School of Physiotherapy

Syllabus

For

Master of Physiotherapy

(Pediatrics)

(SEMESTER: I to IV)

DELHI PHARMACEUTICAL SCIENCES AND RESEARCH UNIVERSITY

Master of Physiotherapy in Pediatrics is a 2-year fulltime program with 4 semesters leading to the degree that equips the student with analytical, evidence based and Hands on learning skills in the assessment, identification and diagnosis of, and treatment of child development and movement difficulties.Students will have specialist knowledge in the movement, development and conditions that are likely to affect the baby and growing child and treat from 1-day-old babies to adolescents.

GOALS

- Preparation of a postgraduate student towards his/her professional autonomy with self-regulating discipline at par with global standards
- Formation of base of the professional practice by referral as well as first contact mode using evidence-based practice.
- Impartation of research basis in order to validate techniques & technology in practice to physiotherapy.
- Acquainting a student with concept of quality care at the institutional as well as the community levels.
- Inculcation of appropriate professional relationship in multidisciplinary set up, patient management and co partnership basis.
- Preparation of students to address problems related to health education and community physiotherapy.
- Practicing the concept of protection of rights of the community during referral as well as first contact practice.
- Incorporation of concept of management in physiotherapy.
- Experience in clinical training and undergraduate teaching partly.
- Providing the honest, competent and accountable physiotherapy services to the community.

Career Opportunities

- Physiotherapist with various hospitals, schools, special schools, early intervention centers anddevelopmental centers
- Physiotherapists practice in many private settings as well as Government hospitals
- ICU settings
- Private Practice
- Outpatient clinics
- In the rehabilitation Department.
- Centers for the differently abled, schools for the mentally retarded and physically disabled children
- Health institutions
- Academics
- Research analyst in Research Centers
- Schools and Private homes
- Asha Kiran and half way homes

- They can also practice in non-patient care roles like health policy, health insurance, and Health care administration and as health care executives.
- Physiotherapists are also involved in medical legal field serving as expert and performing peer reviews.

Objectives of the course:

- Students should able to know the normal development of child.
- Students should able to clinically evaluate, assess, plan the management and advise the parents appropriately.
- Students should able to understand the clinical manifestations and to apply the suitable management, models based in recent trends.
- Students should able to know and practice recent trends in investigative methods and intervention strategies in the field of physiotherapy related to pediatric conditions.
- Students should able to practice physiotherapy based in recent trends.

Practical Examination

- Practical examination which includes patient assessment, evaluation and management, viva–voce etc.

Research and Dissertation – 14 Credits

Studentwillbeallotted withguide/Mentor assist in research work and for overall development and performance of the student in the Firstsemester.Literaturesurvey/Critical Analysis/Case Presentation willbedonebythestudentinfirst semester in order to successfully submitthetitleandtheproposal latest bytheendofthe 2nd semesterandcandidatewillwork further on their research and dissertation in the upcoming semesters to submit the writtenthesisinIVsemester.

- Students will submitthetitleandtheproposal latest bytheendofthe 2nd semester and he will get the NOCs from Research Committee after submitting their proposals at the conclusion of 2nd semester.
- They will be allocated marks for the below given subject on the basis:
    - Presentation of Literature Review/Critical Analysis/Case Presentation for the subject Research Appraisal 1 MPTS/MPTC/MPTP 107P
    - Presentation of synopsis for the subjectResearch Appraisal 2 MPTS/MPTC/MPTP 207P

By the end of 3rd semester, they will have to present or publish a paper on their dissertation topic, such as a pilot study/ review article/etc. Marks will be allocated based on Exam scheme as in Syllabus, for Paper publication status report/Dissertation progress presentation related to research work for the subjectIntroduction to Dissertation MPTS/MPTC/MPTP 306P.

In the fourth semester they will submit and present the results of their final research and dissertation project. Marks will be allocated on based on Exam scheme as in syllabus.

Practical Attachments:

- To enable the students to acquire practicing in hands on skills, maximum emphasis will be laid on regular practical classes, demonstration and clinical practice. The students will undergo Clinical / Field training in DPSRU Campus and other developmental centers/hospitals and to the coverage of various special schools as and when required and decided by department of Pediatrics. Internal assessment for practical examination will be provided on the basis of sessional examination and feedback and evaluation of the clinical/ field supervisors sent to the Pediatric Clinical Coordinator(s).

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Total
First Semester								
MPTP 101 T *	Advanced Human and Health Sciences (Including Genomics)	4		4	64	20	80	100
MPTP 102 T*	Applied Biomechanics and Kinesiology	3		3	48	20	80	100
MPTP 103 T*	Advanced Diagnostics and Physiotherapeutics	4		4	64	20	80	100
MPTP 104 T*	Research Methodology and Biostatistics	3		3	48	20	80	100
MPTP 105 T*	Value Added	2		2		50	-	50
MPTP 101 P *	Advanced Human and Health Sciences (Including Genomics)		2	1	32	10	40	50
MPTP 102 P*	Applied Biomechanics and Kinesiology		3	2	48	10	40	50

MPTP 103 P*	Advanced Diagnostics and Physiotherapeutics		3	2	48	10	40	50
MPTP 106 P*	Evaluative Clinical Practice- I** (Based on Viva, Case presentation of clinical postings)		15	8	240	50	50	100
MPTP 107 P* (NU-I)	Research Appraisal- I		2	1	32	50	-	50
	Total	16	25	30	624	260	490	750

Regarding Value added course in MPT 1st semester: Value added courses will be aimed at providing hands-on training, skills/ MOOC courses/ Indian or Foreign Language enhancement/ certificate course on personality development/ interview and administrative skills etc. to add value and enhance the ability and competencies and skills of the student. The subject will be of 2 credits. Weightage of subject will be 50 marks based on continuous assessment as scored in the ability enhancement hours in the semester

**Clinicaltrainingwillbefor12weeks×4hours×5daysandevaluatedasEvaluativeClinicalPractice-I

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Total
Second Semester								
MPTP 201 T *	Exercise Physiology	4		4	64	20	80	100
MPTP 202 T	Clinical Pediatrics- I	4		4	64	20	80	100
MPTP 203 T	Physiotherapeutics in Pediatric Neurological Conditions	6		6	96	20	80	100
MPTP204T*	Yogic Sciences (ElectiveI)#	2		2	-	50	-	50
MPTP 205T*	Machine Learning (Elective2)#	2		2	-	50	-	50
#Students can opt any one elective subject out of the two								
MPTP 201 P *	Exercise Physiology		2	1	32	10	40	50
MPTP 202 P	Clinical Pediatrics- I		3	2	48	10	40	50

MPTP 203 P	Physiotherapeutics in Pediatric Neurological Conditions		3	2	48	10	40	50
MPTP 205 P	Evaluative Clinical Practice- II** (Based on Viva, Case presentation of clinical postings)		15	8	240	50	50	100
MPTP 207 P** Non-University/ NU- II	Research Appraisal- II		2	1	32	50	-	50
	Total	16	25	30	624	240	410	650

** Clinical training will be for 12 weeks x 4hours x 5days and evaluated as Evaluative Clinical Practice- II

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Interna	External	Total
Third Semester								
MPTP 301 T	Clinical Pediatrics-II	4		4	64	20	80	100
MPTP 302 T	Physiotherapeutics in Pediatric Orthopedic and Cardiopulmonary Conditions	6		6	96	20	80	100
MPTP303 T*	ComputerSkillsPrograming Elective1#	2		2	-	50	-	50
MPTP304T*	Clinical Nutrition Elective2#	2		2	-	50	-	50
#Students can opt any one elective subject out of the two								
MPTP 301 P	Clinical Pediatrics-II		2	1	32	10	40	50
MPTP 302 P	Physiotherapeutics in Pediatric Orthopedic and Cardiopulmonary Conditions		4	2	64	10	40	50
MPTP 305 P	Evaluative Clinical Practice-III** (Based on Viva, Case		18	9	288	50	50	100

	presentation from clinical postings)							
MPTP 306 P	Introduction to Research Dissertation		6	3	96	10	40	50
	Total	12	30	29	640	170	330	500

** Clinical training will be for 12 weeks x 4hours x 6days and evaluated as Evaluative Clinical Practice- III

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Total
Fourth Semester								
MPTP 401 T*	Bioethics and Hospital Administration	4	-	4	64	20	80	100
MPTP 402T*	Pedagogy Elective1#	2		2	-	50	-	50
MPTP 403 T*	Entrepreneurship Elective2#	2		2	-	50	-	50
#Students can choose 1 elective subject out of the given 2								
MPTP 404 P	Dissertation	-	18	9	288	60	140	200
MPTP 405 P	Evaluative Clinical Practice- IV (Based on Viva, Case presentation from clinical postings)	-	18	9	288	20	80	100
	Total	6	36	24	640	150	300	450

** Clinical training will be for 12 weeks x 4hours x 6days and evaluated as Evaluative Clinical Practice- IV

Summary

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Total
First Semester								
Total		16	25	30	624	260	490	750
Second Semester								
Total		16	25	30	624	240	410	650
Third Semester								
Total		12	30	29	640	170	330	500
Fourth Semester								
Total		6	36	24	640	150	300	450
Grand Total		**50**	**96**	**113**	**2528**	**820**	**1530**	**2350**

NonUniversity/NU-I and II:

Studentwillbeallotted withguide/Mentor assist in research work and for overall development and performance of the student in the Firstsemester.Literaturesurvey/Critical Analysis/Case Presentation willbedonebythestudentinfirst semester in order to successfully submitthetitleandtheproposal latest bytheendofthe 2nd semesterandcandidatewillwork further on their research and dissertation in the upcoming semesters to submit the writtenthesisinIVsemester.

They will be allocated marks for the below given subject on the basis:

- Presentation of Literature Review/Critical Analysis/Case Presentation based on their clinical posting for the subject: Research Appraisal 1 MPTS/MPTC/MPTP 107P
- Presentation of synopsis for the subject:Research Appraisal 2 MPTS/MPTC/MPTP 207P

By the end of 3rd semester, they will have to present or publish a paper on their dissertation topic, such as a pilot study/ review article/etc. Marks will be allocated based on Exam scheme as in Syllabus, for Paper publication status report/Dissertation progress presentation related to research work for the subjectIntroduction to Dissertation MPTS/MPTC/MPTP 306P.

In the fourth semester they will submit and present the results of their final research and dissertation project. Marks will be allocated on based on Exam scheme as in syllabus.

Thestudentwillcompletehis1000hoursofClinicaltrainingduringthe2yearsprogramandthatwillbeevaluatedthroughpracticalexaminationprogressivelyinallthesemesterinEvaluativeClinicalPracticeI, II,III,andIV.Theexaminationwillbeconductedseparatelyaspertherespectivespecialization.

* Common Papers for all Streams

during the 1st semester, the student will be provided with a mentor. At the conclusion of 2nd Semester, the student will be provided with a Guide for the Project and Dissertation work.

Note: Value Added Course (s), Elective Subjects will remain common for all PG programs of the university. The student may earn 2 credits for each value added or elective subject.

The list of such courses is as under:

1. Yogic Sciences
2. Environment Science
3. Computer Skills Programing
4. English
5. Clinical Nutrition
6. Pedagogy
7. Entrepreneurship
8. Machine Learning

1st Semester

Advanced Human and Health Sciences (Including Genomics)

MPTP 101 T

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Th
MPTP 101 T *	Advanced Human and Health Sciences (Including Genomics)	4		4	64	20	80	100

Course Description: This course covers the topics related to advances in Human and Health Sciences with particular emphasis on anatomical, physiological pathological and biochemical advances.

Course Objective: This course aims to study the recent advances in Human and Health Sciences

Course Outcome: On completion of the study of this Course the student should be able; To advance and comprehend the knowledge of the structure & function of the human body in relevance to Physiotherapy To correlate and apply the knowledge gained, in understanding and analysing the dysfunction of the human body

I Applied Anatomy

- Topographic anatomy concerning the neck, arm, leg and back with a focus on vessels, nerves and muscles/fascia and joints.
- Topographic anatomy concerning thorax, abdomen and the pelvic region with a focus on the abdominal wall, viscera, vessels and nerves.
- Surface anatomy and palpations concerning extremities, thorax, abdomen and the pelvic region Pathoanatomy of peripheral nerve injuries, various bone pathologies

II Applied General Physiology

Cardiovascular system

- Physical characteristics of systemic circulation, Pressure pulses
- Oxygen demand theory of local blood flow circulation
- Nervous control of blood circulation, Humorous control of blood circulation,
- Cardiac output and its regulation

Neuromuscular System

- Basic physics of membrane potentials, Recording of membrane potentials and action potentials
- Mechanism of muscle contraction, Sources of energy for muscle contraction, Neural control of movement

Respiratory System

- Review of mechanics of respiration

- Pulmonary volumes and capacities
- Methods of studying respiratory abnormalities
- Regulation of Respiration

III Pharmacology

Drugs used in pain, Local anaesthetics, Steroids, Muscle relaxants, Drugs acting upon central nervous system & autonomic nervous system, Tropically acting drugs. Inhalers, drugs acting on bronchospasm.

IV Pathology

General pathology (cell injury, inflammation, repair, immune system), Musculoskeletal system
Bones: Hereditary & Metabolic diseases (osteoporosis, rickets osteomalacia ,osteitisfibrosa cystic, renal osteodystrophy)
Infections: (osteomyelitis, tuberculosis), Joints: Degenerative joint disease, Bursitis
Skeletal Muscles: Muscle atrophy, myositis, muscular dystrophy, myasthenia gravis
Nervous system: Infections (meningitis, encephalitis), vascular diseases (ischaemic encephalopathy, cerebral infarction, intracranial haemorrhage), Degenerative disease (Alzheimer's disease, Huntington's disease, Parkinsonism, motor neuron disease), Demyelinating disease (multiple sclerosis), the peripheral nervous system (peripheral neuropathy, Acute idiopathic polyneuropathy, diabetic neuropathy)
Cardio-respiratory diseases- COPD, Bronchial asthma, Brochitisetc

VI General Microbiology

- Definitions: infections, parasite, host, vector, fomite, contagious disease, infectious disease, epidemic, endemic, pandemic.
- Sterilization, asepsis, disinfection and universal precautions in relation to patient care and disease Prevention,
- Basic principles of immunity, immunobiology.

VI Biochemistry

- Review of Metabolism: Carbohydrates, Lipids, Proteins andfats, Water: Fluid and electrolyte balance, Water and sodium balance
- Enzymes and Markers in Blood: Cardiovascular Markers: Troponin, Creatine Kinase, Lactate Dehydrogenase ,Myoglobin, Aspartate transaminase.
- Neuromuscular Markers: Acetylcholine, Dopamine, GABA.
- Inflammatory Markers and Free Radicals: TNF alpha, Interleukins, NO, H2O2,Superoxides
- Biochemical and Genetic Basis Of Diseases: Cardiovascular Disorders: Myocardial Infarction, Cardiomyopathy, Diabetes,Artherosclerosis, Neuromuscular Disorders: Epilepsy , Parkinson Disease, Alzheimer,Schizophrenia.Muscular Disorders: Cystic Fibrosis, Congenital muscular dystrophy, Duchenne muscular dystrophy, Biochemical, physiological& anatomical change in Ability, Disabilities,Ageing.

Essential Readings

- Clinical Biochemistry (Fundamentals of Biomedical Science) by Nessar Ahmed
- Clinical Biochemistry 6th Edition by Michael Murphy Rajeev Srivastava Kevin Deans ISBN: 9780702072987 eBook ISBN: 9780702072970
- A textbook of Biochemistry by B D Chaurasia
- Textbook of Medical Physiology Guyton and Hall

- Textbook of Physiology by A K Jain

Applied Biomechanics and Kinesiology

MPTP 102 T

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr					Th
MPTP 102 T *	Applied Biomechanics and Kinesiology	3		3	48	20	80	100

Course Description: the course covers the understanding of Biomechanics and kinesiology of body movement.

Course Objective: the course should enable the student to acquire in depth knowledge in understanding the biomechanics and kinesiology.

Course Outcome: On completion of the study of this Course the student should be able to identify and apply the principles of biomechanics and kinesiology in understanding the normal functioning of the human body. To identify and apply the principles of biomechanics in understanding pathomechanics of various conditions.To use these principles in managing various clinicalconditions.

I. Tissue Biomechanics and Adaptation: Physical Properties of bone, cartilage, tendon and ligaments, functional adaptation under pathological conditions, Tissue loads, response of tissues to forces- Stress, Strain, Stiffness and mechanical strength, visco elasticity.

II. Mechanism of injury: Overview of Injury Mechanisms, Principles of Mechanical Loading, Principles of Injury, Tissue Injury, Joint Injury

III. Biomechanics, Pathomechanics and muscular involvement in movement of joints of Upper Limb including Shoulder Joint, Elbow Joint, Wrist and Hand Joints

IV. Biomechanics, Pathomechanics and muscular involvement in movement of joints of lower limb, hip joint, knee joint and ankle joint

V. Biomechanics, Pathomechanics and muscular involvement in movement of vertebral Spine including Cervical Spine, Thoracic spine, and Lumbar Spine.

VI. Posture, Effect of gravity and indicate the location of the gravity line in the sagittal plane in optimal posture. Analyze posture with respect to the optimal alignment of joints in the antero posterior and lateral view.

VII. Gait, Stance. Swing and double support phases of gait. Subdivision of the stance and swing phase of gait.Time and distance parameters of gait.Gait Analysis Method.

VIII. Motion analysis - concept, instrumentation and Method

Essential Readings:

1. Kinesiology by Carol A.Oatis
2. Kinesiology – Scientific Basis of Human Motion, Brown &Benchmark

3. Kinesiology and Applied Anatomy by Philip J.Rasch.
4. Clinical Biomechanics of Spine by Punjabi andwhite
5. Biomechanics – A Qualitative approach for studying HumanMotion
6. Joint Structure and Function - A Comprehensive Analysis byNorkin
7. Neumann, Donald A. - Kinesiology of the musculoskeletal system _ foundations for physical rehabilitation.-Mosby_Elsevier (2010).

Suggested Readings:

1. Basic Biomechanics in Sports and OrthopedicTherapy
2. The Biomechanics of Sports Techniques by Hay, JamesG.
3. Basic Biomechanics of Muscular Skeletal System byNordin
4. Introduction to Sportsbiomechanics
5. Ted TemertzoglouKinesiology: Lab Manual & Study Guide(2015).

Advanced Diagnostics and Physiotherapeutics

MPTP 103 T

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Total
MPTP 103 T*	Advanced Diagnostics and Physiotherapeutics	4		4	64	20	80	100

Course Description: The course covers topics related to Advanced and recent updates in physiotherapy treatment with respect to exercise intervention, electrotherapeutics modalities advanced diagnostics.

Course Objective: The course should enable the student to acquire recent knowledge of exercise therapy intervention, electrotherapeutic modalities and advanced diagnostics used in physiotherapy conditions.

Course Outcome: The student should be able to apply recent knowledge and skill related to exercise therapy intervention and electrotherapeutic modalities and advanced diagnostics in different physiotherapy condition for patient recovery**.**

I Exercise and Manual Therapy Intervention &Practice

1. Revision of Assessment techniques like MMT and core evaluation, Goniometry,Types of Exercises: Stretching, Mobilization .Core exercises, Soft tissue manipulation, Re-education, Strengthening, .Balance,Coordination exercise, Relaxation Techniques,
2. Exercise therapy intervention & practice in: Pain management ,Endurance impairment, Impaired mobility, Impaired neuromuscular control,Impaired Gait & posture
3. Specific exercise interventions: Isokinetic, Plyometric, Open & closed kinetic chain, PNF, Core stabilization , Aquatic therapy, Home programme&itsadherence
4. Specific consideration in exercise therapy: Female, Paediatric, Amputation
5. Specific Techniques: History of Manipulation, Cyriax, Maitland, Mulligan, Neural mobilisation, Mc-Kenzie, Pilates, MET, PRT, MFR and its techniques. Ischemic compression, foam roller and other fascial release therapies, Dry needling, Kochi techniques, visceral mobilization.

II. Electrotherapy Intervention & Practice

1. Pain management
2. Wound management
3. Oedema management
4. Specific deep heat interventions: Class IV Laser, Microwave, Shortwave, Russian current Didynamic current Iontophoresis, Phonophoresis,Biofeedback, Electromagnetic Therapy
5. Special consideration for deep heat modalities: Pregnant women, Menstruating women,

Paediatric, Geriatric, Neurologically impaired, Mentally impaired

6. Cryotherapy :Physiological & therapeutic effects,Various techniques
7. Recent advances in cryotherapy application

III. Taping techniques for joints, muscles and various pathological conditions : therapeutic and prophylactic,

IV. Diagnostics in Physiotherapy

1. SD and FG Curve
2. Nerve conduction studies and EMG: Normal & abnormal action potential its recording protocols, analysis and apparatus
3. Biofeedback: principles, effects, uses and contraindications
4. Isokinetic Dynamometry
5. BMI Measurement manually and by equipment

V Radiology and Diagnostic studies: - reading and analysis of:

1. X- Ray, C.T. Scan and MRI Scan, Their clinical relation with various muscular skeletal disorder.
2. Lab pathology investigations: methodology of routine examination of blood, urine only, Analysis of various laboratory examination reports and their clinical correlation with various muscular skeletal disorder and nervous disorders.

Essential reading:

1. Electrotherapy Explained Principles and practice Fourth Edition, Val Robertson,Alex ward, John Low and AnnReed
2. Physical Rehabilitation, SussanBO'Sullivan
3. Tidy's Physiotherapy, Edited by StuartPorter
4. Core Assessment and Training, Human Kinetics with JasonBrumitt
5. Taping Techniques, Rose Mac donald
6. Physical therapy for Children. Suzann K. Cappbell, Robert J.Palisano
7. Physical Agents in Rehabilitation, From Research to Practice, Michelle

H.Cameron**Suggested Reading:**

1. Taping Technique principle and practice, Tom Hewetson and KarinAustin
2. Isokinetics in Human Performance, Lee F.Brown
3. Electrotherapy evidence - based practice: Edited by TimWatson
4. Dutton's Orthopaedic Examination, Evaluation, and Intervention, MarkDutton

Research Methodology and Biostatistics
MPTP 104 T

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Total
MPTP 104 T*	Research Methodology and Biostatistics	3		3	48	20	80	100

Course Description: The course covers the concept of research methodology, EBP and biostatistics related to physical therapy.

Course Objective: The course aims to introduce the principles of research, methods of research and analysing the research studies using Biostatistics.

Course Outcome: On completion of the study of this Course the student should be able to understand the methods of research process and design so as to effectively plan a research. To understand the statistical measures used in the analysis and interpretation of research data.To acquire skills of critically reviewing the literature.

Research Methodology

I Introduction to Research in Physiotherapy
Introduction, Research for Physiotherapist: – Definition, concept, purpose, types, and phasesapproaches

II Fundamentals of Research
Definemeasurement**,** Measurementframework**,** Scales ofmeasurement**,** Types ofvariables**,** Reliability &Validity**,**.

III Research Proposal writing (for grants), Critical Analysis of an Article
Defining aproblem, Review ofliterature, Formulating a question, operationaldefinition, Method of sampling and assignment, Inclusion and Exclusioncriteria, Data collection &analysis, Results, Interpretation, Conclusion,Discussion, Informedconsent, Limitations. Grant Agencies

IV ResearchDesign
Principle ofdesigning, Design, instrumentation & analysis for: qualitativeresearch, quantitativeresearch Group design and Single system design, experimental and non-experimental research, Designs models for Physiotherapy

V Research Ethics
Importance of Ethics inResearch, Ethical issues in human Courses'research, Ethical principles that govern research with humanCourses, Components of an ethically valid informed consent forresearch

VI Research and Evidence Based Practice

Concept of evidence based practice by addressing topics related to: search strategy, database, Critical analysis of evidence.

Biostatistics

I Introduction toBiostatistics

Introduction- Definition and Application inPhysiotherapy, DataPresentation-Drawing tables, graphs, master chartetc, Standarderror, Types I &IIerror, HypothesisTesting, Null Hypothesis, Alternativehypothesis, Acceptance & rejection of nullhypothesis, Level of significance

II Measures of Central Value & Measures ofDispersion

Arithmetic mean, median mode, Relationship betweenthem Measures of Dispersion absolute and relative, Normal Distribution Curve- Properties of normal distribution, Standard normaldistribution, skewness and kurtosis

III Correlations &RegressionAnalysis

Bivariatedistribution, Scatterdiagram, Coefficient ofcorrelation, Calculation & interpretation of correlationalcoefficient, Lines ofregression
Calculation of RegressionCoefficient

IV Analysis and Evaluation

Parametric & Non Parametric Tests- Chi square test, Mann-Whitney U test, Wilcoxon Signed test, Kruskal-Wallis test, Friedman test, T-test/student T test, Analysis ofvariance, Software Used in Research andStatistical Analysis

Essential Readings:

1. Research for physiotherapists Research for Physiotherapists: Project Design and Analysis by Carolyn M. Hicks
2. APA Handbook of Research Methods in Psychology by Harris Cooper, PhD
3. Elements of Research in Physical Therapy by Dean P. Currier
4. Mahajan's Methods In Biostatistics For Medical Students And Research Workers by Bratati Banerjee

Suggested Readings:

1. Physical Therapy Research by Elizabeth
2. An Introduction to Biostatistics 3rd Edition, by Thomas Glover , Kevin Mitchell
3. Introduction to research in Health Sciences by Stephen Polgar, BSc(Hons), MSc, Shane A. Thomas
4. Research Methodology: Methods and Techniques by C R Kothari
5. Research Design: Qualitative, Quantitative, and Mixed Methods Approaches by John W. Creswell

Advanced Human and Health Sciences (Including Genomics)

MPTP 101 P *

Course Description: This course covers the topics related to advances in Human and Health

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Th
MPTP101 P *	Advanced Human and Health Sciences (Including Genomics)		2	1	32	10	40	50

Sciences with particular emphasis on anatomical, physiological pathological and biochemical advances.

Course Objective: This course aims to study the recent advances in Human and Health Sciences

Course Outcome: On completion of the study of this Course the student should be able; To advance and comprehend the knowledge of the structure & function of the human body in relevance to Physiotherapy To correlate and apply the knowledge gained, in understanding and analysing the dysfunction of the human body

Demonstration of the following lab tests:

1. Enzymes and Markers in Blood: Cardiovascular Markers: Troponin, Creatine Kinase, Lactate Dehydrogenase ,Myoglobin, Aspartate transaminase.
2. Neuromuscular Markers: Acetylcholine, Dopamine, GABA.
3. Inflammatory Markers and Free Radicals: TNF alpha, Interleukins, NO, H2O2,Superoxides
4. Surface marking of anatomic landmarks

Applied Biomechanics and Kinesiology
MPTP 102 P*

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Total
MPTP 102 P *	Applied Biomechanics and Kinesiology		3	2	32	10	40	50

Course Description: The course covers topics related to practical training on biomechanics and kinesiology.

Course Objective: The course should enable the student to attainin-depthknowledge and skill in techniques used in biomechanics andkinesiology.

Course Outcome: The student should be able to demonstrate skill in techniques used in in biomechanics and kinesiology.

1. Detection of scapular position in rotation of spinousprocess
2. Measurement of functional limb varus under bilateral and unilateralstance
3. Subtalar neutral jointpositioning
4. Determination ofQ-angle
5. Measurement of eversion and inversion ranges at subtalarjoint
6. Measurement of poplitealangle
7. Measurement of calcaneal inversion and eversion in non weightbearingand weightbearingstance

Advanced Diagnostics and Physiotherapeutics

MPTP 103 P*

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Total
MPTP 103 P*	Advanced Diagnostics and Physiotherapeutics		3	2	32	10	40	50

Course Description: The course covers topics related to Practical aspects in Advanced and recent updates in physiotherapy treatment with respect to exercise intervention and electrotherapeutics modalities.

Course Objective: The course should enable the student to acquire recent knowledge of exercise therapy intervention and electrotherapeutics modalities used in physiotherapy conditions.

Course Outcome: The student should be able to apply recent knowledge and skills related to exercise therapy intervention and electrotherapeutic modalities in different physiotherapy condition for patient recovery**.**

1. High class electrotherapeutic modalities like LASER Class IV, Extra Corporeal Shock Wave, Isokinetic exercises, Vacuum Therapy, Electromagnetic Therapy, etc.
2. Interpretation of X- Ray, CT Scans and MRI of various musculoskeletal conditions.
3. Isokinetic Testing
4. Interpretation of EMG
5. Body Composition using different anthropometric measurement
6. All the techniques, like Mulligan, Mcanzie, Maitland, Cyiax, Joint Techniques, Kaltenborn, Soft tissue techniques, Butler, Positional release, MET
7. Taping Techniques- Kinesio and Dynamic

Evaluative Clinical Practice- I

MPTP 106 P*

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Total
MPTP 106 P*	Evaluative Clinical Practice- I (Based on Viva, Case presentation of clinical postings)		15	8	240	50	50	100

Course Description: The course covers topics related to hands on training in physiotherapy assessment and management of different disease and disorders that the student would see during clinical postings.

Course Objective: The course should enable the student to acquire in-depth understanding and skill in physiotherapy assessment and management of disease and disorders.

Course Outcome: The student should be able to interpret and differentiate between various, diagnostic tools used for therapeutic plan, by history takingprocess initially, of the conditions of patients. They should have knowledge of all the physiotherapeutic intervention pertaining to the patient. They should be able to evaluate and plan physiotherapy treatment: its presentation and documentation of all the conditions.

- The student will present a case (study/ description) from his/ her clinical postings, including, Demographic Data, history taking, subjective and objective examination, differential diagnosis, confirmatory diagnosis and possible physiotherapeutic plan.

2nd Semester

Exercise Physiology

MPTP 201 T*

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Total
MPTP 201 T*	Exercise Physiology	4		4	64	20	80	100

Course description: This course aims to deliver scientifically based standards on exercise testing and prescription. It prepares students through the process of selecting and administering fitness assessments, using Guidelines to interpret results, and drafting an exercise prescription that is in line with Guidelines parameters.

Course Objective: this course should deliver the concepts in exercise physiology and prepares students to test and prescribe suitable exercises to different group of population.

Course Outcome: On completion of the study of this Course the student should be able to select and administer fitness assessments, using Guidelines to interpret results, and drafting an exercise prescription to different populations.

I. Bioenergetics and Exercise metabolism

Energy transfer in cells during exercise, Oxygen metabolism and transfer during metabolism, Oxygen transport in blood, Oxygen deficit and debt, Oxygen measurement, oxygen during exercise, oxygen during recovery, Energy release from carbohydrates, lipids and proteins, Principles of training, Aerobic training, Anaerobic training, System adaptation to aerobic and anaerobic training, Measurement of energy expenditures (direct and indirect calorimetry)

II. Cardiovascular System and Exercise

Cardiovascular regulation and integration during exercise, Cardiovascular adaptations to sustained aerobic exercises, Cardiovascular Endurance testing, Athletes heart and sudden cardiac death insports, Lipids and sports, protection from coronary heart disease, exercise and optimization of lipidprofile, Energy cost and breaking Cardiovascular drift , blood pressure during exerciseblood pressure during

III. Respiratory System andExercise

Lung function and its role in exercise performance Regulation of respiration duringexercise, Acid-Base regulation duringexercise, Respiratory adaptations to sustained aerobicexercise, Air Conditioning, Second wind, Oxygendebt, Regulation of ventilation

IV. Musculoskeletal System andExercise

Growth andexercise, Repair and adaptation duringexercise, Biochemical responses and molecular mechanisms to endurance and powertraining, Effects of training anddetraining, StrengthMeasurement, Dynamometery,DOMS, Strength training, **Fatigue -** Muscle fiber, types and its role in exercise performance Muscle endurance testing, Assessment of muscle damage &fatigue, Exercise associated muscle cramps.

V.Gastrointestinal Tract and Endocrine System andExercise

Effect of exercise on GIT andliver, Hormone regulation of fluid and electrolytes duringexercise, Stress hormones inexercise, Opioids and RunnersHigh

VI. Nervous system and Exercise

General nervous system function, sensory information and reflexes, Somatic function and motor neuron, Exercises enhances brain health, Overview of heat balance during exercise, Body's Thermostat – Preoptic-anterior Hypothalamus, Exercise in Hot, Exercise in cold environment, Control of internal environment- homeostasis, Exercise and immune system

VII. Exercise Testing prescription andAging

Prescription of exercise, General guidelines for improving, Exercise prescription for fitness. Human performance analysis, Exercise stress testing for diagnosis ofCHD, Bodycomposition, Aging and physiologicalfunction, Exercise andlongevity, Exercise prescription for healthy, aged, sedentary adults, Osteoporotic and mooddisorders.

Essential Readings:

1. Exercise Physiology by Mc Ardle, Katchandkatch
2. Text Book of Radiology by K.Bhargava
3. Electromyography and Neuromuscular disorders by David C.Preston
4. Cram's Introduction to SurfaceElectromyography
5. ACSM's Guidelines for Exercise Testing and Prescription Paperback –by American College ofSportsMedicine

Suggested Readings:

1. Essentials of Electromyography byGabriel
2. Johnson's Practical ElectromyographyHardcover– 15 Sep 2005 byWillaimS.Pease(Editor), Henry L. Lew (Editor), Ernest W.Johnson

Clinical Pediatrics-I

MPTP 202 T

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Total
MPTP 202 T	Clinical Pediatrics-I	4		4	64	20	80	100

Course Description: The course covers topics related to Paediatric Neurological Conditionsbased on the specific assessment, diagnoses and management.

Course Objective: The course should enable the student to acquire in-depth knowledge inPaediatric Neurological Conditionsbased on the specific assessment, diagnoses and management.

Course Outcome: At the end of course post graduate student should be able to

- Recognize the key importance of child health in neurological conditions.
- Identify and describe key elements of the acquisition of locomotion skill.
- Enumerate treatment procedures and management for appropriate conditions.
- Understanding of Various neurosurgical procedures in Paediatrics

MODULE I: Growth and Development

- Embryology, Neurophysiology and Basic and Applied Neuro-Anatomy of nervous system
- Reflex & reactions
- Evaluation and identification of normal developmental milestones.
- Factors affecting growth and development.
- Immunization and category of vaccines.
- Immunization schedule

MODULE II: PediatricsNeurologicalconditions:

- Cerebral palsy
- Role of Botulinum Toxin, nerve blocks and surgeries in cerebral palsy
- Cognitive and perceptual dysfunction – learning disabilities, attention deficit, hyperactive disorder, autism

- Neurodevelopmental disorders (Autism and behaviour problems in children with neurodevelopmental disorders, Sleep issues, Feeding problems and constipation in children with neurodevelopmental disorders)
- Co- morbidities with Pediatric Neurological disorders : Vision and hearing impairment, epilepsy , and their assessment
- Gravitational insecurity, Mental retardation
- Movement disorder – Chorea, Athetosis, Dystonia, Choreoathetosis
- Oromotor disorder
- Bowel/bladder dysfunction
- Infection condition – pyogenic infection (Bacterial, brain abscess, tuberculosis, Meningitis), viral infections of CNS (polio, encephalitis, rabies)
- Seizures and epilepsy. Emergency management of a seizure in an out of hospital setting. Preparedness for the same in all centres working with children with neurodevelopmental disorders.
- Polyneuropathy – post infective polyneuropathy, acute infective polyneuropathy
- Disorder of muscle – muscular dystrophy (Duchenne‘s, Becker‘s, Limb girdle, Facio-scapulohumeral, Spinal muscular atrophy)
- Traumatic head injury
- Birth injuries – brachial plexus injuries
- Developmental anomalies- spina bifida, hydrocephalus, craniovertebral junction anomalies.

MODULE III. Miscellaneous:

- Metabolic disorder – hepatic encephalopathy, hypoglycemic encephalopathy, Hypocalcemic encephalopathy, Hypokalemic encephalopathy
- Genetic disorders- Marfans syndrome, Downs syndrome, Trisomy 21, Ritt’s Syndrome and single gene disorder.
- Genetic counselling
- Investigations and diagnostics tests
- Paediatric neurosurgeries

RECOMMENDED BOOKS:

1. Physical Therapy For Children- Susan K.Campbell.
2. Pediatric Physical Therapy- Tecklin.
3. Treatment Of Cerebral Palsy And Motor Delay- Sofia Levit.
4. Neurological Rehabilitation- Umphred
5. Textbook OfPediatrics- Guptha
6. Cardio Pulmonary Rehabilitation- Elizabath Dean

7. Motor Relearning Programme- Carr And Shepered
8. A Jean Ayres, Sensory Integration And The Child- 25th Edition
9. Cardiopulmonary Physical Therapy- Irwin AndTecklin, Mosby.
10. Recent Advances about Cardiac Conditions.

Physiotherapeutics in Pediatric Neurological Conditions

MPTP 203 T

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Total
MPTP 203 T	Physiotherapeutics in Pediatric Neurological Conditions	6		6	96	20	80	100

Course Description: The course covers topics related to Paediatric Neurological Conditionsand various therapeutics approaches based on the specific assessment, diagnoses and management.

Course Objective: The course should enable the student to acquire in-depth knowledge inPaediatricNeurologicalConditionsand various therapeutics approaches based on the specific assessment, diagnoses and management.

Course Outcome: At the end of course post graduate student should be able to

- Recognize the key importance of child health in neurological conditions.
- Identify and describe key elements of the acquisition of locomotion skill.
- Describe about early intervention and early sensory stimulation for high risk infants.
- Describe key elements of motor development during infancy such as postural control, transitions between postures, acquisition of upper limb dexterity.
- Identify social, economic, environmental, biological and emotional determinants of child.
- Take detailed history, perform complete physical assessment including neuro developmental and behavioral assessment and anthropometric measurements of the child and frame appropriate advanced pediatric physiotherapy care.
- Formulate a treatment approach to facilitate motor skill acquisition in a child with developmental delay.
- Enumerate treatment procedures and management for appropriate conditions.

MODULE I: Normal and Abnormal development of a child

- History taking of antenatal, natal and postnatal period, observation, palpation, milestone examination, developmental reflexes, higher mental function examination, cranial nerve examination, sensory and motor examination, balance and coordination, gait, posture, special tests.
- Identifying normal and abnormal growth patterns of development in children
- Developmental screening, motor and functional scales assessment (Ashworth, GMFM GMFCS scalesetc)

MODULE II: Motor Control and Postural Control

- Issues and Theories of Motor Control
- Motor Learning and Recovery of Function
- Physiology of Motor Control
- Normal and Abnormal Postural Control
- Development of Postural Control
- Development of hand functions.
- Motor training and motor development
- Abnormal postural corrections.

MODULE III: Physiotherapeutic assessment and management of Neurological conditions:

- Physiotherapy treatment planning for age appropriate paediatric neurological conditions.
- Integrated approaches in management of pediatric conditions:
    - Sensory stimulation for activation and inhibition
    - Reflex creeping and other reflex reactions
    - Sensory integration
    - Neuro Developmental therapy
    - Temple fay
    - PNF
    - Adjuctive therapy
    - Systems/based task/oriented approach
    - Vojta

MODULE IV:

- Principles of prescribing orthosis, prosthesis and wheel chairs. Paediatric--Neuro surgeries.
- Do’s and don’ts and advices for child and mother care.
- Physical disability evaluation and disability diagnosis.
- Wheel chair prescription

- Rehabilitation approaches – CBR, IBR
- Use and Prescription Orthosis and Prosthesis
- Use and prescription of adaptive equipment in physically challenged children.
- Recent advances in the Paediatric neurological conditions

MODULE V. Private Paediatrics Physiotherapy Practice and Educational environment

- Setting up of Department
- Environmental modification
- Approach to interdisciplinary team for Paediatrics
- Role of special school and special educators
- School Modifications
- Orientation to Occupational therapy

MODULE VI. Government schemes

- Disabilities act 2016
- Right to education act 2009
- UDID card and its importance
- Disability certificate for exams or for availing government schemes
- Insurance schemes for persons with Disabilities - Niramaya, swavlamban
- Income tax rebate for persons with disability or caregivers
- Other government benefits for persons with disabilities (travel concession, scholars

RECOMMENDED BOOKS:

1. Physical Therapy For Children- Susan K.Campbell.
2. Pediatric Physical Therapy- Tecklin.
3. Treatment of Cerebral Palsy And Motor Delay- Sofia Levit.
4. Neurological Rehabilitation- Umphred
5. Textbook of Pediatrics- Guptha
6. Cardio Pulmonary Rehabilitation- Elizabath Dean
7. Motor Relearning Programme- Carr And Shepered
8. A Jean Ayres, Sensory Integration and The Child- 25th Edition
9. Cardiopulmonary Physical Therapy- Irwin AndTecklin, Mosby.

YOGIC SCIENCES
MPTP 204 T*

Course Outcomes:
The students will be able to appreciate the role of yoga in their day to day life. The course has focus on basic concept of yoga, ashtanga yoga and its effect, various kinds of asanas and pranayama and different aspects of mudra.

Module I : Introduction of Yoga

- Etymology of Yoga
- Concept of Chitta and Chitta Bhumis
- General introduction to four paths of Yoga
- Importance of Nadi& Chakra in Yoga

Module II :Ashtanga Yoga: Purpose, Significance and Effects
Eight limbs of Yoga as per Yogasutra of Patanjali – Discipline/self restraint (Yama), Observance (Niyama), Posture (Asana), Restraint of breath/exercises of life force (Pranayama), Abstraction of senses/Introversion-of attention (Pratyahara), Concentration (Dharna), Meditation(Dhyana) and Super conscious state/illumination (Samadhi)

Module III : Asana and Pranayama

- Introduction of Asanas
- Benefits and Contra-indication of Asanas
- Define and understand the concept of Prana& Pranayama
- Benefits and Contra-indication of Pranayama
- Physiological effect of Pranayama

Module IV :Shatkarma, Mudra and Bandh

- Introduction of Mudra
- Benefits and Contra-indication of Mudra
- Introduction of Bandh
- Benefits and Contra-indication of Bandh
- Introduction of Shatkarma
- Benefits and Contra-indications of Shatkarma

Module V :

- Yoga Nidra (The Conscious Dynamic Sleep),
- Meditation Technique
- Cause of Pain (Dukha) according to Yog Sutra of Patanjali
- Yogic lifestyle (Ahara, Vihar, Achar, Vichar),
- Yogic attitudes (Maitri, Karuna, Mudita and Upeksha) and practices for Mental Wellbeing.

Reference Books
1. Asana Pranayama Mudra Bandha by Swami SatyanandaSaraswati. Publisher: Yoga Publication Trust, Munger, Bihar, India

2. Karma Yoga, Bhakti Yoga, Raja Yoga, JnanaYoga by Swami Vivekananda
3. Yoga Nidra by Swami SatyanandaSaraswati. Publisher: Yoga Publication Trust, Munger, Bihar, India
4. Yoga Sutras of Patanjali by Swami Venkateshananda Publisher: MotilalBanarsidass

Publishers Private Limited, New Delhi, India
5. Hatha Yoga by Swami Sivananda. Publisher: The Divine Life Society, Uttarakhand, India
6. Gheranda Samhita by Swami NiranjanandaSaraswati. Publisher: Yoga Publication

Machine Learning

MPTS 205T*

COURSEOVERVIEW: Machine learning is an area of artificial intelligence and computer science that comprises supervised and unsupervised learning and includes the development of software and algorithms that can make predictions based on data. Acquire the knowledge about various Therapeutic/ Physical agents to be used in combination with various electro – therapeutic modes, with appropriate clinical decision & reasoning in the management of pain / tissue healing / Wound care etc. through Tele-Rehabilitation or M Health.

COURSE OBJECTIVES: At the end of the course the candidate will be able to apply the basic concepts and applications of Artificial Intelligence and Machine Learning for tele-rehabilitation and M Health.

MODULE I

Introduction to Machine Learning: Introduction, Types of Machine Learning: Supervised, Unsupervised, Reinforcement learning and Transfer Learning, Applications. Machine Learning and Medical bio-sensors: ML in micro biosensors and devices for electronic data capture (ECG, Actigraphy, Oximetry), data disambiguation techniques.

MODULE I

Introduction to Artificial Intelligence, AI fundamentals, Use applications of AI, Issues concerning AI in Physiotherapy. AI and ML in Healthcare and Physiotherapy, Tele-rehabilitation, Tele- Physiotherapy and M Health.

REFRENCE BOOKS:

1. Russell, Norvig, Arti_cial Intelligence: A Modern Approach, Third edition, Prentice Hall, 2010
2. Daphne Koller and Friedman. Probabilistic Graphical Models - Principles and Techniques, The MIT Press, 2009
3. Machine Learning with R: Expert techniques for predictive modeling, by Brett Lantz, 3 rd Edition
4. Hands-on programming with R: Write your own functions and simulations by Garrett Grolemund, 2014

Exercise Physiology

MPTP201 P*

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Total
MPTP 201 P*	Exercise Physiology		2	1	32	10	40	50

Course Description: The course covers topics related to practical training on exercise physiology, exercise testing and exercise prescription for different age groups and patient population. The student also undergoes hands on training in physiology and clinical biochemistry.

Course Objective: The course should enable the student to attain in-depth knowledge and skill in techniques used in exercise physiology, exercise testing and exercise prescription for different age groups and patient population. They should be able to attain skills in physiology and clinical biochemistry techniquesalso.

Course Outcome: The student should be able to demonstrate skill in techniques used in exercise physiology, exercise testing and exercise prescription for different age groups and patient population. They should be able to demonstrate skills in physiology and clinical biochemistry techniques also.

1. Energy expenditure andexercise
2. Energymetabolism
3. Cardiovascular effect ofexercise
4. Respiratory air flow andvolume
5. Respiratory gasanalysis
6. Blood pressure inhumans
7. Electromyogram(EMG)recording andinterpretation
8. Oxygen concentration (02measurements)
9. Sensory and motor nerve responses (NCV)recording andinterpretation

Clinical Pediatric-I

MPTP 202 P

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Total
MPTP 202 P	Clinical Pediatric-I		3	2	48	10	4	50

Course Description: The course covers practical related to Pediatric Neurological and developmental Disorders

Course Objective: The course should enable the student to acquire in-depth knowledge practicallyindifferentassessmentof different Pediatric Neurological and developmental disorders.

Course Outcome: At the end of the semester, the post graduate student should be able to demonstrate:

- Identification of the pediatric neurological conditions
- Assessment of pediatric neurological conditions

Students must be able to demonstrate the assessment pediatric neurological conditions

Physiotherapeutics in Pediatric Neurological Conditions

MPTP 203 P

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Total
MPTP 203 P	Physiotherapeutics in Pediatric Neurological Conditions		3	2	48	10	40	50

Course Description: The course covers practical related to physiotherapy assessment and techniques used in managing different Pediatric Neurological and developmental disorders.

Course Objective: The course should enable the student to acquire in-depth knowledge practically indifferent physiotherapy assessment and management of different Pediatric Neurological and developmental disorders.

Course Outcome: At the end of the semester, the post graduate student should be able to demonstrate:

- Appropriate evidence-based physiotherapy approaches and techniques to pediatric patients suffering from various neurological and developmental disorders.
- Assessment, evaluation, decision and planning of appropriate treatment plan/protocol for children with different neurological disorders.
- Restore or promote functional abilities in children with various developmental and neurological abnormalities.
- Understanding and working knowledge of handling, advising and correcting the abnormal patterns in pediatric neurological cases.

Students must be able to demonstrate the physiotherapy assessment and management of pediatric neurological conditions

Evaluative Clinical Practice- II

MPTP 206 P*

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Total
MPTP 206 P*	Evaluative Clinical Practice- II (Based on Viva, Case presentation of clinical postings)		15	8	240	50	50	100

Course Description: The course covers topics related to hands on training in physiotherapy assessment and management of different disease and disorders that the student would see during clinical postings.

Course Objective: The course should enable the student to acquire in-depth understanding and skill in physiotherapy assessment and management of disease and disorders.

Course Outcome: The student should be able to interpret and differentiate between various, diagnostic tools used for therapeutic plan, by history takingprocess initially, of the conditions of patients. They should have knowledge of all the physiotherapeutic intervention pertaining to the patient. They should be able to evaluate and plan physiotherapy treatment: its presentation and documentation of all the conditions.

- The student will present a case (study/ description) from his/ her clinical postings, including, Demographic Data, history taking, subjective and objective examination, differential diagnosis, confirmatory diagnosis and possible physiotherapeutic plan.

Research Appraisal- II

MPTP 207 P Non-University/ NU- II

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Th
MPTP 207 P Non-University/ NU- II	Research Appraisal- II		2	1	32	50	-	50

Course Description: The course covers topics related to writing and development of project work.

Course Objective: The course should enable the student to acquire in-depth understanding and skill in writing and development of projects. To also enable the student the publish the review paper in a good journal (possibly Scopus) at the end of 2nd semester with the guidance of the mentor provided.

Course Outcome: The student should be able to demonstrate adequate knowledge and skill in writing and development of projects. They should be able to prepare a formal research proposal on the chosen topic for the dissertation under the guidance of supervisor. The student shall make a final presentation of the topic in front of thecommittee.

The student should be able to demonstrate adequate knowledge and skill in writing and development of projects. They should be able to prepare a formal research proposal on the chosen topic for the dissertation under the guidance ofthe mentor.

1. Identifying the problem and statement of researchquestion
2. Review ofliterature
3. Existing knowledge and gap inknowledge
4. Quality ofpublications
5. Type ofpublications
5. Databases
6. Searchstrategies
7. Costing
8. Ethicalconcerns
9. Knowledgeaddition

3rd Semester

Clinical Pediatrics-II

MPTP 301 T

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Total
MPTP 301 T	Clinical Pediatrics-II	4		4	64	20	80	100

Course Description: The course covers topics related to Paediatrics Orthopaedic and Cardiopulmonary Conditions.

Course Objective: The course should enable the student to acquire in-depth knowledge in Pediatrics Orthopaedic and Cardiopulmonary Conditions.

Course Outcome: At the end of course post graduate student should be able to:

- Understand Description of basic orthopedic conditions- traumatic injuries, congenital anomalies.
- Recognize the exam findings and treatment guidelines for orthopedic and musculoskeletal conditions.
- Describe the pathophysiology behind pediatric Cardio-pulmonary conditions
- Assess importance of ICU management in pediatrics.
- Understand the surgeries in Pediatric orthopaedics and cardiopulmonary conditions.

MODULE I: Orthopaedic Conditions:

- Development of musculoskeletal system, Vertebral column and long bones
- Traumatic injuries in child – fractures, dislocations, epiphyseal injuries,
- Infective condition of musculo-skeletal system – osteomyelitis, pyogenic arthritis, juvenile rheumatoid arthritis, tuberculous arthritis
- Limb deficiencies and Amputation in Childhood
- Osgood's Schatters Disease
- Rickets and Osteomalacia
- Deformities of vertebral column, deformities of chest wall
- Burns in childhood
- Tumors of bone & muscle in Paediatrics
- Investigations and diagnostics tests
- Pediatricorthopaedicsurgeries.

MODULE II: Developmental deformities &congenital anomalies:

- Congenital Muscular Torticollis
- Arthrogryposis Multiplex Congenita
- Osteogenesis Imperfecta
- Duchene Muscular Dystrophy and Spinal Muscular Atrophy

- Torsional Conditions, Angular Conditions, Flat Foot, CTEV, vertical talus, Blount disease, Perthe‘s disease, limb length discrepancies,Developmental Dysplasia of the Hip
- Role of surgery in Neuromuscular disorders

MODULE III:Cardio-pulmonary Conditions

- Anatomical & physiological differences of cardio-vascular & respiratory system in neonates, childhood & adults, Fetal circulation, Physiology of asphyxia
- Cardio respiratory assessment of neonatal and infants
- Congenital heart disease – pathodynamics, clinical presentation, investigation, medico-surgical management of cyanotic &acyanotic heart disease
- Rheumatic heart disease
- Chest injuries
- Respiratory disorder in childhood – IRDS, Bronchopulmonary dysplasia, pneumonia, lung abscess, asthma, cystic fibrosis, bronchitis, bronchiectasis, bronchiolitis, pertusis, CROUP, epiglotitis, chronic lung disease, primary ciliary diskinesia, fatigue, sleep apnoea, hyperventilation syndrome
- COVID
- Juvenile diabetes and obesity
- CPR- paediatric and infant
- Investigations and diagnostics tests
- Paediatric cardio-thoracic surgeries.

MODULE IV. Neonatology and Screening:

- High risk infants
- Neonatal care and management (NICU and PICU)
- Respiratory problems in neonates – respiratory failure in neonates
- Assessment at the time of birth

RECOMMENDED BOOKS:

1. Physical Therapy For Children- Susan K.Campbell.
2. Pediatric Physical Therapy- Tecklin.
3. Treatment of Cerebral Palsy And Motor Delay- Sofia Levit.
4. Neurological Rehabilitation- Umphred
5. Textbook of Pediatrics- Guptha

Physiotherapeutics in Pediatric Orthopedic and Cardiopulmonary Conditions

MPTP 302 T

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Total
MPTP 302 T	Physiotherapeutics in Pediatric Orthopedics and Cardiopulmonary Conditions	6		6	96	20	80	100

Course Description: The course covers topics related to PaediatricOrthopaedics and Cardiopulmonary Conditionsand various therapeutics approaches based on the specific assessment, diagnoses and management.

Course Objective: The course should enable the student to acquire in-depth knowledge inPaediatricOrthopaedics and CardiopulmonaryConditionsand various therapeutics approaches based on the specific assessment, diagnoses and management.

Course Outcome: At the end of course post graduate student should be able to:

- Understand Description of physical therapy Paediatrics orthopaedic conditions- traumatic injuries, congenital anomalies.
- Understand about the physiotherapy assessment and treatment guidelines for Paediatric orthopedicandcardio-respiratory conditions.
- Describe physical therapy importance in conditions.
- Analyse fitness and prescription of exercises for school children and for special pediatric population.
- Assess importance of ICU physiotherapy management in pediatrics.

MODULE I: Disablement and Enablement Concepts for Pediatric Physiotherapy

- NAGI model
- International Classification of Impairments Disability and Handicap Model
- Components of Health
-

MODULE II: Physiotherapeutic Assessment and management of Orthopaedic Conditions:

- History taking of prenatal and postnatal period, observation, palpation, milestone examination, developmental reflexes, motor examination, differential diagnosis, Limb length discrepancy, special tests.
- Corrective strategies in acquired and congenital conditions like torticollis, muscular dystrophies, etc.
- Pre and post-operative management of orthopaedic surgeries

- Scales and Functional Outcome measures

MODULE III: Sports and fitness in Paediatrics

- Sports injuries in children
- Physical fitness during childhood and adolescence
- Flexibility, endurance, and functional movement screening
- Analysis of fitness and exercise prescription for special pediatric population.

MODULE IV: Physiotherapeutic Assessment and management inPaediatric cardio-pulmonary conditions

- Strategies to improve cardiorespiratory functions in pediatric population.
- Early identification and management of cardiovascular defects and respiratory conditions
- High Risk Infant
- Burns in pediatric cases.
- Pediatric oncogenic cases
- Pre and post-operative management of paediatric cardio-thoracic surgeries
- Principles and Application techniques of CPR in infants and pediatric population
- Neonatal ICU and pediatric ICU management
- COVID-19

MODULE V

- Burns in childhood- classification, pathophysiology and physiotherapy management
- Principles of prescribing orthosis, prosthesis and wheel chairs. Paediatric cardio-thoracic surgeries.
- Do's and don'ts and advices for child and mother care.
- Physical disability evaluation and disability diagnosis.
- Wheel chair prescription
- Rehabilitation approaches – CBR, IBR
- Use and Prescription Orthosis and Prosthesis
- Use and prescription of adaptive equipment in physically challenged children.

RECOMMENDED BOOKS:

10. Physical Therapy For Children- Susan K.Campbell.
11. Pediatric Physical Therapy- Tecklin.
12. Treatment of Cerebral Palsy And Motor Delay- Sofia Levit.
13. Neurological Rehabilitation- Umphred
14. Textbook of Pediatrics- Guptha
15. Cardio Pulmonary Rehabilitation- Elizabath Dean
16. Motor Relearning Programme- Carr And Shepered
17. A Jean Ayres, Sensory Integration and The Child- 25th Edition
18. Cardiopulmonary Physical Therapy- Irwin AndTecklin, Mosby.

COMPUTER SKILL PROGRAMING

MPTP 303T*

Course Objectives:

The students will be able to appreciate the role of Computer technology. The course has focus on computer organization, computer operating system and software, and MS Windows, word processing, excel data worksheet and PowerPoint presentation.

Module I

Introduction to computer: Introduction, characteristics of computer, block diagram of computer, computer languages.

Module II

Input output devices: Input devices (keyboard, point and draw devices, data scanning devices, digitizer, electronic card reader, voice recognition devices, vision input devices), output devices (monitors, pointers, plotters, screen image projector, voice response systems).

Module III

Processor and memory: The central Processing Unit CPU, Main memory.

Module IV

Introduction of Operating System: introduction, operating system concepts, types of operating system. History of Windows, features, desktop, taskbar, icons on the desktop, operation with folder, creating shortcuts, operation with windows opening, closing, moving, resizing, minimizing and maximizing etc. and install different software.

Module V

Introduction to MS Word: Complete menu of the MS-word, Basic shortcut keys for MS- Word

Module VI

Introduction to excel: Introduction, about worksheet, entering information, saving workbooks and formatting, printing the worksheet, creating graphs, macron, tables, basic formulas/ Functions (Sum, count, average, logical operators), forting and filteration, Gridlines, Merge, basic short cut keys for MS- Excel.

Module VII

Introduction to PowerPoint: Introduction, creating and manipulating presentation, views, formatting and enhancing text slide with graphs.

Module VIII

Internet and its applications: Definition, brief history, basic services email, File transfer protocol, telnet, the World Wide Web (WWW), www browsers, use of the internet. Computer networks: introduction, types of network (LAN, MAN, WAN, Internet, Intranet), network topologies (star, ring, bus, mesh, tree, hybrid), components of network.

Reference Books:

1. Fundamentals of computer by V. Rajaraman, NeeharikaAdabala
2. Computer Fundamentals by Anita Goel
3. Introduction to computer Science: a textbook for beginners in informatics by Gilbert Brands

CLINICAL NUTRITION

MPTP 304T*

Course objectives: Upon completion of the course the student shall be able to understand the need and importance of proper nutrition. The student will have better understanding of biochemical and clinical manifestations, preventive and therapeutic measures of the nutrition related disorders.

Course outcomes: The students will be able to identify wrong nutrition prescription if any.The students will have increased knowledge regarding the care needed to prevent or treat the disease condition.

Module I: Introduction to Nutrition:

- Food Groups 1.2Food Pyramid
- Fundamentals of Meal Planning 1.4Concept of Food Exchange List
- Assessment of Nutritional Status

Module 2: Therapeutic adaptations and types of diets

- Therapeutic adaptations of a normal diet and modes of feeding.
- Different types of diets and methods of feeding patients
- Enteral Feeding-Indications for use and complications of enteral feeding.
- Parenteral Feeding- Indications for use, advantages and complications.

Module 3: Etiology, Prevention and Dietary Management in Disease of Cardio-vascular system:

- Atherosclerosis
- Hyperlipidemia
- Hypertension
- Ischemic Heart Disease

Module 4: Etiology, Prevention and Dietary Management in Metabolic Disorders:

- Diabetes:

- Incidence and predisposing factors
- Symptoms-types and tests for detection
- Metabolism in diabetes

- Dietary treatment & meal management

- Uric Acid Metabolism:
- Gout
- Metabolism in Gout
- Signs and Symptoms
- Dietary Treatment and Management
- Errors of Metabolism: Metabolic defect, symptoms and management:
- Gluten Enteropathy
- Lactose Intolerance
- Phenylketonuria
- Homocystineuria

Text Books/References Book:

1. Robinson & Lawler, 1986, Normal and Therapeutic Nutrition, 17th edition, Mac Millan Publishers.
2. Mahtab S. Bamji, N Prahlad Rao, Vinodini Reddy, 2017, Text Book of Human Nutrition, 2nd edition, Oxford & IBH Publishing Co. Pvt. Ltd
3. B Srilakshmi, 2017, Dietetics, 7th edition, New Age International Publishers
4. Kumud Khanna, Sharda Gupta, Santosh Jain Passi, Rama Seth, RanjanaMahna& Seema Puri, 2016, Textbook of Nutrition and Dietetics,2nd edition, Phoenix Publishing House (P) Ltd.

Clinical Pediatrics-II

MPTP 301 P

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Total
MPTP 301 P	Clinical Pediatrics-II		2	1	32	10	40	50

Course Description: The course covers topics related to Pediatric Orthopaedic and Cardiopulmonary assessment, diagnosis and management.

Course Objective: The course should enable the student to acquire in-depth understanding and skill in Pediatric Orthopaedic and Cardiopulmonaryassessment, diagnosis and management.

Course Outcome: At the end of the semester, the post graduate student should be able to demonstrate:

- Understand Description of basic orthopedic conditions- traumatic injuries, congenital anomalies.
- Recognize the exam findings and treatment guidelines for orthopedic and musculoskeletal conditions.
- Describe the pathophysiology behind pediatric Cardio-pulmonary conditions
- Assess importance of ICU management in pediatrics.
- Understand the surgeries in Pediatric orthopaedics and cardiopulmonary conditions.

Demonstration of the assessment of Pediatric orthopaedics and cardiopulmonary conditions

Physiotherapeutics in Pediatric Orthopedic and Cardiopulmonary Conditions

MPTP 302 P

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Total
MPTP 302 P	Physiotherapeutics in Pediatric Orthopedic and Cardiopulmonary Conditions		4	2	64	20	30	50

Course Description: The course covers practical related to physiotherapy assessment and techniques used in managing different PediatricOrthopedics and Cardio-pulmonary conditions.

Course Objective: The course should enable the student to acquire in-depth knowledge practicallyindifferentassessment and techniques used in management of differentPediatricOrthopedics and Cardio-pulmonary conditions.

Course Outcome: At the end of the semester, the post graduate student should be able to demonstrate:

- Appropriate evidence-based physiotherapy approaches and techniques to pediatric patients suffering from various orthopaedics and cardiovascular disorders.
- Assessment, evaluation, decision and planning of appropriate treatment plan/protocol for children with different cardiorespiratory disorders.
- Restoration or promotion of functional abilities in children with various developmental and physical abnormalities.

Demonstration of the Physiotherapy assessment and management of Paediatric orthopaedics and Cardiopulmonary conditions.

Evaluative Clinical Practice- III

MPTP 305 P

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Total
MPTP 304 P	Evaluative Clinical Practice- III (Based on Viva, Case presentation from clinical postings)		18	9	288	50	50	100

Course Description: The course covers topics related to assessment, diagnosis and management of upper quadrant neuro-muculoskeletal sports injuries. The student will make a case presentation amongst the cases he would have seen during clinical/ ground postings.

Course Objective: The course should enable the student to acquire in-depth understandingand skill in assessment, diagnosis and management of upper quadrant neuro-musculoskeletal sports injuries

Course Outcome: The student should be able to demonstrate adequate knowledge and skill in assessment, diagnosis and management of upper quadrant neuro-muculoskeletal sports injuries

Case presentation on the basis of patient seen during clinical postings

Introduction to Research Dissertation

MPTP 306 P

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Total
MPTP 306 P	Introduction to Research Dissertation		6	3	96	10	50	100

Course Description:The course covers topics related to scientific writing.

Course Objective: The course should enable the student to acquire in-depth understanding and skill in scientific writing.

Course Outcome: The student should be able to demonstrate adequate knowledge and skill in writing and scientific writing. They should be able to prepare the review of literature of the dissertation work. The student will be able to:

Seminar on Scientific Writing Based on Literature Search of given Project Work to

1. Identify the specific headings
2. Create theoretical frame work of area of study
3. Maintain details of available information of area of study
4. Learn referencing styles
5. Learn reference managing soft wares
6. Learn to avoid Plagiarism

4thSemester

Bioethics and Hospital Administration

MPTP 401 T*

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Th
MPTP 401*	Bioethics and Hospital Administration	4	-	4	64	20	80	100

Course Description: The course covers topics related to physiotherapy ethics, clinic management.

Course Objective: On completion of the course the student should be able to understand the the basic issues of physiotherapy management & administration and practice as an informed professional on Legal &ethicalissues.

Course Outcome: The student should be able to demonstrate adequate knowledge and skill in physiotherapy Ethics and clinic management.

I. Administration

1. Functions ofmanagement
2. Fundamentals of hospitaladministration
3. Management Process – Planning, Organization, Direction, Controlling, Decisionmaking
4. Personnel Management – Staffing, Recruitment Selection, Performanceappraisal, Job satisfaction.
5. Total Quality management – basics, quality control, quality assurance

II. Hospital management

1. History of hospital Administration, Planning and designing supportiveservices
2. Planning and designing ancillary and medicalservices
3. Financial / Management of ahospital
4. Planning and designing administrativeservices
5. Marketing of ahospital
6. Management of thehospital
7. Planning and developing a hospital (emphasis on physiotherapydepartment)
8. Administrative running of ahospital
9. Organization of ahospital

III. Bioethics &legalissues

1. Rules of Professionalconduct
2. Legalresponsibility
3. Role of International healthagencies
4. Standards of practice forPhysiotherapists
5. Liability and obligations in the case of medical legalaction
6. Law of disability anddiscrimination
7. Confidentiality of the Patient'sstatus
8. Consumer Protection Law, Health law, MCI,DCPTOT
9. Regulations of State Professional Councils (DCPTOT,MCPTOT, HCPTOT, GCPTOT

and CGCPTOT)

Essential Readings:

1. Human Resource Management by NKSingh
2. Public Power & Administration by Wilenski, Hale &Iremonger
3. Physical Therapy Administration & Management by HickikRobertJ
4. Medical ethics & consumer protection act by S KSinghal

Suggested Readings:

1) Managerial accounting for hospital by American HospitalAssociation
2) Hospital: planning, design & management by G DKunders

PEDAGOGY

MPTP 402T*

COURSEOBJECTIVESANDOUTCOMES:

To instil pedagogy skills in Physical Therapist to effectively conduct teaching learning and clinical based education and training

Course Outcome: This course will enhance the ability of the Physiotherapist to implement the principles of management & administration in the context of increasing interaction between the Health – care facility & the community and also instil pedagogy skills in the student.

Course Description:

MODULE I

Pedagogy

a) **Introduction to Education and Emerging Issues in Education**

b) **Concepts of Teaching & Learning**

- Meaning need & scope of educational psychology
- Meaning & relationship between teaching & learning
- Learning theories
- Dynamics of behaviour, Individual differences
- Bloom's taxonomy of instructional objectives
- Preparation of unit plan & lesson plan
- Concept of Microteaching

c) **Curriculum**

- Meaning & Concept of Curriculum
- Basis for curriculum formulation/development.
- Framing objectives for a curriculum
- Process of curriculum development (including field work)
- Factors affecting curriculum development
- Evaluation of curriculum

d) **Teaching Learning Methods** :

- Lecture, lecture – demonstration, discussion, seminar, assignment, project methodand case study method
- Introduction and brief on Blended Teaching Learning methods, SAMR model withapplication to online platform and tools.

e) **Teaching Aids**

- Types of teaching aids
- Principles of selection
- Preparation and use of audio – visual aids

f) Continuous & Comprehensive Evaluation:

- Nature of educational measurement : meaning , process & types of testing

- Construction of an achievement tests & its analysis, Standardized tests, Introductionof some standardized tools and important tests of intelligence, aptitude and personality
- Diagnostic, Formative and comprehensive evaluation.

ENTREPRENEURSHIP

MPTP 403T*

COURSE OBJECTIVES AND OUTCOMES:

This course will help a student to develop knowledge and skills for Commercialisation and Entrepreneurship as a whole for health related enterprise and personnel training and resource allocation, investment, venture and innovation and to be able to
provide rational justification for equity centred national development to demonstrate effective citizenship.

Course Outcome:
To enhance the potential of the Physical Therapist to become effectivecommunicator especially in the context of education.

Module I

Theoriesandmodelsofhealthcareimprovements,innovationandentrepreneurship forideadevelopmentandideafeasibility analysis

a. Healthcareeconomicsandreimbursement,Behaviouraleconomics
b. Advancesindigitalhealthandhealthinformationtechnology.
c. Accelerators,incubators,andotherstartupresources,Roleofangel,seed,andve nturecapitalinvestors
d. Patentsandthefundamentalsofintellectual property
e. Inter-professionalcollaborationandteamwork,ChangemanagementandDiversity
f. ApplicationofTOMA (Top ofthemind awareness)
    - Awareness&guidancetothecommonpeopleabouthealth&disease andavailableProfessionalservices.
    - PatienteducationandEducationofhealthcarepractitioners
    - Useofmediainclinicaleducation

Suggested Reading

1. Basic Management. Trivedi
2. Principles of Marketing : Philip Kotler
3. Human Resource Management by NK Singh
4. Public Power & Administration by Wilenski, Hale & Iremonger
5. Physical Therapy Administration & Management by Hickik Robert J
6. Principles of Education – Soti Shivendra Chandra and Rajendra K. Sharma
7. Philosophical Foundation of Education – Srinibas Bhattacharya
8. Sociological Foundation of Education – Srinibas Bhattacharya
9. Revitalizing classroom Entrepreneurship Education: Adopting a crit ical approach in theedited by Karin Berglund, Karen Verduyn
10. Entrepreneurs: Talent, Temperament and Opportunity: John Thompson
11. Handbook of clinical teaching- Watts naney, Churchill Livingstone.
12. Pedagogy Physiotherapy Education: CS Ram
13. Communication skills in Clinical Practice- Sethuraman K.R.
14. Developing a Pedagogy of Teacher education: Understanding teaching and learning aboutteaching by J. John Laughran
15. Handbook of Technological pedagogical content knowledge (TPC K) for educators byMary c. Herring
16. Language, Culture and community in Teacher education by Maria Estela Brisk.

Dissertation

MPTP 404 P

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Th
MPTP 404 P	Dissertation	-	18	9	288	60	140	200

Course Description: The course covers carry out an independent research, which will involve conducting of the work as per the documented methodology, data collection, statistical analysis, dissertation writing. The work will build on the knowledge acquired through study of research methodology andbiostatistics.

Course Objective: The course should enable the student to acquire in-depth knowledge and skill in independent dissertation writing.

Course Outcome: Students should be able to develop a research project and conduct the dissertation writing independently in physiotherapy.

The student will submit the synopsis/ proposal duly signed by the guide.
The student will have to submit the progress report time to time as notified by the School.
Once the permission is taken from the guide the student will have to submit the copies (notified by the department in the prescribed formats with all relevant documents and soft copy in CDs.)
After the submission the student will undergo the final viva except in unusual conditions.

Evaluative Clinical Practice- IV

MPTP 405 P

Subject Code	Subject	Hrs/Week		Credits	Total Teaching hours	Examination (Marks)		
		Th	Pr			Internal	External	Th
MPTP 405 P	Evaluative Clinical Practice- IV (Based on Viva, Case presentation from clinical postings)	-	18	9	288	20	80	100

Course Description: The course covers topics related to assessment, diagnosis and management of lower quadrant neuromusculoskeletal sports injuries and athletic training planning.

Course Objective: The course should enable the student to acquire in-depth understandingand skill in assessment, diagnosis and management of lower quadrant neuromusculoskeletal sports injuries and athletic trainingplanning.

Course Outcome: The student should be able to demonstrate adequate knowledge and skill in assessment, diagnosis and management of lower quadrant neuromusculoskeletal sports injuries and athletic training planning.

Case presentation on the basis of patient seen during clinical postings