

Faculty of Physiotherapy & Diagnostics Department of Physiotherapy

SYLLABUS

PROGRAM NAME MASTER OF PHYSIOTHERAPY (MPT)

Session – 2022-23

DURATION - 2 YEARS/4 SEMESTER

SYLLABUS FOR: I – IV Semesters



PROGRAM DETAIL

Name of Program	-	MPT
Program Code	-	MPT
Mode of Program	-	Yearly /Semester
Duration of Program	-	2 yrs/ 4 Semester
Curriculum Type and Medium Choice	-	Hindi/English



Ordinance

These regulations and syllabus are for M.P.T. - Post Graduate Degree in following specialization:-

1. Masters in Physiotherapy

ELIGIBILITY

The candidate should be a graduate in physiotherapy from any Recognized Board / University in India or abroad (According to UGC rules / Association of Indian Universities) and the Candidate must have secured Minimum 50% in aggregate.

DURATION

The period of certified study for the M.P.T. course shall be two academic years, comprising of four semesters.

MEDIUM OF INSTRUCTIONS

Medium of Instruction will be English.

ATTENDANCE

The Students admitted to this course shall attend regular classes. In order to be eligible for appearing in the final examination at the end of an academic session, a candidate should have minimum of 75% attendance in each of the subjects (Theory & Practical Separately) in an academic semester. Failing to have this he/ she will not be allowed to appear in the annual examination. However the head of the institution can relax up to 5% of attendance, a further relaxation of 5% can be done by Vice Chancellor on the recommendation of the head of the Institution.

Eligibility for Final Examination:

- 1. Attendance more than 80% during academic session.
- 2. Internal Marks 40% Minimum.
- 3. Each Student should present at least 2 seminars in each semester.
- 4. Essential participation in Case Presentation.

SCHEME OF EXAMINATION

• There shall be an examination at the end of final academic session.



- The marks of the internal assessment will be given by the teacher in charge / HOD on the basis of the performance of the candidate throughout the session & any other assessment like seminars.
- Eligibility for appearing in final examination: Candidates are supposed to take part and conduct seminars and group discussions regularly Candidates should conduct a minimum of 2 seminars in one academic session each
- In order to pass in a subject a candidate has to secure 40% marks in theory & practical separately, aggregate of the year 50%.
- The successful candidates shall be classified as under on the basis of aggregate marks obtained in the final examinations.
- .Minimum qualifying marks for Pass in final semester Each Paper 40%, Aggregate 50%.
- Divisions
 - a) First division 60% & above in aggregate
 - b) Second division 50% and above but less than 60%.
- Distinction is to be mentioned if a candidate obtains a total of 75% or more in aggregate in single attempt (without the award of grace marks to pass in any paper).
- Candidates are allowed two attempts in the Back Paper..
- Where a student fails in a project (if included in a course of study) or fails to submit in the specified time, he/she shall be allowed to resubmit the same in the next year, (when the related examination falls due next) on payment of the required back paper fee.
- Supplementary Exam: Any candidate who fails in two or less than two courses can appear in supplementary examination conducted by the University within six months of declaration of result. Practical for this purpose will be considered as a separate paper.

EXAMINATION PATTERN

- All the theory papers in each year will carry 100 marks out of which 30 marks will be for internal assessment and 70 marks for final examination.
- The practical examination will be of 100 marks. The practical & viva –voce in each subject will carry 30 marks as internal & 70 marks in final examination.
 The final examination will be 70 marks.

DISSERTATION (PROJECT WORK)

Dissertation shall be of 200 marks there will be no sessional in this subject. The dissertation shall be of 5000 words (minimum) consisting of result of his own study / work used upon his / her Clinical Duties under the Guidance of a Teacher / Guide.

The degree of Master of Physiotherapy will be awarded to the candidates only after he / she has completed the following:-

- a) All dues are clear (or) after clearance of all type of dues regarding the University.
- b) The Registrar shall publish the result of the examination, as soon as possible after the examination has been held.
- c) She passed all the academic examination successfully (including dissertation).



PROGRAM OUTCOMES :

The aim of the course is to provide comprehensive, individually focused training that prepares the students for providing a quality and specialized physiotherapy care to the patients so that at the end of the course he/she will be able to perform the following

1. Recognize the role of Physiotherapy in the context of the health needs of the community and National priorities in the health sector.

2. Demonstrate professional and ethical behaviour appropriate to atleast the minimum standard expected for a Physiotherapy Post Graduate.

3. To acquire knowledge and skills in various fields like Exercise testing physiology- Movement analysis- Electro diagnosis- Physiotherapy Diagnosis-

4. Using an Evidence Based analysis interpret assessment findings and set realistic short and long term goals and undertake discharge plans.

5. To apply general principles of Practice and understand their applications in enhancement of Physiotherapy Practice.

6. To understand various physiotherapy treatment models like physiotherapy and rehabilitation model.

7. To understand the clinical manifestations and to apply the suitable management models in various electives.

8. To appreciate the importance of clinical epidemiology, research ethics and advance in computer applications and formulate research process in physiotherapy.

9. Experiment with new approaches, challenges, existing knowledge, boundaries and design novel solution to various critical problems through logical, analytical and critical thinking.

10. Able to practice recent trends in investigative methods and intervention modalities in the field of physiotherapy.

11. Able to teach Physiotherapy with appropriate teaching methodology



Program Specific Outcomes :

PSO 1 Critically evaluate, prioritize and apply physiotherapy approaches, paradigms and techniques and utilize appropriate, evidence-based skills, techniques and practice in managing and treating people with injury, disability or illness in a range of health care and/or rehabilitation settings.

PSO 2 Identify, analyze and respond appropriately to ethical dilemmas and challenges, and ethical implications of patient/client presentations.

PSO 3 Develop a reasoned rationale for clinical evidence-based physiotherapy intervention and design appropriate treatment/management plans to meet the needs of patients/clients within legislative, policy, ethical, funding and other constraint.

PSO 4 Acquire and utilize new knowledge, research, technologies and other appropriate resources and methods to optimize, and to ensure cost-effectiveness, quality and continuous improvement of health care delivery and outcomes.

PSO 5 Prepare students for professional practice as Physiotherapists. Graduates will be able to practice across a range of settings, including rural and remote areas. Emphasis will be placed on preparing a contemporary health professional to be client-centered and to work effectively within an interdisciplinary team.

PSO 6 Work creatively and effectively whilst upholding professional standards and relationships with a range of stakeholders (including clients, colleagues, careers, families, employers, insurers and others whose presence impacts on the patient/client, and other treatment providers and team members) with different understandings, perspectives and priorities influencing physiotherapy practice.

PSO 7 Adapt communication styles recognizing cultural safety, cultural and linguistic diversity Course learning outcomes: are defined within the course content that makes up the program. The courses are structured



SYLLABUS DETAIL

	FIRST SEMESTER				
S. No.	Course Code	Credit	Name of Course		
1		12	Basic Sciences & Pathomechanics		
2		12	Physical & Functional Diagnosis		
3		12	Research Project - I		
4		08	Practicum-I (Short & Long Cases)		
	Total Credits	44			

SECOND SEMESTER

S. No.	Course Code	Credit	Name of Course
1		12	Physiotherapeutics
2		12	Open Elective Subject (Specialization)
3		12	Research Project - II
4		08	Practicum-II (Short & Long Cases)
	Total Credits	44	

THIRD & FOURTH SEMESTER

S. No.	Course Code	Credit	Name of Course
1		24	Clinical Training & Thesis (Will be of Clinical Training and at the end of IV semester Thesis Submission, Viva, Training Certificate and Presentation)
	Total Credits	24	



1

2

3

List of MPT Open Electives (Dual Specializations)
Neurology & Pediatrics
Cardiopulmonary & Exercise Physiology
Orthopedics & Manual Therapy

- 4 Sports & Exercise Science
- 5 Gynecology & Woman's Health



Objective: The objective of the course is to create awareness among the student about the Bas science and applied biomechanics of the human body. Unit 1 Concepts of teaching and learning – theories of teaching, relation between teaching and learning, dynamics of behaviour, learning perception, individual differences. Curriculum, formation – committee framing, development & types of curriculum, formation of philosophy & course objectives, master plans of courses, co-relation of theory and practice. 12 Unit 2 Electrodiagnosis: Type of Nerve injury, Wallerian degeneration and regeneration. Electro diagnosis with therapeutic currents, – S.D. curves for motor, sensory and Pain assessment. Applied Electrotherapy –1) instruments 2/leetcrodes used in EMG -3) EMG, normal (a trest & Activity) and abnormal. Application of nerve conduction studies 1) Sensory /Motor 2) T ^o Wave, 3) T ^o reflex, 4) Bink reflex, 5) SSEP - Application in Neuro-muscular junction disorders, repetitive nerve stimulation. Motor unit potential diseases (Dystrophies, myopathy, myotonia). Evoked potentials SSEP. 12 Unit 3 Applied mechanics in the evaluation procedures – movement & functional analysis. Gravity, balance & equilibrium. Kinetics / Kinematics of extremity and spinal joints, (including T.M. joint). Posture gait jogging, running, climbing up/down, A.D.L & exercises. 12 Unit 4 Applied mechanics in physiological & pathological deviations (pathomechanics / Patho kinetics) of spinal & extremity disorders (functional & static). Applied mechanics in exercise prescription with clinical reasoning. 12 Unit 5 Biophysics of connective tissue – ligament, Cartilage, tendon, muscle, neur	Credits= 12	Basic Sciences & Pathomechanics	
between teaching and learning, dynamics of behaviour, learning perception, individual differences. Curriculum formation - committee framing, development & types of curriculum, formation of philosophy & course objectives, master plans of courses, co-relation of theory and practice. Unit 2 Electrodiagnosis: Type of Nerve injury, Wallerian degeneration and regeneration. Electro diagnosis with therapeutic currents, - SD. curves for motor, sensory and Pain assessment. Applied Electrotherapy -1) instruments 2)electrodes used in EMG -3) E.M.G. normal (a trest & Activity) and abnormal. Application of nerve conduction studies 1) Sensory /Motor 2) "F" Wave, 3]"the reflex, 4) Blink reflex, 5] SSEP . Unit 3 Applied mechanics in the evaluation procedures - movement & functional analysis. Gravity, balance & equilibrium. Kinetics / Kinematics of extremity and spinal joints, (including T.M. joint), Posture gait jogging, running, climbing up/down, A.D.L & exercises. 12 Unit 4 Applied mechanics in physiological & pathological deviations (pathomechanics) / Patho kinetics) of spinal & extremity disorders (functional & static). Applied mechanics in exercise prescription with clinical reasoning. 12 Unit 5 Biophysics of connective tissue - ligament, Cartilage, tendon, muscle, Biomechanics of respiration & circulation. 12 2 Understanding of the subject. 2 1 Develop an understanding of the subject. 1 2 Understand the clinical concepts. Text Books: 1 Pedagogy Physiotherapy Education -C S Ram)bjective:		about the Basi
Imit 2 regeneration. Electro diagnosis with therapeutic currents, - S.D. curves for motor, sensory and Pain assessment. Applied Electrotherapy -1) instruments 2)electrodes used in EMG -3) E.M.G. normal (at rest & Activity) and abnormal. Application of nerve conduction studies 1) Sensory /Motor 2) "F" Wave, 3)"H" reflex, 4) Blink reflex, 5) SSEP . Application in Neuro-muscular junction disorders, repetitive nerve stimulation. Motor unit potential diseases (Dystrophies, myopathy, myotonia). Evoked potentials SSEP. 12 Unit 3 Applied mechanics in the evaluation procedures - movement & functional analysis. Gravity, balance & equilibrium. Kinetics / Kinematics of extremity and spinal joints, (including T.M. joint), Posture gait jogging, running, climbing up/down, A.D.L & exercises. 12 Unit 4 Applied mechanics in physiological & pathological deviations (pathomechanics / Patho kinetics) of spinal & extremity disorders (functional & static). Applied mechanics in exercise prescription with clinical reasoning. 12 Unit 5 Biophysics of connective tissue - ligament, Cartilage, tendon, muscle, neural tissues & vessels, - Response to mechanical loading. Biomechanics of respiration & circulation. 12 Course Outcome: The student will: 1 12 1 Develop an understanding of the subject. 13 2 Understanding the concepts. Fext Books: 1 Pedagogy Physiotherapy Education -C S Ram 1	Unit 1	between teaching and learning, dynamics of behaviour, learning perception, individual differences. Curriculum formation – committee framing, development & types of curriculum, formation of philosophy & course objectives, master plans of courses, co-relation of theory and	12
Sinico functional analysis. Gravity, balance & equilibrium. Kinetics / Kinematics of extremity and spinal joints, (including T.M. joint), Posture gait jogging, running, climbing up/down, A.D.L & exercises. Unit 4 Applied mechanics in physiological & pathological deviations (pathomechanics / Patho kinetics) of spinal & extremity disorders (functional & static). Applied mechanics in exercise prescription with clinical reasoning. 12 Unit 5 Biophysics of connective tissue – ligament, Cartilage, tendon, muscle, neural tissues & vessels, – Response to mechanical loading. Biomechanics of respiration & circulation. 12 Course Outcome: The student will: 1 1 Develop an understanding of the subject. 2 Understand the clinical concepts. Fext Books: 1 1 Pedagogy Physiotherapy Education –C S Ram	Unit 2	regeneration. Electro diagnosis with therapeutic currents, – S.D. curves for motor, sensory and Pain assessment. Applied Electrotherapy –1) instruments 2)electrodes used in EMG -3) E.M.G. normal (at rest & Activity) and abnormal. Application of nerve conduction studies 1) Sensory /Motor 2) "F" Wave, 3)"H" reflex, 4) Blink reflex, 5) SSEP . Application in Neuro-muscular junction disorders, repetitive nerve stimulation. Motor unit potential diseases (Dystrophies, myopathy,	12
(pathomechanics / Patho kinetics) of spinal & extremity disorders (functional & static). Applied mechanics in exercise prescription with clinical reasoning. 12 Unit 5 Biophysics of connective tissue – ligament, Cartilage, tendon, muscle, neural tissues & vessels, – Response to mechanical loading. Biomechanics of respiration & circulation. 12 Course Outcome: The student will: 1 Develop an understanding of the subject. 1 1 Develop an understanding of the subject. 2 Understanding the concepts of applied biomechanics and electrotherapy. 3 To understand the clinical concepts. Text Books: 1 1 Pedagogy Physiotherapy Education –C S Ram	Unit 3	functional analysis. Gravity, balance & equilibrium. Kinetics / Kinematics of extremity and spinal joints, (including T.M. joint), Posture	12
neural tissues & vessels, - Response to mechanical loading. Biomechanics of respiration & circulation. Course Outcome: The student will: 1 Develop an understanding of the subject. 2 Understanding the concepts of applied biomechanics and electrotherapy. 3 To understand the clinical concepts. Fext Books: Image: Pedagogy Physiotherapy Education -C S Ram	Unit 4	(pathomechanics / Patho kinetics) of spinal & extremity disorders (functional & static). Applied mechanics in exercise prescription with	12
1 Develop an understanding of the subject. 2 Understanding the concepts of applied biomechanics and electrotherapy. 3 To understand the clinical concepts. Fext Books: 1 Pedagogy Physiotherapy Education –C S Ram	Unit 5	neural tissues & vessels, - Response to mechanical loading.	12
2 Understanding the concepts of applied biomechanics and electrotherapy. 3 To understand the clinical concepts. Fext Books: 1 Pedagogy Physiotherapy Education –C S Ram	Course Outco	me: The student will:	
3 To understand the clinical concepts. Fext Books: 1 Pedagogy Physiotherapy Education –C S Ram	1	Develop an understanding of the subject.	
Text Books: 1 Pedagogy Physiotherapy Education -C S Ram	2	Understanding the concepts of applied biomechanics and electrotherapy.	
1 Pedagogy Physiotherapy Education –C S Ram	3	To understand the clinical concepts.	
	Fext Books:		
2 Clinical Electrophysiology - Robinson	1	Pedagogy Physiotherapy Education –C S Ram	
	2	Clinical Electrophysiology - Robinson	



	Physical & Functional Diagnosis	
Objective:	The objective of the course is to create awareness among the student a Manipulative Skills as well as clinical reasoning.	bout the variou
Unit 1	Clinical Reasoning, Assessment and Diagnosis. Articular Neuro Physiology and principles of applications.	15
Unit 2	Terminology, Principles, indications, contraindications, assessment & methods of application of – Maitland, Karltenborn, Cyriax, Mulligan Mackenzie, Butler's Neural Mobilisation. Shacklok neural tissue mobilization.	15
Unit 3	History of manual therapy, overview of manual therapy approaches or all the joints. Terminology, Principles, indications, contraindications, assessment & methods of application of Soft tissue approaches – Myofascial techniques, Neural tissue Mobilization, Muscle Energy Techniques, High velocity thrust techniques, Positional Release Techniques, Trigger point release, Lymphatic Manipulation.	15
Unit 4	Posture and its various deformities.	15
Course Outco	me: The student will:	
1	Develop an understanding of the subject.	
2	Acquire the knowledge and skill of various approaches of Manual therapy limbs/spine.	/ for joints of th
3	Be able to integrate the manual therapies to rehabilitate the Mechanical problems.	Neuro. Muscula
Text Books:	<u>.</u>	
Text Books:	Clinical Manual Therapy & Practice – Leon Chaitow	
	Clinical Manual Therapy & Practice – Leon Chaitow Manual of Combined Movement - Edwards	
	Manual of Combined Movement - Edwards	



Credits= 12	Physiotherapeutics	
	T hysiotherapeutes	
Objective:	The objective of the course is to create awareness among the student abo and Physiotherapeutic aspects.	ut the Therapeuti
Unit 1	IMAGE INTERPRETATION: History, A New Kind of Ray, How a Medical Image Helps, What Imaging Studies Reveal, Radiography (x-rays), Computed Tomography (CT), Magnetic Resonance Imaging (MRI), Sonography.	15
Unit 2	Radiography: Interpretation of X-ray films, MRI, CT scan and ultrasound in common conditions.	15
Unit 3	EXERCISE AND ENVIRONMENT : Acclimatization, Exercising at high and low altitude and hypoxia, Exercise at hot climate, thermoregulations, dehydration and rehydration. Exercise at cold climate. FATIGUE-Classification, physiology, Assessment and management.	15
Unit 4	Palpation techniques of the common joints and muscles.	15
Course Outcome	The student will:	
1	Develop an understanding of the subject.	
2	Understanding the concepts of radiology.	
3	To understand the clinical interpretation.	
Text Books:		
1	Physiology of Sports & Exercise - Wilmore	
2	Grainger & Allison, 2016, Diagnostic Radiology, Vol. 1 and 2, 6th Edition, El	sevier Publications.
Reference Books	:	
1	Curry, 1990, Christensen's Physics of Diagnostic Radiology, 4th Edition, Wolte Ltd	rs Kluwer India Pvt



Unit 1 Gener paedia Unit 2 Deger Neuro progr infect mana Temp Unit 3 Basic devel Motor learni disab Unit 4 Disor neopl Syring functi injury Unit 5 Ampu Classi and P	 bbjective of the course is to create awareness among the student trics rehabilitation. ral Assessment and Examination of Neurological, psychiatric and atric conditions. Radiographic Interpretations. meration Diseases of Nervous system - Parkinson Diseases, Motor on disease Amyotrophic lateral sclerosis, Progressive bulbar palsy, ressive muscular atrophy. Stroke- Focal, multiple focal, lacunar is, gross infect, degradation of Brain. Cerebral palsy -assessment & gement with approaches, roods, vojta, sensory integration, N.D.T, le Fay. and Applied NeuroAnatomy, Reflex & reactions, Motor opment - theories, developmental sequence, movement in infants, r control, Motor learning – principles, factors affecting motor ing, theories. Cognitive and perceptual dysfunction – learning ilities, attention deficit, hyperactivedisorder, autism. der of spinal cord- Compression of spinal card, spinal card tumors, asm of vertebral column, IVDP, Extradural & Epidural Abcess, gomyelia, Syringobulbia, Transverse Myelitis.Cranio-vertebral ion Anomalies – Soft tissue anomalies, Bony Anomalies. Head <i>r</i> – Hemorrhage, Haematoma, Aneurismal rupture. 	12 12 12
Unit 2 Unit 2 Unit 2 Unit 3 Unit 3 Unit 3 Unit 4 Unit 4 Unit 4 Unit 5 Ampu Classi and P Course Outcome: The st	atric conditions. Radiographic Interpretations. heration Diseases of Nervous system - Parkinson Diseases, Motor on disease Amyotrophic lateral sclerosis, Progressive bulbar palsy, ressive muscular atrophy. Stroke- Focal, multiple focal, lacunar is, gross infect, degradation of Brain. Cerebral palsy -assessment & gement with approaches, roods, vojta, sensory integration, N.D.T, le Fay. and Applied NeuroAnatomy, Reflex & reactions, Motor opment - theories, developmental sequence, movement in infants, r control, Motor learning – principles, factors affecting motor ing, theories. Cognitive and perceptual dysfunction – learning ilities, attention deficit, hyperactivedisorder, autism. der of spinal cord- Compression of spinal card, spinal card tumors, asm of vertebral column, IVDP, Extradural & Epidural Abcess, gomyelia, Syringobulbia, Transverse Myelitis.Cranio-vertebral ion Anomalies – Soft tissue anomalies, Bony Anomalies. Head <i>y</i> – Hemorrhage, Haematoma, Aneurismal rupture. Itation and Limb deficiencies in childhood. Burns in childhood – ification, Pathophysiology and Management. Common Neurological	12 12 12
Neuro progr infect mana Temp Unit 3 Basic devel Motor learni disab Unit 4 Disor Neuro Unit 5 Ampu Classi and P Course Outcome: The st	on disease Amyotrophic lateral sclerosis, Progressive bulbar palsy, ressive muscular atrophy. Stroke- Focal, multiple focal, lacunar is, gross infect, degradation of Brain. Cerebral palsy -assessment & gement with approaches, roods, vojta, sensory integration, N.D.T, le Fay. and Applied NeuroAnatomy, Reflex & reactions, Motor opment - theories, developmental sequence, movement in infants, r control, Motor learning – principles, factors affecting motor ing, theories. Cognitive and perceptual dysfunction – learning ilities, attention deficit, hyperactivedisorder, autism. der of spinal cord- Compression of spinal card, spinal card tumors, asm of vertebral column, IVDP, Extradural & Epidural Abcess, gomyelia, Syringobulbia, Transverse Myelitis.Cranio-vertebral ion Anomalies – Soft tissue anomalies, Bony Anomalies. Head <i>y</i> – Hemorrhage, Haematoma, Aneurismal rupture.	12
devel Motor learni disab Unit 4 Unit 4 Unit 5 Unit 5 Ampu Classi and P Course Outcome: The st	opment - theories, developmental sequence, movement in infants, r control, Motor learning – principles, factors affecting motor ing, theories. Cognitive and perceptual dysfunction – learning ilities, attention deficit, hyperactivedisorder, autism. der of spinal cord- Compression of spinal card, spinal card tumors, asm of vertebral column, IVDP, Extradural & Epidural Abcess, gomyelia, Syringobulbia, Transverse Myelitis.Cranio-vertebral ion Anomalies – Soft tissue anomalies, Bony Anomalies. Head γ – Hemorrhage, Haematoma, Aneurismal rupture. Itation and Limb deficiencies in childhood. Burns in childhood – ification, Pathophysiology and Management. Common Neurological	12
neopl Syring functi injury Unit 5 Ampu Classi and P	asm of vertebral column, IVDP, Extradural & Epidural Abcess, gomyelia, Syringobulbia, Transverse Myelitis.Cranio-vertebral ion Anomalies – Soft tissue anomalies, Bony Anomalies. Head y – Hemorrhage, Haematoma, Aneurismal rupture. Itation and Limb deficiencies in childhood. Burns in childhood – ification, Pathophysiology and Management. Common Neurological	
Classi and P Course Outcome: The st	ification, Pathophysiology and Management. Common Neurological	12
1		
1 Acces	udent will:	
113303	and diagnose all possible findings on the patient to plan a Rehabilit	ation programme.
2 Under	rstanding the concepts of Neurologic and paediatric conditions	
3 Be ab	le to impart knowledge for training the under graduate students.	
Text Books:		
	xs, V.B. The Neural Basis of Motor Control, Oxford University pr cal Therapy series.	ess 1986.Clinics in
2 Camp	bell S (2000) Physical Therapy for Children. W B Saunders Co.	
Reference Books:		
	elly B.H. and Montgomery, P.C. Therapeutic exercise in develop anooga 1987.	mental disabilities



	Open Elective Subject (Cardiopulmonary & Exercise Physiology)	
Objective:	The objective of the course is to create awareness among the student about the C Exercise physiology.	ardiopulmonary and
Unit 1	Evaluation and assessment of Cardiovascular system and Pulmonary system. Common assessment scales, Evaluation and interpretation- PFT, ECG, EEG, Chest Radiography, Various methods of fitness and exercise testing.	12
Unit 2	Assessment and Management of Respiratory muscles, respiratory muscle fatigue, respiratory muscle fatigue in disease. Cough reflex, Paediatric lung, Breathing techniques, IPPB, ACBT, PD, AD. Bronchial Hygiene – Humidification, nebulization, aerosol therapy, suctioning. Artificial Ventilation – Mechanical Ventilation, tracheostomy, manual hyperinflation. Children with respiratory dysfunction.	12
Unit 3	COPD, Asthma, Cystic Fibrosis, Immunological deficits, Pertusis. Adult COPD- Causes, pathomechanics, presentation, evaluation, investigation, management,rehabilitation.Restrictive lung disorders- Causes, pathomechanics, presentation, evaluation, investigation,management, rehabilitation.Infective lung diseases- Causes, pathomechanics, presentation, evaluation, investigation, management, rehabilitation.	12
Unit 4	EXERCISE PERFORMANCE: Lung function and its role in exercise performance Regulation of ventilation & blood pressure during exercise. Cardiovascular adjustment during exercise. Muscle fiber, types and its role in exercise performance. Ventilation during steady and non-steady rate exercise. Energy cost and breaking. Blood pressure (BP) response to exercise. Cardiac output during exercise in – trained untrained.Cardio vascular drift.	12
Unit 5	ENERGY PRODUCTION, EXPENDITURE, AND TRANSFER: Energy transfer in cells during exercise. Oxygen metabolism and transfer during metabolism.Oxygen transport in blood. Oxygen deficit, Oxygen debt. Oxygen measurement, Oxygen during exercise, Oxygen during recovery. Energy release from carbohydrate, lipids and proteins. BMR – during rest, at activity. Energy expenditure during activity. Short Term and Long term energy systems. AEROBIC AND ANAEROBIC EXERCISES: Aerobic and anaerobic training, Overtraining, Strength training–physiology in various age groups, Methods of training, Circuit training & De-training, DOMS. Aid in enhancing training and performance.	12
Course Outcome: Th	he student will:	
1	Be able to identify, discuss & analyse, the Various cardio-respiratory dysfunction & with the provisional diagnosis, routine radiological & Electro- physiological invest at appropriate functional diagnosis with clinical reasoning.	
2	Use recent Technique/ approaches to treat & train patients with cardio-respir children, adults & geriatrics.	atory dysfunction in
Text Books:		
1	Cardiopulmonary symptoms in physiotherapy – Cohen M. Churchill, L 1988.	ivingstone, London
2	Cardiopulmonary Physiotherapy – Irwin, C.V. Mosby, St. Louis 1990.	
Reference Books:		
1	Webber B and Pryor J (1993) Physiotherapy for respiratory and cardiac Livingstone, London. ISBN 0-443-04471-6	problems. Churchill



Credits= 12	Open Elective Subject (Orthopedics & Manual Therapy)	
Objective:	The objective of the course is to create awareness among the s Musculoskeletal system and Manual Therapy.	tudent about the
Unit 1	Introduction To Orthopaedics – Assessment & Evaluation in detail related to orthopaedic patient history taking, clinical features, clinical examination and investigation, clinical reasoning and common scales used in assessment.	12
Unit 2	Home program and counselling for care givers, Ergonomics in musculoskeletal dysfunction, Pilates, PNF techniques, Swiss ball therapy, Blood Flow Restriction (BFR), Plyometrics.	12
Unit 3	Terminology, Principles, indications, contraindications, assessment & methods of application of – Maitland, Kaltenborn, Cyriax, Mulligan Mackenzie, Butler's Neural Mobilisation.Shacklok neural tissue mobilization. Myofascial release, Neural Mobilization.	12
Unit 4	Rehabilitation Protocol and pathomechanics of common musculoskeletal conditions of Spine, Upper and Lower Limb including fractures.	12
Unit 5	Rigid and Kinesio Taping	12
Course Outcome:	The student will:	
1	Be able to identify, discuss & analyse, the Musculo skeletal dysfunction in Biomechanical, Kinesiological and Biophysical basis & co-relate the same provisional diagnosis, routine radiological & Electro-physiological investig at appropriate functional diagnosis with clinical reasoning.	with the
2	Use recent Technique/ approaches to treat & train patients with muscule children, adults & geriatrics.	o-skeletal deficit in
3	Be able to impart knowledge for training the under graduate students.	
Text Books:	I	
1	Kase Kenzo, 2003, Illustrated Kinesio Taping, 4th Edition, Ken I Kai Inform	nation.
2	Black d and Dummbleton J. H. clinical Biomechanics 2nd edn. Churchill Liv	ringstone 1987.
Reference Books:	<u> </u>	
1	Donatelli R. and wooden M.J. Ed Orthopaedic Physical Therapy Churchill, I	Livingston 1989.



Credits= 12	Open Elective Subject (Sports & Exercise Science)	
Objective:	The objective of the course is to create awareness among the student physiotherapy and exercise science.	about the Sports
Unit 1	Evaluation and assessment of Sports Injuries.	12
Unit 2	Biomechanics of sports activities & its relation to injuries in – tennis, golf, cricket, volleyball, soccer, basketball, short & long distant runners, swimming, throwing events, jump events, pathomechanics of injuries (pattern, velocity, angular & linear movements), Warm up , Cool down.	12
Unit 3	Sports injuries - emergency sports injury assessment; mechanism, patho-mechanism, clinical presentation, assessment & examination of shoulder girdle injuries, elbow joint injuries, wrist & hand injuries, thigh injuries, knee injuries, injuries of patella, injuries to ankle & foot, injuries to cervical spine & skull, injuries to thoracic spine & thoracic cage, injuries to lumbo-sacral region, athletic injuries, swimming injuries, abdominal injuries.	12
Unit 4	Radio-imaging in sports – X-Ray, CT, MRI, Ultrasonography. Ground evaluation, Evaluation of paediatric fitness & paediatric injuries, Evaluation of injuries of old age, Specific sports injuries in women, Pathophysiology & assessment of fatigue, Drugs in sports.	12
Unit 5	Sports specific training. & Cross training. Risk factors in sports injuries and strategies of prevention. Manual therapy in sports.Therapeutic exercises - Strength training, power training, Flexibility training, endurance training, Plyometrics, Reaction training, Proprioceptive training, Stretching. Sports massage, Trigger point release, neural tissue mobilization.Core Stability assessment & Training. Pilates, Swiss Ball training, Sports taping, Electrotherapy in sports injuries. Hydrotherapy.	12
Course Outcome:	The student will:	
1	Understand the psychosocial factors, environmental factors & individual factors the performance.	actors affecting
2	Guide participants for a confident sports activity & rehabilitation t achievement.	o attain maximal
3	Understand the role of Sports physiotherapist in the team.	
Text Books:		
1	Bird, S. R., Black, N. Sports Injuries: Causes, Diagnosis, Treatmen Cheltenham: Stanley Thomes, 1997 ISBN: 0748731814	t and Prevention
2	Cash M. Sport and Remedial Massage Therapy London: Edbury, 1996 ISBN	1: 0091809568
Reference Books:		
1	Brownstein, B. Functional movement in Orthopaedic and Sports Evaluation, Treatment and Outcomes, New York; London: Churchill Living 0443075301	



Credits= 12	Open Elective Subject (Gynecology & Woman's Health)	
Objective:	The objective of the course is to create awareness among the student about the Gynecolog and women's health.	
Unit 1	Anatomy and physiology: of the female reproductive organs.Puberty dynamics, Physiology of menstrual cycle-ovulation cycle, uterine cycle, Cx cycle, duration, amount, Hormonal regulation of menstruation.	15
Unit 2	Principleof common gynaecological operations-hysterectomy, D&C, D&E, Pop smear, Menopause: Its effect on emotions and musculoskeletal system, Urogenital dysfunction – pre and post-natal condition, Sterility: Pathophysiology, investigations, management, Malnutrition and deficiencies in females.Post surgical rehabilitation of common gynaecological surgeries and complications.,Urinary Incontinence etc.	15
Unit 3	Gynaecological assessment and evaluation, Applied anatomy and biomechanics of pelvic floor muscles and joints. Common scales used in assessment. Posture assessment and its management.	15
Unit 4	MFR, Pilates, PNF, Kinesio Taping-Women's health and common gynaecological conditions, Methods and exercises for pelvic floor muscles strengthening, Manual Therapy. Pre and Post Pregnancy Rehabilitation protocol	15
Course Outcome	: The student will:	
	¹ Develop an understanding of the subject.	
	Use recent Technique/ approaches to treat & train patients with gynaecological issues.	
	Be able to impart knowledge for training the under graduate students.	
Text Books:		
	Polden M, 1990, Physiotherapy in Obstetrics and Gynaecology, 1st Edition, Butterworth- Heinemann Ltd	
	2 Madhuri GB, 2007, Textbook of Physiotherapy for Obstetrics and Gynecologica Edition, Jaypee Brothers Medical Publishers	l Conditions, 1s
Reference Book	5:	
	Konar Hiralal, 2020, DC Dutta's Textbook of Gynaecology, 8th Edition, Jaypee I Publishers	Brothers Medica