

GURU KASHI UNIVERSITY



**Master of Physiotherapy
(MUSCULOSKELETAL)**

Session: 2025-26

Faculty of Health and Allied Sciences

Postgraduate Attributes of the Programme: -

Type of learning outcomes	The Learning Outcomes Descriptors
Postgraduates should be able to demonstrate the acquisition of:	
Learning outcomes that are specific to disciplinary/interdisciplinary areas of learning	The postgraduates will be capable of strengthening their abilities for widening knowledge and skills through meaningful learning experiences using advanced techniques and critical thinking to develop expertise in their area and offer exclusive services in clinical practice.
	They will be able to delineate the cognitive and psychomotor skills deemed essential for completing this program and to perform as competent Orthopaedic Physiotherapists who can evaluate, plan, and execute physiotherapy treatment independently, following Evidence-Based Practice.
Generic learning outcomes	Postraduates will demonstrate effective communication, leadership, and interpersonal skills necessary for collaborative practice in multidisciplinary healthcare settings.
	They will exhibit professionalism, ethical behavior, and a commitment to lifelong learning. Graduates will also be able to analyze and solve problems systematically, adapt to new technologies, and apply critical thinking in diverse clinical and academic contexts.

Programme Learning outcomes: An Undergraduate degree is awarded to students who have demonstrated the achievement of the outcomes located at level 4.5:

Element of the Descriptor	Programme Learning Outcomes Relating to Postgraduate Certificate
Knowledge and understanding	Demonstrate advanced understanding of sports-related musculoskeletal and neuromuscular conditions, exercise physiology, biomechanics, and injury prevention strategies. Critically evaluate scientific literature and evidence-based practices relevant to sports physiotherapy. Understand the principles of athlete health management, performance enhancement, and rehabilitation in diverse sporting contexts.
General, technical, and professional skills required to perform and accomplish tasks	Apply basic clinical techniques, therapeutic procedures, and use of equipment in physiotherapy practice. Demonstrate professional behavior, safety measures, and effective documentation skills.
Application of knowledge and skills	Translate theoretical knowledge into clinical practice by assisting in patient assessment and simple physiotherapy interventions under supervision. Exhibit problem-solving skills in familiar settings.
Generic learning outcomes	Communicate effectively with peers, faculty, and patients; demonstrate basic teamwork, interpersonal, and organizational skills. Show readiness to adapt and learn in a structured environment.
Constitutional, humanistic, ethical, and moral values	Uphold principles of integrity, respect, empathy, and compassion in interactions with patients and peers. Demonstrate awareness of patient rights, confidentiality, and ethical conduct in healthcare practice.
Employability and job-ready skills, and entrepreneurial skills and capabilities/qualities and mindset	Possess fundamental skills for entry-level support roles in physiotherapy or allied healthcare services. Demonstrate a responsible, service-oriented attitude with an openness to innovation and career development.
Eligibility Criteria	BPT with 50% marks from recognized university/board/institution

Program Structure of Master of Physiotherapy (Musculoskeletal)

Semester –I									
Course Code	Course Title	Type of Course							
			L	T	P	Credit	Int.	Ext.	Total Marks
MPM1100	Review of Basic Sciences	Core	4	0	0	4	30	70	100
MPM1101	Review of Basic Therapeutics	Core	4	0	0	4	30	70	100
MPM1102	Musculoskeletal Disorders	Core	4	0	0	4	30	70	100
MPM1103	Physiotherapeutics Lab	Skill Based	0	0	2	1	10	15	25
MPM1104	Assessment and Evaluation in Musculoskeletal Disorders Lab	Skill Based	0	0	2	1	10	15	25
MPM1105	General Psychology	Multidisciplinary	3	0	0	3	25	50	75
IKS0024	Introduction to yogasutra	IKS	2	0	0	2	15	35	50
Discipline Elective I (Any one of the following)									
MPM1106	Hand Rehabilitation	Discipline Elective	4	0	0	4	30	70	100
MPM1107	Foot Rehabilitation								
Discipline Elective II (Any one of the following)									
MPM1108	Applied Biomechanics and Ergonomics	Discipline Elective	4	0	0	4	30	70	100
MPM1109	Applied Physiotherapy								
Total			25	0	04	27	210	465	675

Semester –II									
Course Code	Course Title	Type of Course							
			L	T	P	Credit	Int.	Ext.	Total Marks
MPM2150	Advanced Therapeutics	Core	4	0	0	4	30	70	100
MPM2151	Physiotherapy for Traumatic Musculoskeletal Conditions	Core	4	0	0	4	30	70	100
MPM2152	Rehabilitation, Orthotics and Prosthetics	Core	4	0	0	4	30	70	100
MPM2153	Skill Enhancing Studies	EEC	2	0	0	2	15	35	50
MPM2154	Clinical Biomechanics Lab	Skill Based	0	0	4	2	15	35	50
MPM2155	Advanced Manipulative Skills Lab	Skill Based	0	0	4	2	15	35	50
Discipline Elective III (Any one of the following)									
MPM2156	Advanced Functional and Physical Diagnosis	Discipline Elective	4	0	0	4	30	70	100
MPM2157	Advanced Manipulative Skills								
Total			18	0	08	22	165	385	550

Semester –III									
Course Code	Course Title	Type of Course							
			L	T	P	Credit	Int .	Ext .	Total Marks
MPM3200	Research Methodology	Core	4	0	0	4	30	70	100
MPM3201	Ethics and IPR	Core	4	0	0	4	30	70	100
MPM3202	Proficiency in Teaching	Core	4	0	0	4	30	70	100
MPM3203	Research Proposal	Core	0	0	8	4	30	70	100
MPM3204	Computer Lab	Skill Based	0	0	4	2	15	35	50
MPM3205	Anthropometry	Multidisciplinary	3	0	0	3	25	50	75
MPM3206	Medical and Surgical Management of Musculoskeletal Conditions.	AEC	2	0	0	2	15	35	50
Discipline Elective IV (Any one of the following)									
MPM3206	Drug Abuse	Discipline Elective	4	0	0	4	30	70	100
MPM3207	Vertebral Rehabilitation								
Total			21	0	12	27	205	470	675

Semester –IV									
Course Code	Course Title	Type of Course							
			L	T	P	Credit	Int.	Ext.	Total Marks
MPM4250	Dissertation	Research Skill	0	0	0	12	200	100	300
MPM4251	Applied Exercise Physiology	Core	4	0	0	4	30	70	100
MPM4252	Skill Acquisition & Refinements	AEC	2	0	0	2	15	35	50
MPM4253	Exercise Prescription	AEC	2	0	0	2	15	35	50
MPM4254	Clinical Training	Skill Based	0	0	4	2	15	35	50
Total			08	0	04	22	275	275	550
Grand Total			72	0	28	98	855	1595	2450

SEMESTER-I**Course Title: REVIEW OF BASIC SCIENCES****Course Code: MPM1100****Total Hours: 60****Course Outcomes**

On the completion of the course the students will be able to

1. Analyse structure and classification of various bones and joints of the body.
2. Acquire knowledge about central nervous system and various plexus of the body.
3. Acquire knowledge about the pathology of the body.
4. Identify various drugs acting on central nervous system, muscle relaxants, steroids and local anesthetics.

L	T	P	Credits
4	0	0	4

Course Content**UNIT I****14 Hours**

Human Anatomy: Osteology: Basic terminology, composition, function, classification of Bone. Structural details of bones of whole body; Arthrology: Definition and Classification of Joints, movements of Joints; Description of Joints of Upper and Lower Extremities with their Ligaments, Vertebral Column; Myology: Classification and Structure of Muscles, Description of all major muscles with their origin, Insertion, nerve supply and action.

UNIT II**16 Hours**

Human Physiology: Musculoskeletal System- bones, cartilages, muscles, ligaments etc; Muscle Physiology; Structure and function of muscle fibers; Mechanism of muscle contraction; Exercise Physiology; Respiratory Responses to Exercise; Ventilation at rest and during exercise; Ventilation and the Anaerobic Threshold; Alveolar Ventilation and Dead Space; Lung Volumes and Capacities; Oxygen Cost of Breathing; Second Wind; Cardiovascular Responses to Exercise: Control and Regulation of Heart and Circulation at rest and during exercise; Exercise and Acid Base Balance; Acid and Base Buffers; pH; Respiratory Regulation of Ph; Alkali Reserve; Hormonal responses to exercise: Growth hormone (GM); Thyroid and Parathyroid Hormones; Anti diuretic Hormone; (ADM) and Aldosterone; Insulin and Glucagon; The catecholamine; Epinephrine and norepinephrine; Sex hormones; Glucocorticoids (Cortisol) and Adrenocorticotrophic; Prostaglandins and Endorphins

UNIT III**15 Hours**

Cardiovascular system: Structure & Properties of heart; Cardiac Cycle; The regulation of heart's performance; Cardiac output; The arterial blood pressure; The physiology of vascular system; Lymphatic circulation; Respiratory system: Functional anatomy; Ventilation & control of ventilation; Alveolar air; Regulation of the breathing; Pulmonary function test; Pharmacology: Drugs used in pain; Local anesthetics; Steroids; Muscle relaxants; Drug acting upon central nervous systems & autonomic nervous system; Topically acting drugs.

UNIT IV

15 Hours

Pathology: Cell Injury; Inflammation; Repair; Immune system; Musculoskeletal system; Bones; Hereditary & Metabolic diseases; Osteoporosis; Rickets; Osteomalacia; Osteitis fibrosa cystica; Renal Osteodystrophy; Gout; Crystal Synovitis; Infections; Osteomyelitis; Tuberculosis; Joints; Degenerative joint disease; Bursitis; Skeletal muscles; Muscle atrophy; Myositis ossificans; Muscular dystrophy; Myasthenia gravis; Hemophilia and other bleeding disorders; Delayed Healing responses in soft tissue injuries; Biochemistry: Diet- its nutritional and calorific value of various foods balance diet, energy requirement of various individuals

Transaction Mode

Video based teaching, Case based teaching, Team teaching Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning.

Suggested Readings

- *Cash' TB for Ortho and rheumatology for physiotherapist by Downie*
- *Orthopaedic rehabilitation by Brookman*
- *Walker, B. R., & Colledge, N. R. (2013). Davidson's principles and practice of medicine.*
- *Mohn & Gaectier (1995). Guided to clinical Neurology. Churchill Livingstone.*
- *Thompson, A. (2013). Tidy's Physiotherapy. Varghese publishing House.*
- *Maheshwari, J., & Mhaskar, V. A. (2019). Essential orthopaedics: (including clinical methods). Jaypee Brothers Medical.*

Web Sources

- <https://www.verywellhealth.com/what-is-a-plexus-5079595>
- <https://my.clevelandclinic.org/health/diagnostics/17966-pulmonary-function-testing>

- <https://www.ncbi.nlm.nih.gov/books/NBK538180/>
- https://www.life.illinois.edu/mcb/458/private/lectures/ppt_pdf/Path_ggf_3_2020.pdf

Course Title: REVIEW OF BASIC THERAPEUTICS

Course Code: MPM1101

Total Hours: 60

Course Outcomes

L	T	P	Credits
4	0	0	4

On the completion of the course the students will be able to

1. Discover about various assessment techniques in exercise therapy.
2. Acquire knowledge about low, medium and high frequency currents.
3. Identify various electro diagnostic techniques.
4. Develop skills to prescribe orthosis and prosthesis for the patients.

Course Content

UNIT I

16 Hours

Exercise Therapy: Assessment techniques like MMT & Goniometry; Stretching and mobilization; Re-education and strengthening; Balance and Co-ordination exercises; Gait analysis and training (both normal & pathological gait); Relaxation & soft tissue manipulation; Posture; PNF; Traction; Hydrotherapy.

UNIT II

15 Hours

Electrotherapy: General review of low, medium & high frequency currents and their modifications like Diadynamic and Russian currents; Ultrasound; UVR and IRR; Cryotherapy; Intermittent pneumatic compression; Other thermal modalities (Heat and Cold); Laser Therapy.

Unit III

14 Hours

Biomechanics and Pathomechanics: Introduction to Kinesiology and Biomechanics; Principle of Biomechanics, Nature and importance of Biomechanics in Physiotherapy; Introduction to Biomechanics, Analysis of human motion. Analytical tools and techniques — Isokinetic dynamometer, Kinesiological EMG, Electronic goniometer,

Force platform, Videography; Shoulder, Elbow, Wrist and Hand; Pelvis, Hip, Knee, Ankle & Foot; Spine; Posture & Gait analysis

UNIT IV

15 Hours

Bio Engineering: Principles of Orthotic- types, indications, contraindications, assessment (checkout), uses and fitting- region wise; Fabrication of simple splints and self-help devices for upper and lower extremity- indications and applications; Orthotics for the Upper Limb; Orthotics for the Lower Limb; Orthotics for the Spine; Principles of Prosthetics- types, indications, contraindications, assessment checkout, uses and fitting — region wise; Principles of Vocational Problems, including Evaluation and Vocational Goals for People with Disability.

Transaction mode

Flipped teaching, Open learning, Group discussion, Video based teaching, Case based teaching, Team teaching Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning.

Suggested readings

- Powers, SK and Howley, ET (2001). *Exercise Physiology*. Mc Graw Hill
- McArdle, WD, Katch, FI & Katch, VL (2001) *Exercise Physiology*. 5th ed. Lippincott, Williams & Wilkins.
- *Short Textbook of Prosthetics and Orthotics* by R Chinnathurai, P Sekar, M Ramaa Kumar, K Nithya Manoj, C Senthil Kumar
- *Therapeutic Exercise for Sports Injuries* (2017). Dr. Fatemeh Karami Borzabad, Dr. C. Venkatesh.

Web Sources

- <https://www.uofmhealth.org/conditionstreatments/rehabilitation/orthotics-and-prosthetics>
- https://neprisstore.blob.core.windows.net/sessiondocs/doc_8bcc0054-946f-4820-82e0-ca169a8823b7.pdf
- <https://accessphysiotherapy.mhmedical.com/content.aspx?bookid=475§ionid=40791200>

Course Title: MUSCULOSKELTAL DISORDERS

Course Code: MPM1102

L	T	P	Credits
4	0	0	4

Course Outcomes**Total Hours- 60**

On the completion of the course the students will be able to

1. Analyse various diseases which can have an impact on the performance of an individual.
2. Develop skills to diagnose deformities and mal-alignments.
3. Acquire knowledge about pathology and prognosis of contagious diseases affecting bones.
4. Detect the various spinal deformities.

Course Content**UNIT I****15 Hours**

Fractures: Definition, types, signs and symptoms. Fracture healing. Complications of fractures, conservative and surgical approaches; Principles of management – reduction (open, closed, immobilization etc.); Subluxation/ dislocations – definition, signs and symptoms, principles of management (conservative and operative); Upper Limb Fractures and Dislocations: Causes, clinical features, mechanism of injury, complications, conservative and surgical management of the major long bone fractures and joint injuries, Fractures of the clavicle; Lower Limb Fractures and Dislocations: Causes, clinical features, mechanism of injury, complications, conservative and surgical management of the major long bone fractures and joint injuries; Spinal Fractures and Dislocations: Mechanism of injury, clinical features, complications (quadriplegia) and management of Spinal injuries and rib cage fractures (collar, cast, brace, traction), management of complication (bladder and bowel, quadriplegia); Congenital disorders of vertebral column & vertebral deformities.

Rheumatoid arthritis; Ankylosis Spondylosis; Reiter's disease; Polymyalgia rheumatica; Inflammatory disorders of vertebrae, vertebral Joints, soft tissues.

UNIT II**15 Hours**

Shoulder injuries: impingement, rotator cuff injuries, glenoid labrum injuries, instability of shoulder, AC Joint injuries, referred pain and other less common causes of shoulder pain; Specific rehabilitation protocols: Acute, recovery and functional phase.

Acute elbow injuries; Forearm compartment pressure syndromes.

Hip & Groin Pain: History examination & investigation; Causes and management of adductor muscle strains (including recurrent), osteitis pubis, adductor tendinopathy, obturator neuropathy and trochanteric bursitis & other less common conditions.

Knee injuries: Review of functional anatomy; History examination & investigation; Causes and management of meniscal injuries, collateral ligament injuries cruciate ligament injuries, articular cartilage damage, acute patellar trauma and chronic instability; Rehabilitation protocols of the above-mentioned injuries; Causes & Management of Patellofemoral syndrome, Patellofemoral instability, Patellar tendinopathy, Fat pad impingement, acute & chronic Partial tears, Osgood Schlatter's Disease, Sinding -Larsen-Johansson Syndrome and Quadriceps tendinopathy; Causes & Management of iliotibial band friction syndrome, excessive lateral pressure syndrome, biceps femoris tendinopathy, precancerous tendinopathy, popliteus tendinopathy, Biceps Femoris tendinopathy& Baker's cyst.

UNIT III

15 Hours

Metabolic and endocrine disorders: Osteoporosis; Osteomalacia and Rickets; Hyperparathyroidism; Causes, assessment of a patient with Low Back pain, & stiffness disorders; Traumatic Injuries of vertebral column: General & regional injuries; Neuromuscular disorders: Poliomyelitis; Cerebral palsy; Muscular dystrophy; Pelvic injuries; Spinal cord Injuries: Types, Classifications, Pathology, Level, Examination, Management & Physiotherapy.

UNIT IV

15 Hours

Orientation and General principles of Orthopaedic surgery: Arthrodesis; Osteotomy; Arthroplasty; Bone grafting; Internal and external fixations; Distraction and limb reconstruction; Correction of bone deformities and joint contractures; Tendon transfers; Nerve suturing and grafting; Causes & Management of Inflammatory shin pain and Compartment Syndromes Acute bony injuries: Peri osteal Contusion & fractured tibia & fibula; Causes and Management of gastrocnemius & soleus muscle strain; Claudication type of calf pain; Causes and management of Achilles tendinopathy, Achilles tendon rupture, Retro calcaneal bursitis, Sever's disease and Posterior impingement syndrome.

Transaction Mode

Demonstration method, Video based teaching, Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested readings

- *Management Principles for Physiotherapist by Nosse, Lorry J*
- *Essential of Orthopaedic for physiotherapists by Ebnezar*

- *Physical therapy of the low back* by Twomey, Churchill, Livingstone, London 1995
- *Myofascial and pain dysfunction* by Travell, Villimans and Wilkins, Baltimore 1983
- *Orthopaedic Physical therapy* by Donatteli, London Churchill Livingstone

Web Sources

- https://www.physiopedia.com/Long_Term_Musculoskeletal_Conditions
- <https://my.clevelandclinic.org/health/diseases/22176-pelvic-fractures>
- <https://www.sciencedirect.com/journal/burns>
- https://www.physio-pedia.com/Spinal_Cord_Injury

Course Title: PHYSIOTHERAPEUTICS LAB

Course Code: MPM1103

L	T	P	Credits
0	0	2	1

Total Hours: 15

Course Outcomes

On successful completion of this course, the students will be able to:

1. Analyze the principles of bedside assessment of bed ridden patient.
2. Design proficiently the application and demonstration of Manual therapy and Exercise Physiology
3. Evaluate the outcome of the assessment for musculoskeletal tissues
4. Comprehend the effects of poor posture and its evaluation.

Course Content

Bedside Evaluation and Therapeutic Skills.

Electro physiology, Electro diagnosis, Manual therapy, Exercise Physiology.

Assessment of Tone, flexibility, tightness of musculoskeletal tissues.

Postural assessment methods.

Common deviations from the normal posture.

Transaction Mode

Demonstration method, Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning.

Suggested Readings

- *Kisner, C., Colby, L. A., & Borstad, J. (2017). Therapeutic exercise: foundations and techniques. Fa Davis. The Principle of Exercise Therapy -Gardiner (2005) - C.B.S. Delhi.*
- *Norkin, C. C., & White, D. J. (2016). Measurement of joint motion: a guide to goniometry. FA Davis.*
- *Gardiner, M. D. (1973). Principles of Exercise Therapy: M Dena Gardiner.*

Web Sources

- <https://www.physio-pedia.com/Electrodiagnosis>
- <https://www.ucsfhealth.org/education/electrophysiology-procedure>
- <https://www.physio4all.com/therapies/manual-therapy/>
- https://www.physio-pedia.com/Sports_Screening:_Postural_Assessment

Course Title: ASSESSMENT AND EVALUATION IN MUSCULOSKELETAL DISORDERS LAB

Course Code: MPM104

L	T	P	Credits
0	0	2	1

Total Hours: 15

Course Outcomes

On successful completion of this course, the students will be able to:

1. Develop observation and palpation skills.
2. Chart out muscle strength and joint range of motion.
3. Acquire expertise in using functional scales for assessment.
4. Analyze special tests to draw an appropriate diagnosis.

Course Content

Assessment and evaluation based on Maitland and Cyriax Concepts, Physical disability evaluation and ICF classification.

Clinical Gait assessment, Postural assessment, Functional assessment, Geriatric assessment, Assessment of amputee.

Balance, tone, flexibility, sensory and motor assessment, Muscle testing, limb length and reflex testing.

Examination of spine, Examination of upper limb (shoulder, elbow, wrist & hand) and Examination of lower extremity (pelvis, hip, knee, ankle and foot).

Transaction mode

Group discussion, Video based teaching, open learning, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested readings

- Magee, D. J. (2014). *Orthopedic physical assessment-E-Book*. Elsevier Health Sciences.
- Johanson, M. A., Donatelli, R., Wooden, M. J., Andrew, P. D., & Cummings, G. S. (1994). Effects of three different posting methods on controlling abnormal subtalar pronation. *Physical Therapy*, 74(2), 149-158.
- Maheshwari, J., & Mhaskar, V. A. (2019). *Essential orthopaedics:(including clinical methods)*. Jaypee Brothers Medical Publishers.
- Brotzman, S. B., & Manske, R. C. (2011). *Clinical orthopaedic rehabilitation e-book: An evidence-based approach-expert consult*. Elsevier Health Sciences.

Web Sources

- https://www.physio-pedia.com/Maitland%27s_Mobilisations
- <https://fairfieldphysiotherapy.com.au/postural-assessment-need-one/>
- <https://www.physio-pedia.com/Balance>
- <https://musculoskeletalkey.com/sensory-motor-and-reflex-examination/>

Course Title: GENERAL PSYCHOLOGY

Course Code: MPM1105

L	T	P	Credits
3	0	0	3

Total Hours: 45 Hours

Course Outcomes

On the completion of the course the students will be able to

1. Develop Scientist-Practitioner approach and identify the economic, cultural and political factors affecting structure of society.
2. Comprehend the importance of gender inequality and inculcate advanced clinical skills in the field of mental health.
3. Recognize the social norms, values and become proficient in-patient counseling and support.
4. Describe the major approaches to understanding behavioral processes involved in learning and memory

Course Content

UNIT I

11 Hours

Definition of psychology, basic information in relation to schools, methods and branches of psychology; Schools: Structuralism, functionalism, behaviourism psychoanalysis; Methods: Introspection, observation, inventory and experimental

method; Branches: General, child, social, industrial, clinical, counseling, educational; Psychology and physiotherapy; Development and Growth Behaviour; Life span - Infancy, childhood, adolescence, adulthood, middle age, old age; Heredity and environment – its importance and role in physical and psychological development; Emotions: Definition and differentiate from feelings, Three levels of analysis of emotions, (physiological level, subjective state, and overt behavior), Theories of emotion, Stress and management of stress.

UNIT II

12 Hours

Motivation: Motivation cycle (need, drive, incentive, reward), Classification of motives, Abraham Maslow's theory of need hierarchy; Learning: Factors effecting learning, Theories of learning: trial and error learning, classical conditioning, Operant conditioning, insight learning, social learning theory, The effective ways to learn: Massed/Spaced, Whole/Part, Recitation/Reading, Serial/Free recall, Incidental/Intentional learning, Knowledge of results, association, organization, and mnemonic methods; Personality: Definitions: List of components, Physical characteristics, character, abilities, temperament, interest and attitudes, Discuss briefly the role of heredity, nervous system, physical characteristics, abilities, family and culture of personality development, Basic concepts of Freud: unconscious, conscious, Id, ego and superego, List and define the oral, anal and phallic stages of personality development list and define the 8 stages as proposed by Erickson, 4 concepts of learning as proposed by Dollard and Miller; drive, cue, response and reinforcement.

UNIT III

11 Hours

Intelligence: Theories of intelligence, Distribution of intelligence, Assessment of intelligence; Sensation, Perception and Attention: Attention: Types of attention, Determinants of attention (subjective determinants and objective determinants), Sensation: Vision, Hearing, Olfactory, Gustatory and Cutaneous sensation, movement, equilibrium and visceral sense, Illusion and hallucination: different types.

UNIT IV

11 Hours

Frustration: sources of frustration, Conflict: types of conflict, Management of frustration and conflict; Stress: Anxiety, Tension, Physiological symptoms, psycho-

somatic problems, coping strategies, professional stress burnout, Behavior modification: Application of various conditioning and learning principles to modify patient behavior, Clinical Psychology: psychological reactions of a patient during admission and treatment. Anxiety, shock denial, suspicion. loneliness, shame, guilt, rejection, fear, withdrawal, depression, egocentric, justify and loss of hope.

Transaction Mode

Open learning, Problem solving, Flipped teaching, Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- Carson, R.C., Butcher, J.N., & Mineka, S. (2001). *Abnormal psychology in modern life* (11th ed). New York. Allyn and Bacon.
- Kaplan, H.I., Saddock, B.J. & Gribb, J.A. (1994). *Synopsis of Psychiatry*. New Delhi. B.I Waruly.
- Barlow, D.H. & Durand, V.M. (1999). *Abnormal psychology: An integrative approach* (2nd ed.). Pacific Grove: Brooks/Cole.
- Davison, G.C. & Neals J.M. (1996). *Abnormal psychology* (Revised ed.). New York: John Wiley.
- Baron, Robert A *Psychology*, Printer Hall of India Pvt Ltd. New Delhi.

Web Sources

- <https://www.webmd.com/anxiety-panic/guide/anxiety-disorders>
- <https://www.sciencedirect.com/topics/medicine-and-dentistry/child-psychopathology>
- <https://www.merriam-webster.com/dictionary/family>

Course Title: Introduction to Yogasutra	L	T	P	Credits
Course Code: IKS0024	2	0	0	2

Course Outcome:

1. Comprehensive Understanding of Yoga Philosophy
2. Proficiency in Ashtanga Yoga and Ethical Analysis
3. Application of Ancient Values to Modern Life
4. Integration of Yogic Principles for Holistic Development

Course Content

Unit 1: Philosophy of Yoga

8 Hours

Yoga (Meaning and Definition), Importance of Yoga, Introduction to Bharatiya Yoga Darshana, Various paths to Yoga: Jnana, Bhakti, Karma, Ashtanga and Hatha Yoga , Yoga and Sampradayas.

Unit 2: Manas and Sharira - Maintenance and Cleansing 7 Hours

Yoga Culture and Value Education, Mental and Physical Aspects of the Body

Unit 3: Applications of Yoga 8 Hours

Practical Application of Yoga to Life, Modern view of Yoga, Application of principles of Yoga for holistic living, Management Techniques, Psychology, Application of Yoga in Defense

Unit 4: 7 Hours

Tutorials: Ashtanga Yoga Sutras, discussion of Asanas and eight angas with examples, recitation and memorization of important sutras in this context

Tutorials: Yoga for Students (Includes Theory)

- a. Surya Namaskaras
- b. Basic Pranayama and Kriyas
- c. Eyesight improvement
- d. Voice Culture
- e. Focus and concentration techniques
- f. Memory improvement techniques
- g. Relaxation technique

Transactional Mode

Seminars, Group discussion, Team teaching, Focused group discussion, Assignments, Project-based learning, Simulations, reflection and Self-assessment

Learning Resources: Text books

1. Patanjali Yog Darshan based on Vyasa Bhashya, by Dr. P. V. Karambelkar, Publishers - Kaivalyadham, Lonavla
2. Online Resources: <https://dharmawiki.org/index.php/Category:Yoga>

Suggested Readings

1. *Hatha Pradipika of Swami Svatmarama, Edited by Swami Digambarji and Kokaje, Publisher: Kaivalyadham, Lonavla*
2. *Spirituality and Indian psychology by DPS Bhawuk, Publisher: Springer, New York*
3. *Universal Message of the Bhagavad Gita by Swami Ranganathananda*

4. *Essays on the Gita, Vol. 13 by Sri Aurobindo, Publisher: Arya Publishing House, Calcutta*
5. *Management with a Difference: Insights from Ancient Indian Wisdom by Swami Anubhavanada & A. Kumar, Publisher: Ane Books India, New Delhi*
6. *Management Lessons from Patanjali's Yoga Sutras by Swami Bodhananda Saraswati, Publisher: Ahmedabad Management Association*
7. *Mind and Self: Patanjali's Yoga Sutra and Modern Science by Subhash Kak, Publisher: Mount Meru Publishing*
8. *Various books from Bihar School of Yoga, Munger, Bihar, India*

Course Title: HAND REHABILITATION

Course Code: MPM1106

L	T	P	Credits
4	0	0	4

Total Hours: 45

Course Outcomes

On the completion of the course the students will be able to

1. Evaluate the sensory and motor functions of the hand.
2. Develop an in-depth knowledge of Hand to help assess and manage hand impairments.
3. Implement special tests to draw an appropriate diagnosis.
4. Comprehend the uses of Orthosis and Prosthesis.

Course Content

UNIT I

15 Hours

Functions of Hand as Sensory and Motor Organ: Pathomechanics of hand; Classification of hand injuries and principles of hand rehabilitation (Functional and Vocational Training).

UNIT II

15 Hours

Tendon Injuries of Hand; Nerve injuries and entrapments; Crush Injuries of Hand; Acute Injuries of the wrist; History, examination, investigation and management of fractures of distal radius and ulna, scaphoid and hook of the hamate and dislocation of the carpal bones; Chronic Injuries of the wrist; History, examination, investigation and management of common injuries; Hand and finger injuries; History, examination, investigation and management of hand injuries: fracture of the meta carpals & Phalanges, dislocation of MCP Joints and finger joints, ligament & tendon injuries and laceration & infections of the hand.

UNIT III

15 Hours

Burns in hand; Spastic hand; Rheumatoid hand; Hand in Hansen's disease; Reflex sympathetic dystrophy.

UNIT IV

15 Hours

Prosthetic hand; Orthosis for hand and their uses; Management of Orthosis and Prosthesis.

Transaction Mode

Video based teaching, Case based teaching, Team teaching Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning.

Suggested Readings

- *Hand Rehabilitation by Christine, Churchill, Livingstone London 1995*
- *Cash's Textbook for Ortho and Rheumatology for physiotherapist by Downie*
- *Orthopaedic Physical therapy by Donatteli, London Churchill Livingstone*

Web Sources

- https://www.physio-pedia.com/Hand_Function
- https://www.physiopedia.com/Biomechanics_of_Hand_and_Wrist_Defomities_in_Rheumatoid_Arthritis
- <https://www.mayoclinic.org/diseasesconditions/burns/diagnosis/treatment/drc-20370545>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7543843/>

Course Title: FOOT REHABILITATION

Course Code: MPM1107

L	T	P	Credits
4	0	0	4

Total Hours: 60

Course Outcomes

On the completion of the course the students will be able to

1. Evaluate the Pathomechanics of the foot.
2. Develop an in-depth knowledge of foot to help assess and manage foot impairments.
3. Implement special tests to draw an appropriate diagnosis.
4. Comprehend the uses of Orthosis and Prosthesis.

Course Content

UNIT I**15 Hours**

Pathomechanics of foot; Classification of foot injuries and principles of foot rehabilitation.

UNIT II**15 Hours**

Tendon Injuries; Crush Injuries; Acute Ankle Injuries; Functional Anatomy; Clinical Approach to the patient with Acute Ankle Injuries: History examination & investigation; Causes & Management of Lateral and medial ligament injuries and Persistent pain after ankle sprain; Ankle Pain; Clinical Approach to the patient with Medial, Lateral & medial calcaneal nerve entrapment, Peroneal & Tibialis Anterior tendinopathy, Sinus tarsi syndrome Anterior, Antero lateral impingement; Foot Pain; Clinical Approach to the patient with Rea foot Midfoot & Forefoot Pain: History examination & Investigation.

UNIT III**15 Hours**

Aetiology and Management of the following Conditions: Hallux Rigidus; Spastic Foot; Diabetic Foot; Bunions; Plantar Fasciitis; CTEV.

UNIT IV**15 Hours**

Prosthetic foot; Orthosis for foot and their uses; Management of Orthosis and Prosthesis

Transaction mode

Flipped teaching, Open learning, Group discussion, Video based teaching, Case based teaching, Team teaching Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning.

Suggested readings

- *Baxter's The Foot and Ankle in Sport- David Porter, Lew Schon, 2020*
David Porter, Lew Schon
- *Rehabilitation of the Foot- Sammarco, V. James, 1995*
- *Sarrafian's Anatomy of the Foot and Ankle: Descriptive, Topographic, Functional- Armen S. Kelikian*
- *Bone and Joint Disorders of the Foot and Ankle: A Rheumatological Approach- Maurice Bouysset*

Web Sources

- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC164367/>
- <https://medlineplus.gov/diabeticfoot.html>
- <https://orthoinfo.aaos.org/en/diseases-conditions/sprained-ankle>
- https://www.physio-pedia.com/Plantar_Fasciitis

Course Title: APPLIED BIOMECHANICS AND ERGONOMICS

Course Code: MPM1108

L	T	P	Credits
4	0	0	4

Total Hours: 60

Course Outcomes

On the completion of the course the students will be able to

1. Explain the principles of reaction forces and friction in various contexts, including static and dynamic equilibrium.
2. Explain the principles of EMG, including muscle contraction recording and processing, and the relationship between EMG and biomechanical variables.
3. Apply knowledge of pathomechanics to assess and develop treatment plans for individuals with different pathologies.
4. Create and implement ergonomic job designs and worksite programs to enhance workplace safety and efficiency.

Course Content

UNIT I

15 Hours

Fundamental Mechanics: Reaction forces, Friction, Equilibrium: static and dynamic, Simple machines: Levers, pulleys and wheel and axle, Segmental dimensions, Poisson's effect, Static and cyclic load behaviors, Load: Load sharing and load transfer, Motion : types , location , magnitude and Direction, Angular motion and its various parameters, Linear motion and its various parameters, Projectile motion; Muscle Mechanics: Structure and composition of muscle, Fiber length and cross-section areas, Mechanical properties, EMG changes during fatigue, Changes in mechanical properties because of aging, exercise and immobilized of immobilization, Clinical application; Ligament and Tendon mechanics: Structure, composition and mechanical properties, Cross- sectional area measurement, Muscle tendon properties, Temperature sensitivity, Changes in mechanical properties because of ageing, exercise and immobilization, Mechanoreceptors; Bone Mechanics: Structure and

composition of bone, Stress, Strain, Modulus of Rigidity & Modulus of elasticity, Mechanical properties of Trabecular system, Mechanical properties of cortical bone, Bone Remodeling, Response of bone to aging & exercise & immobilization, Mechanics to prevent fracture in bone.

UNIT II

15 Hours

Measurement Instruments; Pressure transducers and Force Plates, Gait Analyzer, Isokinetic device, EMG (Electro physiology of muscle contraction, recording, processing), Relationship between EMG and Biomechanical Variables; Mechanical energy, Work and power, Definitions, Positive and negative muscles work, Muscle mechanical power, Causes of inefficient , movement co-contractions, Isometric contractions, against gravity jerky movement, energy generation at one joint and absorption at another, energy flow, Energy Storage

UNIT III

15 Hours

Gait: Gait parameter: kinetic, kinematics, time- space, Pathological gait, Running, Stair climbing Changes in gait following various surgeries/diseases/disorders; Pathomechanics, Bone and joint Patho-mechanics Neural Patho-mechanics, Cardio Patho -mechanics Pulmonary Patho - mechanics, Vascular Patho-mechanics

UNIT IV

15 Hours

Ergonomics: Definitions, Physiological and bio-mechanical risk factors, Job design, Developing and implementing work site programme, Ergonomics in home ,child care and leisure activities, Addressing problems at computer workstation.

Transaction mode

Flipped teaching, Open learning, Group discussion, Video based teaching, Case based teaching, Team teaching Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning.

Suggested readings

- *Introduction to kinesiology/Hoffman , Shirf*
- *Kinesiology: the Mechanics & Pathomechanics of human*
- *Movement/by Carol A. Oatis. / Oatis , Carol A.*
- *Joint Structure and Function Cynthia Norkins*
- *Joint Structure and Function : a comprehensive Analysis./ Levangie, Pamela K*
- *Fundamentals of Biomechanics, Orkaya, N*

Web Sources

- <https://www.physio-pedia.com/Ergonomics>
- <https://www.physio-pedia.com/Biomechanics>
- https://www.physio-pedia.com/Ergonomics_for_Daily_Life

Course Title: APPLIED PHYSIOTHERAPY**Course Code: MPM1109**

L	T	P	Credits
4	0	0	4

Total Hours: 60**Course Outcomes**

On the completion of the course the students will be able to

1. Demonstrate proficiency in manual muscle testing to evaluate muscle strength and identify weaknesses.
2. Develop and implement interventions to correct postural abnormalities and improve overall alignment.
3. Apply PNF techniques to improve muscle function and coordination in patients with neurological impairments.
4. Apply the thermal modalities to improve tissue extensibility, reduce pain, and enhance functional outcomes.

Course Content**UNIT I****15 Hours**

Assessment techniques: Manual Muscle Testing and Goniometry, Stretching and Mobilization, Re-education and strengthening, Balance and Coordination Exercise, Gait Analysis and Training (Both Normal and Pathological Gaits)

UNIT II**15 Hours**

Relaxation and soft Tissue Manipulations, Posture, PNF and Neuromuscular Coordination, Hydrotherapy, Joint Mobilization

UNIT III**15 Hours**

General Review of Low, Med and high currents and their modifications like Di-dynamic and Russian Currents etc., Laser

UNIT IV**15 Hours**

Cryotherapy, UVR and IRR, SWD, MWD, HydroCollator, Wax therapy Fluido-therapy

Transaction mode

Flipped teaching, Open learning, Group discussion, Video based teaching, Case based teaching, Team teaching Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning.

Suggested readings

- *The principles of exercise therapy / Gardniner , M Dena .*
- *Therapeutic exercise : foundations and techniques / by Carolyn Kisner and Lynn Allen Colby . / Kisner,*
- *Electrotherapy explained : principles and practice /by John low , Ann Reedand Mary Dyson ./ low , John Clayton's electrotherapy / edited by Sheila Kitchen and Sarah Bazin ./ Kitchen, Sheila*
- *Muscles testing and function / by Florence Peterson Kendall (et,al) / Kendall , Florence Peterson*
- *Therapeutic modalities for physical therapists / by William E.Prentice ,William Quillen and Frank Underwood / Prentice , William E.*

Web Sources

- https://www.physio-pedia.com/Therapeutic_Exercise
- https://www.physio-pedia.com/Introduction_to_Therapeutic_Exercise
- https://www.physio-pedia.com/Current_Concepts_in_Electrotherapy

SEMESTER-II

Course Title: ADVANCED THERAPEUTICS

Course Code: MPM2150

L	T	P	Credits
4	0	0	4

Total Hours: 60

Course Outcomes

On the completion of the course the students will be able to

1. Acquire knowledge about the recent developments and innovations in the field of musculoskeletal physiotherapy.
2. Apply physiotherapy treatment using hi-tech equipments

3. Advocate manual therapy treatment to the patients.
4. Design a rehabilitation protocol by inculcating advanced therapeutic techniques.

Course Content

UNIT I

16 Hours

Group therapies: Combined movement therapy; Group exercises; Manual therapy; Myofascial release; Positional release technique; Muscle energy technique; Relaxation technique; Massage therapy.

UNIT II

15 Hours

Mobilization; Soft Tissue Release; Butler mobilization; Mulligan Concept; Cyriax Concept; Maitland mobilization; McKenzie technique.

UNIT III

14 Hours

Kinesiotaping; Vacuum Therapy; EMG; Biofeedback.

UNIT IV

13

Hours

Ambulation; Transfer techniques; Wheelchair: Design, types, management, modifications, prescription; Hydrotherapy.

Transaction Mode

Video based teaching, Case based teaching, Team teaching Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning.

Suggested Readings

- Maitland, G. D. (1986). *Vertebral manipulation. Elsevier Health Sciences. Muscle Energy Technique, Leon chaitow, Churchill Livingstone.*
- Chaitow, L. (2007). *Positional Release Techniques E-Book. Elsevier health sciences.*
- Hing, W., Hall, T., Rivett, D. A., Vincenzino, B., & Mulligan, B. (2014). *The Mulligan Concept of Manual Therapy-eBook: Textbook of Techniques. Elsevier Health Sciences.*

Web Sources

- <https://musculoskeletalkey.com/introductiontocombinedmovementtheory/>
- <https://us.humankinetics.com/blogs/excerpt/what-is-positional-release-therapy>
- https://www.physio-pedia.com/Muscle_Energy_Technique
- https://www.physio-pedia.com/Mulligan_Concept

Course Title: PHYSIOTHERAPY FOR TRAUMATIC MUSCULOSKELETAL CONDITIONS

Course Code: MPM2151

L	T	P	Credits
4	0	0	4

Total Hours: 60

Course Outcomes

On the completion of the course the students will be able to

1. Discover the various musculoskeletal conditions resulting from trauma.
2. Acquire knowledge about the various orthopaedic surgeries.
3. Analyze the complications associated with fractures.
4. Design post injury and post-surgery rehabilitation programme.

Course Content

UNIT I

16 Hours

Fractures: Principles of management – reduction (open, closed, immobilization etc.); Principles of management (conservative and operative) for Subluxation/ dislocations; Conservative and surgical management of the major long bone fractures and dislocation of Upper Limb; Conservative and surgical management of the major long bone fractures and dislocation of Lower Limb; Management of Spinal fractures and rib cage fractures (collar, cast, brace, traction), management of complication (bladder and bowel, quadriplegia); Physiotherapy assessment in fracture cases (Upper limb, Lower Limb and Spine) Principles of PT management in fracture cases – guidelines for treatment during immobilization and after immobilization period. Physiotherapy management in complications (early and late); Prosthetic Training.

UNIT II

15 Hours

Pre- and post-operative physiotherapy assessment, goals, precautions and PT management for the following orthopedic surgeries: Rotator Cuff Tendon Repair;

SLAP Repair; Acromioclavicular Joint Repair; Biceps Tendon Surgery; Cubital Tunnel Release; Tommy John surgery; Synovectomy; Spinal stabilization surgeries; Hip Resurfacing; Watson-Jones anterior approach; Meniscectomy; Patellectomy; Regional Arthroplasty; Arthrodesis; Regional Arthroscopy; Osteotomy; Meniscus Repair; ACL Reconstruction; Arthrodesis; Ankle Fusion; Lateral Ankle Ligament Reconstruction; Brostrom Procedure.

Pre- and post-operative physiotherapy assessment, goals, precautions and PT management for the following corrective surgeries: Bone grafting; Bone Lengthening; Tendon transfers; Soft Tissue release- tenotomy, myotomy, lengthening; Nerve Repair and grafting.

UNIT III

14 Hours

Pre- and post-operative physiotherapy assessment, goals, precautions and PT management for the following conditions: Shoulder injuries: impingement, rotator cuff injuries, glenoid labrum injuries, instability of shoulder, AC Joint injuries, referred pain and other less common causes of shoulder pain; Acute elbow injuries; Forearm compartment pressure syndromes; Hip & Groin Pain-Adductor muscle strains (including recurrent), osteitis pubis, adductor tendinopathy, obturator neuropathy and trochanteric bursitis & other less common conditions; Knee injuries- Meniscal injuries, collateral ligament injuries cruciate ligament injuries, articular cartilage damage, acute patellar trauma and chronic instability; Causes & Management of Patellofemoral syndrome, Patellofemoral instability, Patellar tendinopathy, Fat pad impingement, acute & chronic Partial tears, Osgood Schlatter's Disease, Sinding -Larsen-Johansson Syndrome and Quadriceps tendinopathy; Iliotibial band friction syndrome, excessive lateral pressure syndrome, biceps femoris tendinopathy, precancerous tendinopathy, popliteus tendinopathy, Biceps Femoris tendinopathy & Baker's cyst.

UNIT IV

15 Hours

Pre- and post-operative physiotherapy assessment, goals, precautions and PT management for the following conditions: Peri osteal Contusion & fractured tibia & fibula; Gastrocnemius & soleus muscle strain; Claudication; Achilles tendinopathy, Achilles tendon rupture, Retro calcaneal bursitis, Sever's disease and Posterior impingement syndrome; Burns- classification, degrees, Rule of Nine, PT assessment, aims, pre and postoperative PT management; Amputation- level of amputation of upper limb and lower limb, PT assessment, aims, pre and postoperative PT management, stump care, stump bandaging, pre and post prosthetic management including check out of prosthesis, training, complications and its management.

Transaction mode

Flipped teaching, Open learning, Group discussion, Video based teaching, Case based teaching, Team teaching Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning.

Suggested readings

- Maheshwari, J., & Mhaskar, V. A. (2019). *Essential orthopaedics:(including clinical methods)*. Jaypee Brothers Medical Publishers.
- Brotzman, S. B., & Manske, R. C. (2011). *Clinical orthopaedic rehabilitation e-book: An evidence-based approach-expert consult*. Elsevier Health Sciences.
- Thompson, A. (2013). *Tidy's Physiotherapy*. Varghese publishing House.
- Sullivan, S. (2013). *Physical Rehabilitation Assessment and Treatment*. Jaypee brothers, Delhi

Web Sources

- <https://www.physio-pedia.com/Osteotomy>
- <https://www.healthline.com/health/menisectomy>
- <https://www.spine-health.com/glossary/arthrodesis>
- <https://www.physio-pedia.com/Amputations>

Course Title: REHABILITATION, ORTHOTICS AND PROSTHETICS

Course Code: MPM2152

L	T	P	Credits
4	0	0	4

Total Hours: 60

Course Outcomes

On successful completion of this course, the students will be able to:

1. Evaluate various disabilities based on standardized guidelines and classification.
2. Analyze the different models of rehabilitation and the role of rehabilitation team members
3. Design and implement a rehabilitation programme as per the needs of an individual.
4. Synthesize appropriate orthosis and prosthesis for the patients.

Course Content**UNIT I**

15 Hours

Rehabilitation: Conceptual framework of rehabilitation; Role of Physiotherapist in the rehabilitation team; Role of Rehab Nurse; Model of service delivery.

UNIT II

15 Hours

Preventive aspects of disability: Epidemiology of disability; Legal Aspect in Disabilities; Govt and NGO participation in disability

UNIT III

15 Hours

Socio-economic independency; Principles and methods of vocational and social rehabilitation; An outline of the principles and process of disability evaluation

UNIT IV

15 Hours

Orthotics & Prosthetics: Principles of Orthotics; Principles of prosthesis; Prosthetics and orthotics used for various conditions; Prescription of prosthetics and orthotics

Transaction Mode

Demonstration method, Video based teaching, Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested readings

- Sullivan, S. & Schmitz (2013). *Physical Rehabilitation – Assessment and Treatment*. F. A. Davis.
- Lusardi, M. M., Jorge, M., & Nielsen, C. C. (2013). *Orthotics and prosthetics in rehabilitation*. Elsevier Health Sciences.

Web Sources

- https://www.physio-pedia.com/Rehabilitation_Team_Members
- https://www.physio-pedia.com/Rehabilitation_Frameworks
- <https://www.who.int/health-topics/disability>
- https://www.physio-pedia.com/Category:Prosthetics_and_Orthotics

Course Title: SKILL ENHANCING STUDIES

Course Code: MPM2153

L	T	P	Credits
2	0	0	2

Total Hours: 30

Course Outcomes

On the completion of the course the students will be able to

1. Acquire Administrative and Management Skills.
2. Apply the Concepts and Methods of Teaching and Learning in their practice.
3. Manage the physiotherapy department after the completion of the course.
4. Manoeuvre the A.V. Aids.

Course Content

UNIT I

07 Hours

Physiotherapy Ethics: Morals and ethics; Ethical Issue in physical therapy; Rules and regulation of council; Physical Therapy & Law; Medico-legal aspect of physical therapy; Liability; Negligence and practice licensure workmen compensation; Proper maintenance of Patient's record.

UNIT II

08 Hours

Physiotherapy Department Management: Recruitment, Interview, probation, salary, hours of working, leaves facilities, retirement, referred policy; Maintenance of records: equipments, statistics; Planning, design construction, expansion plan; Physiotherapy Education Technology; Aims, philosophy and trends and issues; Educational aims; Agencies of education; Formal and informal education; Major philosophies of education (Naturalism, idealism, professionalism, realism)

UNIT III

07 Hours

Concepts of Teaching and Learning: Theories of Teaching; Relationship between teaching and learning; Psychology of education; Dynamics of behavior, motivational process of learning perception, individual differences, intelligence personality.

Curriculum: Curriculum committee; Development of a curriculum for physiotherapy; Types of Curriculum; Placing, courses placement, time allotment; Correlation of therapy and practice.

Hospital and community areas for clinical instructions.

UNIT IV

08 Hours

Principles and methods of teaching: Strategies of teaching; Planning of teaching; Organization, writing lesson plan.

AV. aids.

Teaching methods - socialized methods: Measurement and evaluation; Nature of measurement of Educations, meaning, process, personnel; Standardized, non-standardized; Standardized tools, important tests of intelligence, aptitude, instrument; Personality, achievements and status scale.

Programme evaluation; Cumulative evaluation.

Guidance and counselling: Student Ragging and Issues related.

Philosophy, principles and concepts, guidance and counseling services.

Transaction Mode

Video based teaching, Case based teaching, Team teaching Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning.

Suggested Readings

- *Learning and Teaching-Mangal S.K., 2017*
- *Primary Huh Curriculum Conversations with Subject Leaders in Primary Schools- John Tomsett, 2022*
- *Audio-Visual Aids to Educational Technology-Harmesh Lal, Shailendra Bhushan and Meenu Kumar, 2018*
- *Ethics in Physical Therapy- Nancy Kirsch, 2018*

Web Sources

- <https://www.andrews.edu/chhs/pt/pt/postpro-chhs/student-resources-files/dpt-associated-faculty-resources/pt-policy-manual.pdf>
- <https://www.physio-pedia.com/Ethics>
- <https://www.tes.com/magazine/archive/pedagogy-focus-teaching-theories>
- https://www.brainkart.com/article/Audiovisual-Aids_35533/

Course Title: CLINICAL BIOMECHANICS LAB

Course Code: MPM2154

L	T	P	Credits
0	0	4	2

Total Hours: 30

Course Outcomes

On successful completion of this course, the students will be able to:

1. Advocate the role of understanding applied mechanics as an essential skill for Physiotherapist.

2. Evaluate and apply the applications of movement dysfunction into therapeutic exercise prescription.
3. Analyze and prevent secondary impairments and/or pathologies across systems.
4. Analyze the root cause of biomechanical impairments and activity limitations.

Course Content

Forces

Equilibrium

Levers

Gravity, balance & equilibrium

Length-Tension Relationship in Muscle Tissue

Types of Muscle Contraction affecting force production

Angle of Pull

Kinetic Chains

End Feel

Types of Arthrokinematic Motion

Convex-Concave Law

Joint Surface Positions (Joint Congruency)

Transaction Mode

Demonstration method, Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning.

Suggested Readings

- Sahrman, S. (2001). *Diagnosis and treatment of movement impairment syndromes*. Elsevier Health Sciences. 2nd Edition
- Magee, D. J. (2013). *Orthopedic physical assessment*. Elsevier Health Sciences. 3rd Edition
- Carol A. Oatis, *Kinesiology: The Mechanics and Pathomechanics of Human Movement*, 4th Edition

Web Sources

- https://www.physio-pedia.com/Introduction_to_Human_Biomechanics_-_External_Forces
- https://www.physio-pedia.com/Kinetic_Chain
- <https://exrx.net/Kinesiology/AnglePull>

- <https://www.physio-pedia.com/Arthrokinematics>

Course Title: ADVANCED MANIPULATIVE SKILLS LAB

Course Code: MPM2155

L	T	P	Credits
0	0	4	2

Total Hours: 30

Course Outcomes

On successful completion of this course, the students will be able to:

1. Acquire the knowledge and skill of various approaches of Manual therapy for joints of the limbs/spine.
2. Apply the manual therapies to rehabilitate the Musculoskeletal problems.
3. Impart knowledge and train the undergraduate in Manual therapy.
4. Synthesize the various techniques for rehabilitation.

Course Content

Overview of manual therapy approaches for all the joints.

Assessment & methods of application of – Maitland, Kaltenborn, Cyriax Concept, Mulligan Concept, McKenzie, Butler's Neural Mobilisation.

Assessment & methods of application of soft tissue approaches – Myofascial techniques, Neural tissue Mobilization, Muscle Energy Techniques.

Assessment & methods of application of High velocity thrust techniques. Positional Release Techniques, Trigger point release, Lymphatic Manipulation.

Assessment & methods of application of Kinesiotaping.

Transaction mode

Group discussion, Video based teaching, open learning, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested readings

- *Manual Therapy Masterclass – Karem S Beeton*
- *Clinical Manual Therapy & Practice – Leon Chaitow*
- *Maitlands Peripheral Manipulation – Elly Hengeveled*
- *Manual of Combined Movement - Edwards*
- *Manual Therapy in Children – Heiner*

Web Sources

- <https://manualmobilization.wordpress.com/kaltenbornconcept/>
- https://www.physio-pedia.com/McKenzie_Method

- <https://cyriaxphysio.com/wp/the-cyriax-method/>
- <https://www.physio.co.uk/treatments/physiotherapy/manual-therapy/maitland-concept.php>

Course Title: ADVANCED FUNCTIONAL AND PHYSICAL DIAGNOIS

Course Code: MPM2156

L	T	P	Credits
4	0	0	4

Total Hours: 45

Course Outcomes

On the completion of the course the students will be able to

1. Focus on the basic assessment skills for physical and Functional diagnosis in Musculoskeletal System in order to study the various impairments and their impact on activity and participation of the individual.
2. Acquire knowledge about the use of appropriate tools or instruments of assessment for diagnosis in various diseases and disorders including musculoskeletal conditions.
3. Comprehend the use of diagnosis for physiotherapy practice.
4. Acquire skill in applied aspect of the subject for physiotherapy practice.

Course Content

UNIT I

15 Hours

Physical Diagnosis and its importance in clinical practice; Functional Diagnosis and its importance in clinical practice; Subjective examination: Name, age, sex, height, weight, BMI, address, occupation, chief complaint, present history, past history, personal history, history of hospitalization, medical and surgical history; Assessment of Pain: Types of pain: Somatic, referred, Neurogenic, Visceral, etc. Location, duration, progressive or non-progressive, localize or generalize, distribution, quality, Severity, nature of pain; Measurement and Documentation: Visual Analogue Scale (VAS), Numerical Rating Scale (N.R.S.) McGill's modified questionnaire (including Body charts).

UNIT II**15 Hours**

Objective examination: Vitals parameter -Pulse Rate,Respiratory Rate,Blood Pressure, Temperature; Palpation; Tenderness, swelling/oedema, spasm, Surface Contour; Auscultation; Breath sounds,Heart sounds; Measurement: Joint PJROM,AJROM – Goniometry; Joint End feel, capsular pattern and non-capsular pattern,jointplay movements.

UNIT III**15 Hours**

Sensory examination: Superficial, deep and cortical sensation examination; Dermatome Examination; Motor Examination Muscles Tone: Normal, hypotonic and hypertonic; Muscle Girth,wasting–Atrophy and Hypertrophy; Myotome Examination; Reflex: Deep and superficial reflex; Muscle Power: Muscle grading/ manual muscle testing(MMT) of Head, Neck, Face, Upper Limb, Trunk and Lower Limb muscles.Introduction,Principles, Uses,Precaution and Contraindication, Types of muscle grading.

UNIT IV**15 Hours**

Gait Measurement: Normal and abnormal gait,Gait parameters assessment procedures Gait Evaluation and demonstrate Pathologic gait examination; Description of some of the most commonly used types of observational gait analysis; Advantages and disadvantages; Balance tests; Romberg test; Hallpike test; Functional reach test etc.; Coordination tests (Equilibrium and non-equilibrium tests); Coordination Tests in Standing, Walking, Sitting or Supine, Finger to nose,Finger to therapist finger, Finger to finger, Alternate nose to finger, Finger opposition, Pronation/Supination, Alternate heel to knee, Drawing an imaginary circle on air with UE and LE,etc.; Functional Diagnosis; Functional Activity Specific Assessment – FIM, ADLs scales Assessment of health and wellness; 36–SF health questionnaire; Questioners for quality of life and quality of care.

Transaction Mode

Video based teaching, Case based teaching, Team teaching Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning.

Suggested Readings

- *OrthopedicPhysicalAssessment,MageeDJ.5thedition.Saunders*

- *Muscles: Testing and Function, with Posture and Pain: 5th edition.* Kendall FP; McCreary EK et al. Lippincott Williams and Wilkins
- *Practical Exercise Therapy: 3rd edition.* Hollis M; Cook PF. Wiley-Blackwell
- *Training in the Community for the people with disabilities.* Goerdt et al. World Health Organization
- *Hand Rehabilitation - A practical Guide. 2nd edition.* Clark GL. Churchill Livingstone
- *Physiotherapy for Respiratory and Cardiac Problems. Adults and Paediatrics. 3rd ed.* Pryor JA, Webber BA. London: Churchill Livingstone, 2002.

Web Sources

- <https://musculoskeletalkey.com/neurophysiology-of-the-joints-and-muscles/>
- https://www.physio-pedia.com/Trigger_Points
- https://www.physio-pedia.com/Manual_Lymphatic_Drainage
- <https://www.spinehealth.com/treatment/chiropractic/spinalmanipulation-high-velocity-low-amplitude-hvla>

Course Title: ADVANCED MANIPULATIVE SKILLS

Course Code: MPM2157

Total Hours: 45

Course Outcomes

L	T	P	Credits
4	0	0	4

On the completion of the course the students will be able to

1. Acquire the knowledge and skill of various approaches of Manual therapy for joints of the limbs/spine.
2. Integrate the manual therapies to rehabilitate the Musculoskeletal problems.
3. Impart knowledge and train the undergraduate in Manual therapy.
4. Disclose the various techniques for rehabilitation.

Course Content

UNIT I

15 Hours

Physiological movements; Articular Neuro Physiology and principles of applications.

UNIT II

15 Hours

Terminology, Principles, indications, contraindications, assessment & methods of application of –Maitland, Kaltenborn, Cyriax, Mulligan, McKenzie, Butler's Neural Mobilisation.

UNIT III**15 Hours**

Terminology, Principles, indications, contraindications, assessment & methods of application of soft tissue approaches – Myofascial techniques, Neural tissue Mobilization, Muscle Energy Techniques.

UNIT IV**15 Hours**

High velocity thrust techniques, Positional Release Techniques, Trigger point release, Lymphatic Manipulation; Kinesiotaping.

Transaction Mode

Video based teaching, Case based teaching, Team teaching Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning.

Suggested Readings

- *Manual Therapy Masterclass – Karem S Beeton*
- *Clinical Manual Therapy & Practice – Leon Chaitow*
- *Maitlands Peripheral Manipulation – Elly Hengeveled*
- *Manual of Combined Movement - Edwards*
- *Manual Therapy in Children – Heiner*

Web Sources

- <https://musculoskeletalkey.com/neurophysiology-of-the-joints-and-muscles/>
- https://www.physio-pedia.com/Trigger_Points
- https://www.physio-pedia.com/Manual_Lymphatic_Drainage
- <https://www.spinehealth.com/treatment/chiropractic/spinalmanipulation-high-velocity-low-amplitude-hvla>

SEMESTER III**Course Title: RESEARCH METHODOLOGY****Course Code: MPM3200**

L	T	P	Credits
4	0	0	4

Total Hours: 60**Course Outcomes**

On the completion of the course the students will be able to

1. Demonstrate the ability to choose methods appropriate to research aims and objectives.
2. Develop the skills in qualitative and quantitative data analysis and presentation.
3. Develop advanced critical thinking skills.
4. Develop the foundation for research in physiotherapy.

Course Content**UNIT I****16 Hours**

Research: Its concept; Nature, scope, need and Objectives of Research; Research types; Research methodology; Research process – Flow chart, description of various steps; Selection of research problem.

UNIT II**15 Hours**

Research Design: Meaning; Objectives and Strategies of research; Different research designs; Important experimental designs; Methods of Data Collection and Presentation; Types of data collection and classification; Observation method, Interview Method; Collection of data through Questionnaires, Schedules; Data analysis and interpretation, editing, coding, content analysis and tabulation.

UNIT III**15 Hours**

Sampling Methods: Different methods of Sampling; Probability Sampling methods; Random Sampling; Systematic Sampling; Stratified Sampling; Cluster Sampling and Multistage Sampling; Non probability Sampling methods; Sample size.

UNIT IV**14 Hours**

Report writing and Presentation: Types of reports; Report Format – Cover page; Introductory page; Text; Bibliography; Appendices; Typing instructions; Oral Presentation.

Transaction Mode

Video based teaching, Case based teaching, Team teaching Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning.

Suggested Readings

- Panneerselvam, R, 'Research Methodology', PHI, New Delhi.
- Cooper, D.R., Schindler, P.S., 'Business Research Methods,' Tata McGraw Hill
- Gupta S P, 'Statistical Methods', Sultan Chand & Sons, Delhi
- Ronald E Walpole, 'Probability and Statistics for Engineers and Scientists' (International Edition), Pearson Education.
- Geode, Millian J. & Paul K. Hatl, "Methods in Research", McGraw Hills, NewDelhi
- Kothari C.R., "Research Methodology", New AgePublisher
- Nargundkar R, Marketing Research, Tata McGraw Hill, New Delhi, 2002.
- Sekran, Uma, "Business Research Method", Miley Education, Singapore

Web Sources

- <https://www.academia.edu/>
- <https://www.studeersnel.nl>
- <https://www.scribd.com>

Course Title: ETHICS AND IPR**Course Code: MPM3201**

L	T	P	Credits
4	0	0	4

Total Hours: 60**Course Outcomes**

On the completion of the course the students will be able to

1. Analyze research related information and research ethics.
2. Comprehend and differentiate different types of intellectual properties.
3. Application of ethical principles and commit to professional ethics and responsibilities and norms of physiotherapy research and practice.
4. Acquire knowledge about trademark.

Course Content**UNIT I****15 Hours**

Ethics: definition, moral philosophy, nature of moral judgement and reactions, scope, Ethics with respect to science and research, Intellectual honesty and research integrity

UNIT II**15 Hours**

Scientific misconducts: Falsification, Fabrication, and Plagiarism (FFP) Redundant publications: duplicate and overlapping publications, salami slicing, Selective reporting and misrepresentation of data, Publication ethics: definition, introduction and importance

UNIT II**15 Hours**

Introduction to Intellectual Property rights: Concept & theories, Kinds of intellectual Property Rights, Advantages & Disadvantages of IPR, Development of IPR in India, Role & Liabilities of IPRs in India.

UNIT IV**15 Hours**

Rights of trademark-kind of signs used as trademark-types, purpose & functions of a trademark, trademark protection, trademark registration, selecting and evaluating trade mark, trade mark registration process.

Transaction mode

Flipped teaching, Open learning, Group discussion, Video based teaching, Case based teaching, Team teaching Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning.

Course Title: PROFICIENCY IN TEACHING**Course Code: MPM3202****Total Hours: 30****Course Outcomes**

On the completion of the course, the students will be able to

1. Design the learner-centered instructional plans and learning outcomes.
2. Apply innovative teaching strategies and technologies to engage learners.
3. Analyze the different assessment methods to evaluate student learning.
4. Reflect on teaching experiences and continuously improve teaching practices.
5. Develop effective communication and classroom management skills.

Course Content**UNIT I****15 Hours**

Overview of the course and its objectives - Theories of learning and their implications for teaching - Understanding the role of the teacher and student in the learning process - Writing clear and measurable learning outcomes – Meaning Nature,

definition, scope, and importance Pedagogy, Andragogy, and Heutagogy – Skills-based approach to teaching (Teaching skills), Micro-teaching, Macro teaching. Methods and approaches of teaching - CAM, Structure-function approach, Synthetic and Analytic approach, Jurisprudential inquiry model

UNIT II

15 Hours

Understanding the diverse needs and backgrounds of learners - Creating an inclusive and supportive learning environment - Facilitating active learning and student engagement strategies; Lectures, discussions, and demonstrations - Group work, collaborative learning, and cooperative learning - Problem-based learning, case studies, and simulations

UNIT III

15 Hours

Integrating technology tools into instruction – Online, blended learning, flipped learning, and M-learning approaches - Using educational software and platforms effectively; Formative and summative assessment methods – Difference between Assessment, Evaluation and Measurement, E-assessment tools,

UNIT IV

15 Hours

The importance of reflective practice in teaching - Self-assessment and evaluation of teaching effectiveness – Need for Professional development - Teaching in multicultural and international classrooms - Culturally responsive teaching practices; Meaning, Definition of teaching model - Assumptions, Importance, Role, and type of teaching models. Historical teaching model, Philosophical model of teaching

Transaction Mode

Discussions, Case Studies, Microteaching, Classroom Observations, Peer Teaching: Video Analysis, Role-Playing, Lecture-cum-demonstration, Classroom Simulations, Reflective Journals/Blogs, Teaching Portfolios and Technology Integration, Flipped Teaching.

Suggested Readings

- Ali, L. (2012). *Teacher education*. New Delhi: APH Publishing Corporation.
- Anandan, K. (2010). *Instructional technology in teacher education*. New Delhi: APH Publishing Corporation.
- Bruce R Joyce and Marsha Weil, *Models of Teaching*, Prentice Hall of India Pvt Ltd, 1985.

- Chalan, K. S. (2007). *Introduction to educational planning and management*. New Delhi: Anmol Publications Pvt. Ltd.
- Chand, T. (2008). *Principles of teaching*. New Delhi: Anmol Publications Pvt. Ltd.
- Chiniwar, P. S. (2014). *The technology of teaching*. New Delhi: Anmol Publications Pvt. Ltd.
- Curzon, L. B., & Tummons, J. (2004). *Teaching in future education*. U.S.A: Bloomsbury Academic Publications.
- Das, R.C. (1993): *Educational Technology – A Basic Text*, Sterling Publishers Pvt. Ltd.
- Evaut, M. *The International Encyclopedia of Educational Technology*.
- Gage N L, *Handbook of Research on Teaching*, Rand Mc Nally and Co., Chicago, 1968.
- Graeme, K. (1969): *Blackboard to Computers: A Guide to Educational Aids*, London, Ward Lock.
- Haas, K.B. and Packer, H.Q. (1990): *Preparation and Use of Audio Visual Aids*, 3rd Edition, Prentice Hall, Inc.
- Haseen Taj (2006): *modern Educational Technology*, Agra: H.P Bhargava Book House.
- Jarvis, M. (2015). *Brilliant ideas for ICT in the classroom*. New York: Routledge Publications.
- Kumar, K.L. (2008): *Educational Technology*, New Age International Pvt. Ltd. Publishers, New Delhi (Second Revised Edition).
- Kumar, P. (2015). *Web-based technology in education*. New Delhi: APH Publishing Corporation.
- Mangal, S. K. (2014). *Advanced educational psychology*. New Delhi: PHI Learning Pvt. Ltd.
- Mohan, R. (2011). *Teacher education*. New Delhi: PHI Learning Pvt. Ltd.
- Mukhopadhyay, M. (1990): *Educational Technology – Year Book 1988*, All India Association for Educational Technology, New Delhi.
- Murty, K. (2015). *Educational technology*. New Delhi: APH Publishing Corporation.
- Popham, W. J. (2014). *Classroom assessment*. U.S.A: Pearson Publications.
- Purayil, A. V. (2015). *Educational technology*. New Delhi: APH Publishing Corporation.
- Ranford, C. P. (2013). *Strategies for successful student teaching*. New Jersey: Pearson Publications.
- Schrum, L., & Levin, B. B. (2015). *Leading 21st Century School*. U.S.A.: Sage Publications.

- Sharma R A, *Technology of Teaching*, International Publishing House, Meerut, 1988.
- Sharma, R. N., & Chandra. S. S. (2007). *Advanced educational technology*. New Delhi: Atlantic Publications.
- Siddiqui M S., and Khan M S., *Models of Teaching – Theory and Research*, Manas Publication, New Delhi, 1991
- Singh, & et. al. (2014). *Educational technology: teaching-learning*. New Delhi: APH Publishing Corporation.

Web Sources

- wiki.eveuniversity.org
- www.adprima.com
- www.apa.org
- www.crlt.umich.edu
- www.edutopia.org
- www.eveuniversity.org
- www.facultyfocus.com
- www.reddit.com
- www.theteachersguide.com

Course Title: RESEARCH PROPOSAL

Course Code: MPM3203

L	T	P	Credits
0	0	8	4

Total Hours: 60

Course Outcomes

On the completion of the course the students will be able to

1. Identify and create the key components of a research proposal.
2. Demonstrate the ability to conduct literature reviews and gather the critical scientific information related to the research proposal.
3. Demonstrate writing skills by writing, a clear, concise research proposal with scientifically defensible aims, methods and conclusions.
4. Develop the skills to objectively review and write a scientific critique of a colleague's proposal.

Course Content

UNIT I

Literature Review Draft: Students will be expected to create an in-depth literature review organized around a topic(s) relevant to the field of Physiotherapy. The literature review will conclude with research question(s) that are designed to address a gap in the educational literature. This assignment will be graded on APA format, overall writing quality, and alignment among the literature review and research questions, the testability of the research question(s).

UNIT II

Methodology Draft: Students will be expected to identify a research strategy and method(s) of data collection that will allow them to address their research question effectively. This assignment will be graded on APA format, overall writing quality, and the appropriateness of the research strategy and data collection method(s).

UNIT III

Final proposal: The final assessment for this course will be the completed draft of a high-quality educational research proposal. The final proposal must include an in-depth review of the literature related to an educational topic, research questions, study design, methods of data collection to be used, and analysis procedures.

UNIT IV

CITI Training: Researchers must demonstrate their understanding of ethical research procedures prior to working with human subjects. As such, all institutional review boards require that principal investigator complete CITI training. You will be asked to complete CITI training as a component of this course to ensure that you have necessary skills and credential needed to conduct high-quality educational research.

Transaction Mode

Video based teaching, Case based teaching, Team teaching Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning.

Suggested Readings

- Liddle, S. D., Baxter, G. D., & Gracey, J. H. (2009). *Physiotherapists' use of advice and exercise for the management of chronic low back pain: a national survey. Manual therapy, 14(2), 189-196.*
- Kothari, C. R. (2004). *Research methodology: Methods and techniques. New Age International.*
- Alexander, P., Chang, C. M., Yang, C. H., Alkhateeb, H. M., & Oaks, J. A. (2005). *Publications by University of Indianapolis Faculty and Staff. Historia Mathematica, 32, 400-425.*

Web Sources

- <https://www.academia.edu/>
- <https://www.studeersnel.nl>
- <https://www.scribd.com>

Course Title: COMPUTER LAB**Course Code: MPM3204**

L	T	P	Credits
0	0	4	2

Total Hours: 30**Course Outcomes**

On successful completion of this course, the students will be able to

1. Design charts and graphs in Microsoft Excel.
2. Acquire knowledge about scientific editing tools.
3. Analyse various features of Microsoft Word, Excel and Power Point Presentation.
4. Acquire skills in mail merge tools.

Course Content

Generating Charts/Graphs in Microsoft Excel

Power Point Presentation, Creating a new document with templates & Wizard

Word basics

Thesis Writing Formats

Scientific editing tools

Style Formats (MLA & APA)

Using Words Drawing Features, Inserting Tables – (Adding, deleting, modifying rows and columns - merging & splitting cells), Using formulas in tables, Converting text to table and vice-versa.

Mail Merge tool

Managing Workbooks, Working with Worksheets

Transaction Mode

Demonstration method, Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning.

Suggested Readings

- Leon & Leon, "Introduction to Computers", Vikas Publishing House, New Delhi
- Saxena S., "MS Office Xp for Everyone", Vikas Publishing House, New Delhi, 2007
- June Jamrich Parsons, "Computer Concepts", Thomson Learning, 7th Edition, Bombay
- White, "Data Communications & Computer Network", Thomson Learning, Bombay
- Comer, "Computer networks and Internet", Pearson Education, 4e

Web Sources

- <https://www.researchgate.net>
- https://www.youtube.com/playlist?list=PLWPirh4EWFpF_2T13UeEgZWZHc8nHBuXp

Course Title: ANTHROPOMETRY

Course Code: MPM3205

L	T	P	Credits
3	0	0	3

Total Hours: 45 Hours

Course Outcomes

On the completion of the course the students will be able to

1. Explain the role of anthropometric measurements in assessing physical health and fitness.
2. Interpret the significance of the gross size and mass of different body parts measurements in a clinical setting.
3. Recognize and locate key anatomical landmarks used in anthropometric measurements.
4. Understand and implement the Heath-Carter method for somatotyping.

Course Content

Unit I:

13 hour

Role of anthropometric knowledge in Physiotherapy, Age determination:-Skeletal age, Dental age.

Unit II:

15 hours

Body measurements: Gross size and mass, Lengths or heights of body parts, Circumstances of body parts, Skinfold thickness

Unit III: **16 hours**

Anthropometric study group measurements: Planes of the body, Axes of the body, Landmarks on the body; Body composition: Different Body composition, various methods to estimate body composition; Anthropometric determination of the body composition (skinfold thickness), Application of surface anthropometry (the body profile).

Unit IV: **16 hours**

Somatotyping: Sheldon's method of somatotyping, Critical evaluation of Sheldon's method of somatotyping, Heath–Carter method of somatotyping, The rating scales, Anthropometric measurements, First, Second and Third Components, Somatotype distribution.

Transaction Mode

Video based teaching, Case based teaching, Team teaching Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- *Anthropometric Standardization Reference Manual" by Timothy G. Lohman, Alex F. Roche, and Reynaldo Martorell*
- *Human Measurement Techniques in Anthropology" by Maria M. Clausen and Chara Santourian*
- *The Measure of Man and Woman: Human Factors in Design" by Alvin R. Tilley and Henry Dreyfuss Associates*
- *Ergonomics and Human Factors: Applications in Occupational Safety and Health" by Waldemar Karwowski and William S. Marras*

Web Sources

- https://www.physio-pedia.com/Girth_Measurement
- <https://www.ncbi.nlm.nih.gov/books/NBK537315/>
- https://www.physio-pedia.com/Body_Composition

Course Title: MEDICAL AND SURGICAL MANAGEMENT OF MUSCULOSKELETAL CONDITIONS

Course Code: MPM3206

L	T	P	Credits
2	0	0	2

Total Hours: 30 Hours

Course Outcomes

On the completion of the course the students will be able to

1. Comprehend the pathophysiology, clinical presentation, and diagnostic criteria for bone and joint infections.
2. Formulate management strategies for degenerative joint diseases, including rehabilitative measures.
3. Understand the clinical presentation and diagnostic criteria for the common disorders affecting the upper limb, lower limb, and spine
4. Formulate comprehensive care plans for geriatric patients, emphasizing prevention, treatment, and rehabilitation of age-related disorders.

Course Content

UNIT I

7 Hours

General Orthopedics: Infection Disorders of the Bones and Joints, Metabolic Disorders of the bones and joints, Congenital Disorders of the bones and joints, Inflammation of the bones and joints, Degeneration of the bones and joints, Developmental of the bones and joints, Connective tissue Disorders, Neuromuscular disorders, Tumors of bones, Complex Regional Pain Syndrome, Myopathies, Burns

UNIT II

7 Hours

Regional Orthopedics: Disorders of Upper Limb, Disorder of the Lower Limb, Disorder of Spine; Traumatology (Fractures, Subluxation, Dislocations and Soft tissue injury): Trauma of the upper limb, Trauma of the lower limb, Trauma of the spine, Peripheral Nerve Injuries

UNIT III

7 Hours

Orthopedic Surgeries: Osteotomy, Arthrodesis, Arthroplasty, Tendon transfers, repairs and grafting, Nerve Suturing, Soft tissue release, Spinal Stabilization, Spinal Fusion, Discectomy, Laminectomy, Reattachment of Limbs, Meniscectomy

UNIT IV

9 Hours

Amputation: Types, Level and Procedure, Preoperative, operative and Prosthetic management, Prevention and Treatment of complication; Geriatric Care: Examine and assessment of geriatric Patient, Disorders specific to ageing

Transaction Mode

Video based teaching, Case based teaching, Team teaching Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning.

Suggested Readings

- *Pediatric Orthopedics: more knowledge in Orthopaedics / Dormans, John P*
- *Clinical Orthopedics Examination / Mcrae, Ronald*
- *Apleys system of Orthopedics and Fractures/ Solomn, Louis*
- *Fractures of the upper extremity. / Ziran, Bruce H. ed.*
- *Musculoskeletal disorders in the workplace: Principles and Practice. / Nordin, Margareta.*
- *Orthopedic physical Examination. / Reider, Bruce*
- *Orthopedic Physical Assessment, David Magee*
- *Essentials of orthopedics for physiotherapist: Ebnezar, J*
- *Orthopaedics Principles of basic and Clinical Science; Bronner, F & Warrell, RV*

Web Sources

- https://www.physio-pedia.com/Lumbar_Fusion_Rehabilitation
- https://www.physiopedia.com/Physiotherapy_Management_of_Individuals_with_Spinal_Cord_Injury

Course Title: DRUG ABUSE

Course Code: MPM3207

L	T	P	Credits
4	0	0	4

Total Hours: 60 Hours

Course Outcomes

On the completion of the course the students will be able to

1. Comprehend the Meaning, Nature, and Extent of Drug Abuse
2. Evaluate the impact on the individual, including physical and mental health.
3. Understand the role of healthcare professionals in medical management.
4. Study the importance of strict enforcement of laws and time-bound trials.

Course Content

UNIT I**15 hours**

Meaning of Drug Abuse: Meaning, Nature and Extent of Drug Abuse in India and Punjab, Consequences of Drug Abuse for: Individual, Education, Employment, Income, Family, Prescription Drug Abuse, Intravenous Drug Abuse.

UNIT II**15 Hours**

Management of Drug Abuse: Medical Management: Medication for treatment and to reduce withdrawal effects, Psychiatric Management: Counselling, Behavioural and Cognitive therapy, Social Management: Family, Group therapy and Environmental Intervention, Rehabilitation.

UNIT III**15 Hours**

Prevention of Drug abuse: Role of family: Parent child relationship, Family support, Supervision, Shaping values, Active Scrutiny, School: Counselling, Teacher as role-model, Parent-teacher-Health Professional, Coordination, Random testing on students.

UNIT IV**15 Hours**

Controlling Drug Abuse: Media: Restraint on advertisements of drugs, advertisements on bad effects of drugs, Publicity and media, Campaigns against drug abuse, Educational and awareness program, Legislation: NDPS act, Statutory warnings, Policing of Borders, Checking, Supply/Smuggling of Drugs, Strict enforcement of laws, Time bound trials.

Transaction Mode

Video based teaching, Case based teaching, Team teaching Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- Ahuja, Ram (2003), *Social Problems in India*, Rawat Publication, Jaipur.
- *Extent, Pattern and Trend of Drug Use in India*, Ministry of Social Justice and Empowerment, Government of India, 2004.
- Inciardi, J.A. 1981. *The Drug Crime Connection*. Beverly Hills: Sage Publications.
- Kapoor. T. (1985) *Drug epidemic among Indian Youth*, New Delhi: Mittal Pub.
- Kessel, Neil and Henry Walton. 1982, *Alcoholism*. Harmond Worth: Penguin Books.

- *Modi, Ishwar and Modi, Shalini (1997) Drugs: Addiction and Prevention, Jaipur: RawatPublication.*
- *National Household Survey of Alcohol and Drug abuse. (2003) New Delhi, Clinical*
- *Epidemiological Unit, All India Institute of Medical Sciences, 2004.*

Web Sources

- https://www.physio-pedia.com/Prescription_Drug_Abuse
- https://www.physio-pedia.com/Intravenous_Drug_Abuse

Course Title: VERTEBRAL REHABILITATION

Course Code: MPM3208

L	T	P	Credits
4	0	0	4

Total Hours: 60 Hours

Course Outcomes

On the completion of the course the students will be able to

1. Explain the biomechanical principles that govern vertebral movement and stability.
2. Formulate appropriate management strategies for congenital vertebral disorders.
3. Perform detailed examinations to determine the level and extent of spinal cord damage.
4. Utilize appropriate diagnostic and therapeutic interventions to manage the spinal conditions effectively.

Course Content

UNIT I

15 Hours

General Assessment Of Vertebral Disorders : Review of anatomy and biomechanics of vertebral column: Orthopaedic Assessment of Cervical, thorax, Lumbar & Sacrum.

UNIT II

15 Hours

Congenital Disorders And Deformities Of Vertebral Column: Spinal Dysraphism, congenital Torticollis, Congenital lordosis, Congenital Scoliosis, KlippelFeil syndrome, Cervical rib, Congenital Stenosis, Syringohydromyelia, Spinal cord Herniation and Chiari Malformations, Neurofibromatosis ,Achondroplasia ,tethered cord syndrome

UNIT III

15 Hours

Inflammatory Disorders Of Vertebral Column: Seronegative Spondyloarthropathies (Ankylosing Spondylitis) Psoriatic arthritis, Reiter's syndrome, spondylitis, Acute Transverse Myelitis Degenerative Disorders Of Vertebral Column; Degenerative disc disease, spondylosis, spondylolisthesis, osteoarthritis. Spondylolysis, segmental instability, spinal stenosis

UNIT IV

15 Hours

Regional: Low back Pain & stiffness disorders, Regional pathological conditions Cervical, Lumbar, Thoracic, Sacral; Spinal Cord Injuries: Types, Classifications, Pathology, Level, Examination, Management & rehabilitation, Bioengineering appliances & support devices, Pre & post-operative rehabilitation

Transaction Mode

Video based teaching, Case based teaching, Team teaching Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning.

Suggested Readings

- White III AA, Panjabi MM. *Clinical biomechanics of the spine*.
- Liebenson C, editor. *Rehabilitation of the spine: a practitioner's manual*. Lippincott Williams & Wilkins; 2007.
- O'Sullivan SB, Schmitz TJ, Fulk G. *Physical rehabilitation*. FA Davis; 2019 Jan 25.
- Hengeveld E, Banks K, editors. *Maitland's Vertebral Manipulation E-Book: Management of Neuromusculoskeletal Disorders-Volume 1*. Elsevier Health Sciences; 2013 Aug 22.
- Kumarlal Fernando C. *The Physiology of the Joints Vol 3, The Trunk and the Vertebral Column*.
- Kapandji IA. *The Trunk and the Vertebral Column. The Physiology of the Joint*. 1980;3:42- 119.

Web Sources

- https://www.physio-pedia.com/Lumbar_Fusion_Rehabilitation
- https://www.physiopedia.com/Physiotherapy_Management_of_Individuals_with_Spinal_Cord_Injury

Semester - IV**Course Title: APPLIED EXERCISE PHYSIOLOGY****Course Code: MPM4251****Total Hours: 60**

L	T	P	Credits
4	0	0	4

Course Outcomes

On successful completion of this course, the students will be able to:

1. Understand the metabolic processes involved in human exercise physiology.
2. Analyze physical performance using various physiological testing protocols.
3. Explain the effects of exercise on different body systems.
4. Evaluate physiological changes due to exercise under varying environmental conditions.

Course Content**UNIT I****15 Hours**

General principles of exercise training, Functional capacity and system adaptations, Aerobic vs anaerobic training strategies, Energy systems and conditioning, Formulating individualized aerobic training programs

UNIT II**15 Hours**

Muscle strength training principles. Measurement of muscular strength, Gender differences in muscle physiology, Types and systems of resistance training, Neuromuscular, bone, and connective tissue adaptations, Cardiovascular and body composition responses to strength training

UNIT III**15 Hours**

Factors influencing physiological functions and energy transfer, Thermoregulation and environmental stress, Exercise at altitude, Ergogenic aids and performance, Pharmacologic, nutritional, and physiological agents

UNIT IV**15 Hours**

Body composition: components, assessment, and variability, Obesity, exercise, and weight control, Aging and cardiovascular health, Clinical exercise programming for: Oncology, Cardiovascular diseases, Pulmonary diseases; Exercise assessment, rehabilitation, and prescription for special populations

Transaction Mode

Demonstration method, Video based teaching, Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested readings

- Powers, SK and Howley, ET (2001). *Exercise Physiology*. Mc Graw Hill
- Fahey, TD, White, TP. Mayfield Publishing Company (1996). *Exercise Physiology- Human Bioenergetics and its Application*. Brooks, GA,
- McArdle, WD, Katch, FI & Katch, VL (2001) *Exercise Physiology*. 5th ed. Lippincott, Williams & Wilkins.

Web Sources

- <https://conductscience.com/introduction-to-bioenergetics>
- <https://www.healthline.com/health/fitness-exercise/difference-between-aerobic-and-anaerobic>
- <https://teachmephysiology.com/respiratorysystem/regulation/responses-respiratory-system-stress/>
- <https://www.aston.ac.uk/sport/news/tips/fitness-exercise/benefits-training-cold-weather>

Course Title: Skill Acquisition & Refinements

Course Code: MPM4252

L	T	P	Credits
0	0	4	2

Total Hours: 30 Hours

On successful completion, students will be able to:

1. Demonstrate comprehensive case analysis with clinical reasoning and differential diagnosis.
2. Critically appraise and present current literature through structured journal clubs.
3. Integrate evidence-based practice into clinical decision-making.
4. Engage in reflective discussions, peer feedback, and self-assessment to enhance professional competence.

5. Develop presentation, communication, and academic writing skills relevant to research and clinical practice.

Course Content

Structuring a case presentation
 Case history taking and documentation
 Clinical examination findings and interpretation
 Differential diagnosis and treatment plan
 Peer review and feedback sessions
 Types of research articles and critical appraisal tools
 Interpreting study methodology and statistics
 Applying evidence to clinical scenarios
 Group discussion and critique sessions

Teaching and Learning Methods

Case-based discussions and clinical rounds, Group presentations and seminar activities, Journal critique sessions and evidence-based learning, Reflective writing and logbook maintenance, Peer-assisted learning and mentoring

Recommended Readings

- Jensen, G.M., Gwyer, J., Hack, L.M. (2000). Expertise in Physical Therapy Practice.
- Greenhalgh, T. (2019). How to Read a Paper: The Basics of Evidence-based Medicine.
- American Physical Therapy Association (APTA) resources on evidence-based practice and clinical education.

	L	T	P	Credits
Course Title: EXERCISE PRESCRIPTION				
Course Code: MPM4253	2	0	0	2

Total Hours: 30 Hours

Course Outcomes

This course is designed to enable students to do the following:

1. Implement the principles of specificity and progressive overload into exercise program design.
2. Apply the theories of behavior change and motivational strategies to exercise adherence.
3. Apply results of fitness assessments to create fitness programs.
4. Develop single session and long-term fitness training plans for apparently healthy, asymptomatic clients.

Course Content

Unit I

7 Hours

Principles of overload, specificity, and progression and how they relate to exercise programming, Various types of interval, continuous, and circuit training programs, benefits and precautions associated with exercise training in apparently healthy and controlled disease.

Unit II

7 Hours

Knowledge of the relationship between the number of repetitions, intensity, number of sets, and rest with regard to strength training , intensity, duration , frequency, and type of physical activity necessary for development of cardio-respiratory fitness, describe exercises designed to enhance muscular strength and/or endurance of specific major muscle groups.

Unit III

7 Hours

Importance of recording exercise sessions and performing periodic evaluations to assess changes in fitness status, advantages and disadvantages of implementation of interval, continuous, and circuit training programs.

Unit IV

9 hours

Ability to evaluate flexibility and prescribe appropriate flexibility exercises for all major muscle groups, modify exercise programs based on age, physical condition, and current health status.

Transaction Mode

Video based teaching, Case based teaching, Team teaching Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- White III AA, Panjabi MM. *Clinical biomechanics of the spine*.
- Liebson C, editor. *Rehabilitation of the spine: a practitioner's manual*. Lippincott Williams & Wilkins; 2007.

- O'Sullivan SB, Schmitz TJ, Fulk G. *Physical rehabilitation*. FA Davis; 2019 Jan 25.
- Hengeveld E, Banks K, editors. *Maitland's Vertebral Manipulation E-Book: Management of Neuromusculoskeletal Disorders-Volume 1*. Elsevier Health Sciences; 2013 Aug 22.
- Kumarlal Fernando C. *The Physiology of the Joints Vol 3, The Trunk and the Vertebral Column*.
- Kapandji IA. *The Trunk and the Vertebral Column. The Physiology of the Joint*. 1980;3:42- 119.

Web Sources

- https://www.physio-pedia.com/Physical_Activity_and_Exercise_Prescription
- https://www.physio-pedia.com/Therapeutic_Exercise_Prescription
- https://www.physio-pedia.com/FITT_Principle