownfelter, 3th (1996) & 4th (2006) editions, MOSBY Elsevier.
23) Pediatric Physical Examination, Karen G. DunderStadt, 2006, MOSBY Elsevier.
24) MotorAssessmentoftheDevelopingInfant,MarthaCopier,1994,Saunders

SEMESTER: III - MPT IN NEUROSCIENCES

ADVANCES IN NEUROSCIENCES (PART - I)

Subject	Theory	Credit	Practical	Credit	Total Credit
Advances in Neurosciences Physiotherapy **(Part - I)**	200		250		

Sr.no	Content	TeachingHrs.		Musttoo know	Desirabletoknow	Nice toknow
		Didactic(200Hrs)	Practical(250 Hrs)			
1	Neuro physiological concepts: based on neuro physiotherapeutic techniques such as Bobath/ NDT, Brunnstrom, Roods, PNF, Vojta, MRP& MFR.	85	110	MK		
2.	Movement disorders in detail	20	25	MK		
3.	Tonal disorders - in detail including neuro pathology, assessment, conservative management and rehabilitation measures	20	20	MK		
4.	Neurological assessment and management of following Adult Neurological conditions like: a. Stroke b. Infections of nervous system such	60	65	MK		

	as meningitis, encephalitis, GBS, Bulbar polio, parasitic infection and HIV. c. Demyelinating diseases of nervous system d. Degenerative and metabolic diseases of nervous system e. Diseases and disorders of spinal cord f. Disorders of peripheral nervous system g. Disorders of cranial nerves h. Diseases and disorders of muscles					
5.	Cognitive rehabilitation	15	5	MK		

PRACTICALS:

1. Physiotherapy assessment and management of various neurological disorders (Adult & Paediatric) using principles of evidence based practice applying advanced physiotherapy skills along with routine measures.
2. Hands on neurophysiological techniques.

TEXT BOOKS:

1.The neural basis of motor control – Black I, Churchill Livingstone,
2. Physical therapy management of Parkinson's disease – Turnbull Gerode , Churchill, Livingstone,
3.Abnormal postural reflex activity caused by Brain lesions – Bobath b. Aspen publications,
4. Disorders of voluntary muscle- Eagel, Churchill, Livingstone,

5. A Clinician's view of neuro muscle disorder – Brook M.H Williams and Wilkins, . 6.Proprioception, neuro muscular facilitation techniques – Knot M. and Voss, Harper and Row,

REFERENCE BOOKS:

1. Stroke rehabilitation – Laidler, Capman and Hall, London
2. Motor relearning programme for stroke – Carr, Aspen publication, Rock ville,
3. Adult hemiplegia: evaluation and treatment – Bobath B, Heinmann, Paraplegia and tetraplegia – Brombley, Churchill, Livingstone,

JOURNALS:

1. Journal of Pediatric Neurology
2. Journal of Pediatric Epilepsy
3. International Journal of Epilepsy
4. European journal of neurology
5. American academy of neurology

SEMESTER: IV - MPT IN NEURO SCIENCES

GENERAL PHYSIOTHERAPY IN NEUROSCIENCES (PART – II)

Subject	Theory	Credit	Practical	Credit	Total Credit
General Physiotherapy In Neuro Sciences **(Part – II)**	200		225		12.4

Sr.no	Content	Teachinghrs.		Must know	Desirable To know	Nice tokno w
		Didactic(200 Hrs)	Practical(2 25Hrs)			
1.	Physiotherapy assessment & Management of Miscellaneous conditions a. Wound healing in diabetes mellitus, leprosy, pressure sores b. Obesity c. Burns d. HIV e. Skin conditions f. Diabetes mellitus	75	100	MK		
2.	National & International health programs for Neurological Physiotherapy interventions.	20	05	MK		

3.	Professional marketing strategies – Entrepreneurship a. Specialty clinics b. Independent Practice c. Joining organizations d. Groups e. NGO f. Specialty references	20	25	MK		
4.	Management strategies of various Neurological disorders.	60	30	MK		
5.	Preventative physiotherapy in Neurological disorders and team approach.	25	65	MK		

BOOKS OF NEURO PHYSIOTHERAPY:

1. Physical management in neurological rehabilitation by Maria Stokes(Elsevier Mosby publication2004)
2. Physiotherapy in neuro conditions by Glady samualraj (Jaypee brothers2006)
3. Spinal cord injury functional rehabilitation by Martha Freeman Somers, 2nd edition (Prentice Hall publication)
4. Physiotherapy in disorders of the brain: A clinical guide by Janet H. Carr and Roberts B. Shepherd (William Heinemann medical books limited)
5. Functional neurorehabilitation through the life span by Dolores B. Bertoti (F.A. Davis Company 2004)
6. Brunnstrom's movement therapy in hemiplegia: A neurophysiological approach by Kathryn A. Sawner and Jeanne M. LaVigne, 2nd edition (Lippincott Company 1992)
7. Motor control: Translating research into clinical practice by Anne Shumway – Cook And Marjorie Woollacott, 3 edition (Lippincott Williams and Wilkins)
8. Neurodevelopmental treatment approach: theoretical foundations and principles of clinical practice by Janet M. Howle(NDTA2002)
9. PNF in practice: Susan Adler
10. Vestibular rehabilitation by Susan J. Herdman, 2nd edition (F.A.DavisCompany2000)
11. Mobilization of the nervous system by David S.Butler (ChurchillLivingstone1996)
12. Myofascial Release Manual
13. Stroke Rehabilitation: Guidelines for exercise and training to optimize motor skill By Janet Carr and R.Shepherd (Elsevier,2003)
14. Neurological Rehabilitation, Optimizing motor performance by Janet Carr and R. Shepherd (Butterworth and Heinemann Ltd,2004)
15. Functional Movement Reeducation – A contemporary model for stroke Rehabilitation by Susan Ryerson and Kathryn Levitt (Churchill Livingstone and Elsevier,1997)
16. A Motor Relearning Programme for Stroke by Janet Carrand R.Shepherd (Butterworthand Heinemann Ltd, Oxford Publication)

17. Recent advance in clinical neurology by Kennard, Churchill livingstone
18. Stroke, by Wade D.T.& Others, Champan Halt
19. Neurology secrets by Rolak L.A., Jaypee Brothers
20. Physiological Approach to Clinical Neurology by Lance & Mcleod, Butterworths
21. Stem cell therapy in neurological disorders by Sharma Alok, Neuro institute
22. illustrated manual of neurology diagnosis by Douglas, J B Lipincoet company
23. Neurological examination made easy by Fuller Grant, Churchill Livingstone
24. Principles of Neurology by Maurice Victor & Allan H Rapper, Mcgrawhill
25. Nerve and nerve injury by Sydney Sunderland, Churchill livingstone
26. Neurological physiology by Edwards Susan, Elsevier

SEMESTER: IV - MPT IN NEURO SCIENCES

ADVANCES IN NEUROSCIENCES (PART –II)

Subject	Theory	Credit	Practical	Credit	Total Credit
Advances in Neurosciences **(Part – II)**	200		225		

Sr.no	Content	TeachingHrs.		Mustknow	Desirabletoknow	Nice toknow
		Didactic(200Hrs)	Practical(225Hrs)			
1.	Traumatic brain injury in adult a. Traumatic spinal cord injury b. Space occupying lesions c. Vestibular disorders d. Disorders of special senses e. Disorders of speech, language, perception and somatosensory cognitive impairments. f. Developmental disorders of nervous system. g. Medical, surgical & physiotherapy intervention in disturbances of CSF	85	100	MK		

	circulations h. compressive mylopathies					
2.	Early diagnosis and its significance in neuro rehabilitation for the following conditions a. Stroke b. Compressive myelopathies c. Neurogenic pain	50	40	MK		
3.	Patients, parents (care takers) and physiotherapists in neuro rehabilitation (3P's)	40	40		DK	
4.	Walking school in neuro rehabilitation	25	45			NK

PRACTICALS:

1. Physiotherapy assessment and management of various neurological disorders (Adult & Paediatric) using principles of evidence based practice applying advanced physiotherapy skills along with routine measures.
2. Hands on neurophysiological techniques.

TEXT BOOKS:

1.The neural basis of motor control – Black I, Churchill Livingstone,
2. Physical therapy management of Parkinson's disease – Turnbull Gerode , Churchill, Livingstone,
3.Abnormal postural reflex activity caused by Brain lesions – Bobath b. Aspen publications,
4. Disorders of voluntary muscle- Eagel, Churchill, Livingstone,
5. A Clinician's view of neuro muscle disorder – Brook M.H Williams and Wilkins, . 6.Proprioception, neuro muscular facilitation techniques – Knot M. and Voss, Harper and Row,

REFERENCE BOOKS:

1. Stroke rehabilitation – Laidler, Capman and Hall, London
2. Motor relearning programme for stroke – Carr, Aspen publication, Rock ville,
3. Adult hemiplegia: evaluation and treatment – Bobath B, Heinmann, Paraplegia and tetraplegia – Brombley, Churchill, Livingstone,

JOURNALS:

1. Journal of Pediatric Neurology
2. Journal of Pediatric Epilepsy
3. International Journal of Epilepsy
4. European journal of neurology
5. American academy of neurology