

**KRISHNA INSTITUTE OF MEDICAL SCIENCES
“DEEMED TO BE UNIVERSITY”, KARAD.
KRISHNA COLLEGE OF PHYSIOTHERAPY**

POST GRADUATE - MASTER OF PHYSIOTHERAPY (02 YEARS)

M.P.Th IN PEDIATRIC NEUROLOGY

PROGRAMME CODE: 3204

AIM:

The Master of Physiotherapy (specialty) Programme is directed towards rendering competency in knowledge and skills related to advance physiotherapeutic skills especially related to specialty Clinical fields to enhance professional Physiotherapy Practice, Education and Research, in line with global standards.

COURSE OUTLINE:

The Master's degree in Physiotherapy is a two year full time programme consisting of classroom teaching, self-academic activities and clinical postings, with self-directed evidence based practice. In the first year theoretical basis of physiotherapy is refreshed along with research methodology, biostatistics & teaching technology. The students are rotated in all areas of clinical expertise including their specialty during this period. They are required to choose their study for dissertation and submit a synopsis. During the second year the students will be posted in their area of specialty. They are required to complete and submit their dissertation. The learning program includes seminars, journal reviews, case presentations, case discussions and classroom teaching. Some of the clinical postings may be provided at other reputed centers in the country in order to offer a wider spectrum of experience. The students are encouraged to attend conferences, workshops to enhance their knowledge during the course of study. University examinations are held at the end of first year and at the end of second year.

COURSE OUTCOME:

This course promotes the development of skills, knowledge and attributes of a reflective, evidence-based practitioner with special attributes to enhance his / her career in a better way as per the society needs.

ELIGIBILITY FOR ADMISSION:

1. He/she has passed the Bachelor of Physiotherapy recognized by any Indian University with

pass marks (50%).

2. Admission to Master of Physiotherapy course shall be made as per the rules by the competent authority. Entrance test will be conducted by KIMSDU as per the rules by competent authority.

OBJECTIVES:

At the completion of this course, the student should be -

1. Be able to do a physical therapy diagnosis using a frame work of ICF that is to identify the impairment of body structure, body function, environmental and personal factors and to address the activity limitations and participations restrictions and able to execute all routine physiotherapeutic procedures with clinical reasoning & evidence based practice.
2. Able to be a prominent member of the multidisciplinary team and treat all the conditions which need physiotherapeutic procedures.
3. Able to provide adequate knowledge about the treatment procedures and its benefit.
4. Able to transfer knowledge and skills to students as well as young professionals.
5. Able to perform independent physiotherapy assessment and treatment for patients.
6. To plan and implement need based physiotherapy interventions for all clinical conditions related to respective specialty in acute, chronic cases, critical care, independent practice including health promotion and prevention.
7. Able to undertake independent research in the field of physiotherapy.
8. Learn multidisciplinary practice skills.
9. Able to practice and assess patient independently.
10. Able to practice in his / her specialty area with advanced knowledge and skills.
11. Able to take up physiotherapy teaching assignments independently for undergraduate teaching programme.
12. Able to prepare project proposal with selected research design and interpret the evaluated outcome measures (using sound data processing techniques and statistical methods).

SPECIALTIES OFFERED:

1. MPT in Musculoskeletal Sciences
2. MPT in Neurosciences
3. MPT in Cardio Pulmonary Sciences
4. MPT in Community Health
5. MPT in Pediatric Neurology

ASSESSMENT:

Two exams will be conducted in theory and practical at the end of first and final academic years. The Attendance and progress report scrutinized and certified by the Head of the Department and Head of the Institution to be submitted to the university with the exam form for both first & second year examination.

YEAR WISE SUBJECTS:

MPT - I YEAR

1. Basic Sciences.
2. Basic Therapeutics.
3. Advanced Therapeutics - As per specialty (5 Specialties.)
4. Research Methodology & Biostatistics.

MPT – II YEAR SPECIALTIES: (2 SUBJECTS IN EACH SPECIALITY)

1. General Physiotherapy - As per specialties (5 Specialties.)
 2. Advances in Physiotherapy - As per 5 Specialties.
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1. MPT in Musculoskeletal Sciences.
 2. MPT in Neurosciences.
 3. MPT in Cardio Pulmonary Sciences.
 4. MPT in Community Health.
 5. MPT in Pediatric Neurology.

3204 - M.P.Th IN PEDIATRIC NEUROLOGY

M.P.Th - I Year

1. **3204 - 11: BASIC SCIENCES**
2. **3204 - 12: BASIC THERAPEUTICS**
3. **3204 - 13: ADVANCED THERAPEUTICS IN PEDIATRIC NEUROLOGY**
4. **3204 - 14: BIOSTATISTICS AND RESEARCH METHODOLOGY**

M.P.Th - II Year

1. **3204 - 21: GENERAL PHYSIOTHERAPY IN PEDIATRIC NEUROLOGY**
2. **3204 - 22: ADVANCES IN PEDIATRIC NEUROLOGY**

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3204- M.P.TH IN PAEDIATRIC NEUROLOGY.

3204-11: BASIC SCIENCES.

SYLLABUS:

Sr. No	Content	Teaching Hours		Must know	Desirable to know	Nice to know
		Didactic (98 Hrs)	Practical (82 Hrs)			
1.	PRINCIPLES AND ETHICS: a. Theoretical background of physiotherapy profession.	10 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	5 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.	25 Hrs	10 Hrs	MK		
4.	Review of various types of exercises, principles and its applications for joint mobility, muscle re-education, strengthening and endurance training.			MK		
5.	Posture, analysis of normal and abnormal posture, posture training.	5 Hrs	5 Hrs		DK	
6.	Gait, analysis of normal and abnormal gait, gait training.	5 Hrs	15 Hrs			NK
7.	ADL, assessment and training of ADL.	3 Hrs	10 Hrs		DK	
8.	Measuring tools in therapeutics.	5 Hrs	15 Hrs		DK	
9.	ometer, pressure transducers, force plates, spondylometer, anthropometric and etc.	5 Hrs	10 Hrs	MK		
10.	ORTHOTICS, PROSTHETICS & BIOENGINEERING:	25 Hrs	12 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.					

3204-12: BASIC THERAPEUTICS.

SYLLABUS:

Sr. No	Content	Teaching Hours		Must know	Desirable to know	Nice to know
		Didactic (80 Hrs)	Practical (80 Hrs)			
1.	Basic exercises	5 Hrs	10 Hrs			
2.	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. Faradic stimulation.					
	8. Dynamic currents.					
	9. Interferential therapy.					
	10. Cryotherapy.					
	11. TENS.					
	12. LASER Therapy.					
	13. Paraffin wax bath.					
	14. Hydrotherapy.					
	15. Hydro collar packs.					
	16. Contrast bath.					
	17. Traction.					
	18. Mechanical external compression therapy.					
	19. Fluidotherapy.					
	20. Phonophoresis.					
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.	2 Hrs	3 Hrs		DK	

6.	Echocardiography.	2 Hrs	2 Hrs			NK
7.	Physical & functional diagnosis.	20 Hrs	20 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. Anthropometric measurements					
	5. Physical fitness assessment by					
	i. Range of motion					
	ii. Muscle strength, endurance and skills					
	iii. Body consumption					
	iv. Cardiac efficiency tests and spirometry					
	v. Fitness test for sport					
	6. Electro-diagnosis, clinical and kinesiological electromyography and evoked potential studies. Biophysical measurements, physiotherapy modalities techniques and approaches, Electro diagnosis, conventional methods, electromyography sensory and motor nerve conduction velocity studies, spinal and somato-sensory evoked potentials					
	Radiological investigation.	16 Hrs	10 Hrs	MK		
	1) X – Ray.					
	2) CT / MRI Scan.					
	3) Blood investigation (routine)					

3204-13: ADVANCED THERAPEUTICS IN PAEDIATRIC NEUROLOGY.

SYLLABUS:

Sr no.	Topic	Teaching hours		Must know	Desire to know	Nice to know
		Didactic (25 Hrs)	Practical's (100 Hrs)			
1.	Pediatric Neuro specific approaches a. Behavioral Therapy b. Sensory approach c. Motor approach	5 Hrs	25 Hrs	MK		
2.	Neuro physiologic approaches specific to Pediatric Neurology	5 Hrs	25 Hrs	MK		
3.	Pediatric Neuro Intensive care managerial skills	3 Hrs	5 Hrs	MK		
4.	Community based rehabilitation services specific to Pediatric rehabilitation	1 Hr	5 Hrs	MK		
5.	Various assessment strategies in Pediatric Neurology	5 Hrs	10 Hrs	MK		
6.	Progressive assessment and management based on age & outcome	2 Hrs	15 Hrs	MK		
7.	Pediatric therapeutic modalities	2 Hrs	5 Hrs		DK	
8.	Investigations specific to Pediatric Neurology	2 Hrs	10 Hrs	MK		

3204-14: BIOSTATISTICS AND RESEARCH METHODOLOGY.

SYLLABUS:

Sr No.	Contents	TEACHING HOURS (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 r	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.				

3204-21: GENERAL PHYSIOTHERAPY IN PAEDIATRIC NEUROLOGY.

SYLLABUS:

Sr.no	Content	Teaching Hrs.		Must know	Desirable to know	Nice to know
		Didactic (350Hrs)	Practical (350 Hrs)			
1.	Etio-pathogenesis of various Pediatric Neurological disorders: Special emphasis to – Prenatal, perinatal and postnatal.	75 Hrs	75 Hrs	MK		
2.	Screening tools of various pediatric disorders based on Etio-pathogenesis. a) CNS b) PNS c) ANS	75 Hrs	75 Hrs	MK		
3.	Basis for Therapeutic decision making.	25 Hrs	10 Hrs			
4.	Long term consequences of various Pediatric disorders on various systems. - Neuro physiological abnormalities.	25 Hrs	25 Hrs	MK		
5.	Pediatric Disability evaluation in detail secondary to illness: a) Brain injury b) Spinal cord injury c) Peripheral Nerve injury d) Congenital	25 Hrs	15 Hrs	MK		
6.	Physiotherapy assessment & Management of Miscellaneous conditions a) Wound healing in diabetes mellitus, leprosy, pressure sores b) Obesity c) Burns d) HIV e) Skin conditions	50 Hrs	75 Hrs	MK		

	f) Diabetes mellitus g) Malignancy					
7.	National & International health programs for Neurological Physiotherapy interventions.	10 Hrs	-	MK		
8.	Professional marketing strategies – Entrepreneurship a) Specialty clinics b) Independent Practice c) Joining organizations d) Groups e) NGO f) Specialty references	15 Hrs	-		DK	
9.	Management strategies of various Neurological disorders	25 Hrs	50 Hrs	MK		
10.	Preventative physiotherapy in Pediatric disorders and team approach.	25 Hrs	25 Hrs		DK	

3204-22: ADVANCES IN PAEDIATRIC NEUROLOGY.

SYLLABUS:

Sr. No	CONTENTS	DIDACTIC (400 Hrs)	PRACTICAL (600 Hrs)	Must Know	Desirable to Know	Nice to Know
1	a) Growth and development of human being, maturation, and mile stone development, factors responsible & predisposing factors for developmental disorders. b) Associated pediatric orthopedic conditions.	50 Hrs	50 Hrs	MK		
2	Pediatric evaluation in detail.	50 HRS	100 HRS	MK		
3	Physiotherapy assessment and advanced management of Pediatric orthopedics conditions such as CTEV, JRA, CDH, Postural deformities, etc. Supportive therapies in Pediatric rehabilitation.	20 HRS	50 HRS	MK		
4	Physiotherapy assessment and advanced management of Pediatric neurological disorders including orthotic appliances a) Cerebral palsy b) Infantile Hemiplegia c) Hydrocephalus d) Spina bifida e) Brachial plexus injury f) Traumatic brain injury g) Traumatic spinal cord injury h) Muscular dystrophies i) Poliomyelitis	30 HRS	50 HRS	MK		
5	Hypothetical basis for recovery process in CNS (spontaneous & neuronal plasticity)	10 HRS	-			NK
6	Neurophysiologic approaches in Pediatric neuro rehabilitation.	40 HRS	50 HRS	MK		

7	Minimal brain dysfunction, learning disability, attention deficit, autism, clumsiness.	5 HRS	10 HRS	MK		
8	MR including Down's syndrome, cognitive impairment & developmental delay.	5 HRS	10 HRS	MK		
9	Pediatric oncology.	10 HRS	25 HRS			NK
10	Physiotherapy assessment and advanced management of surgical conditions- pre post operative management as like that of adults	10 HRS	30 HRS	MK		
11	Physiotherapy assessment and advanced management of cardiopulmonary conditions as similar to adults.	10 HRS	30 HRS	MK		
12	Physiotherapy management in PICU & NICU.	20 HRS	30 HRS	MK		
13	Early diagnosis and its therapeutic significance in Pediatric rehabilitation with special emphasis to neuromuscular disorders.	10 HRS	30 HRS			NK
14	Adaptive equipment for physically challenged children.	10 HRS	20 HRS		DK	
15	Rehabilitation of the multiple handicapped children.	10 HRS	25 HRS		DK	
16	The child, parents and physiotherapist.	10 HRS	20 HRS	MK		
17	Community integration and other social aspects of rehabilitation.	10 HRS	20 HRS			NK
18	Physical therapy in public school.	10 HRS	20 HRS		DK	
19	Cognitive rehabilitation in Pediatric	10 HRS	20 HRS	MK		

20	Miscellaneous factors responsible for good prognosis in Pediatric <ul style="list-style-type: none"> a. Hereditary & environment b. Family support c. Support from the peer groups d. Food and nutrition e. Healthy life style 	20 HRS	10 HRS			NK
21	Setting up Pediatric physiotherapy unit.	10 HRS	-	MK		
22	Evidence based practice of physiotherapy in Pediatric sciences conditions <ul style="list-style-type: none"> a) Medico legal issues b) Effective documental c) Effective communication 	20 HRS	-	MK		
23	Preventative physiotherapy in orthopedic disorders and team approach	20 HRS	-	MK		

REFERENCE BOOKS:

1. Connelly B.H. and Montgomery, P.C. Therapeutic exercise in developmental disabilities, Chattanooga 1987.
2. Tecklin J.S. Pediatric Physical Therapy Lippincott, 1989.
3. Campion, Mr. Ed hydrotherapy in pediatric, Heinemann 1985.
4. Physical therapy Assessment in Early Infancy - Wilhelm Churchill Livingstone, New York, 1993.
5. Physical therapy for children – Campbell Suzann K. W.B. Saunders, Philadelphia, 1994.
6. Physical management of multiple handicapped – Fraser, William & Wilkins, Baltimore.
7. Elements of paediatric physiotherapy – Eckerley P. Churchill Livingstone, Edingburgh, 1993.
8. Physiotherapy in Peadiatrics – Shepherd R. Heinemann. London, 1980 2nd edition.
9. The growth chart – WHO, Geneva, 1986.
10. Child with spina Bifida – Anderson E.M. and Spina B Methun, Lodon 1977.
11. A manual of neonatal intensive care- Robert N.R.C. Edward Arnold, London 1986.
12. Burns Physiotherapy in the growing child. McDonald.
13. Campbell S (Ed) (2000) Physical therapy for children. WB Saunders Co.
14. Eckersley P (Ed.) (1993) Elements of pediatric physiotherapy. Churchill Livingstone, Edinburgh. ISBN 0-44-03894-S
15. O’Hagan M and Smith M (1998) Special issues in child care. Balliere Tindall, London ISBN 0-7020-1604-7
16. Shepherd R (1997) 2 nd edition. Physiotherapy in pediatrics. Butterworth and Heinemann.
17. Tecklin J S (1999) 3 rd. edition Pediatric physical therapy. Lippincott Philadelphia.