



TAKSHASHILA UNIVERSITY

(Tamil Nadu State Private University)
ONGUR, TINDIVANAM TK, VILLUPURAM DT

FACULTY OF HEALTH SCIENCES SCHOOL OF PHYSIOTHERAPY

Department of Physiotherapy

**REGULATION 2025NEP
CURRICULUM & SYLLABI**

Bachelor of Physiotherapy

Semester – III



VISION AND MISSION OF UNIVERSITY

VISION:

To create change makers and world leaders similar to the ancient Takshashila University

MISSION:

The brightest minds and the best resources are used to nurture and develop the leaders of tomorrow, where they are encouraged to be eternally curious and ethically sound.

DEPARTMENT VISION AND MISSION

VISION:

To create a productive learning and research environment for graduates to become highly dynamic, competent, ethically responsible, professionally knowledgeable in the field of physiotherapy to meet the needs on par with global standards.

MISSION:

M1: Quality Education	Empowering the students with the necessary technical skills through quality education to grow professionally
M2: Innovative Research	Advocating the innovative research ideas by incorporating with hospitals for developing new treatment techniques
M3: Placement and Entrepreneurship	Advancing the education by strengthening the clinical-academic relationship through hands-on training to seek placement in the Hospitals and rehabilitation centres.
M4: Ethics and Social Responsibilities	Stimulating professional behaviour and good ethical values to improve the leadership skills and social responsibilities.

PROGRAMME OUTCOMES (POs)

As an independent practitioner, entry level Physiotherapy graduate will be able to

- PO1:** Demonstrate competencies to provide quality care to the individuals and populations to optimize their movement, function, and quality of life.
- PO2:** Demonstrate competency to examine, assess, evaluate, treat and prescribe physiotherapeutic management of various disease, disorders and trauma conditions.
- PO3:** Promote health and implement strategies informed by best available research evidence to prevent and minimize impairments, activity limitations and participation restrictions caused due to various disorders.
- PO4:** Demonstrate the commitment to provide ethical care through high standards of professional practice.
- PO5:** Demonstrate abilities to communicate effectively to augment therapeutic and professional relationships.
- PO6:** Demonstrate competency to prescribe and comprehend various diagnostic imaging, electrophysiological, hematological and bio- chemistry investigations for proper diagnosis, treatment or referral to other healthcare professionals.
- PO7:** Demonstrate competencies to integrate best available research evidence in to clinical decision making and practice.
- PO8:** Exhibits commitment towards continuous learning and scholarly activities.
- PO9:** Demonstrate abilities to work effectively with Healthcare team in providing patient centered care.
- PO10:** Demonstrate abilities to manage self, time, resources and priorities to ensure safe, effective, and sustainable services.
- PO11:** Demonstrate competencies in quality assurance relevant to Physiotherapy practice.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

- PEO1:** Able to acquire the cognitive, affective and psychomotor skills deemed essential for completion of this program and to perform as a competent physiotherapist who will be able to examine, evaluate, diagnose, plan, execute and document Physiotherapy treatment independently or along with the multidisciplinary team.
- PEO2:** Evaluate patients for impairments and functional limitations and able to execute all routine physiotherapeutic procedures as per the evaluation.
- PEO3:** Able to operate and maintain Physiotherapy equipment used in treatment of patient, Physiotherapy treatment planning (both electrotherapy and exercise therapy) & procedures independently.
- PEO4:** Able to provide patient education about promotion of health, prevention of disease and disorders and various physiotherapeutic interventions to the patient and care givers.
- PEO5:** Able to demonstrate all competencies to achieve the program outcomes.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: Clinician / Physiotherapy Practitioner

Demonstrate competencies to provide quality care to individuals and populations to optimise their movement, function, and quality of life. Promote health and implement strategies informed by best available research evidence to prevent and minimise impairments, activity limitations and participation restrictions caused due to various disorders.

PSO2: Ethical and Professional practitioner

Demonstrate the commitment to provide ethical care through high standards of professional practice

PSO3: Communicator

Demonstrate abilities to communicate effectively to augment therapeutic and professional relationships

PSO4: Evidence-based Practitioner and lifelong learner

Demonstrate competencies to integrate best available research evidence into clinical decision making and practice.

Exhibits commitment towards continuous learning and scholarly activities.

PSO5: Inter-professional teamwork

Demonstrate abilities to work effectively with Healthcare team in providing patient centred care

PSO6: Leader and Manager

Demonstrate abilities to manage self, time, resources and priorities to ensure safe, effective, and sustainable services.

PSO7: Quality assurance

Demonstrate competencies in quality assurance relevant to physio- therapy practice

CURRICULUM

School: School of Physiotherapy

Batch: 2025 -2029

Program: Bachelor of Physiotherapy

Regulation: R-2025

SEMESTER -III										
Sl. No	COURSE CODE	COURSE TITLE	CATEGOR Y	PERIODS			CREDIT S	MAX. MARKS		
				L	T	P		CA M	ES E	TOTA L
THEORY AND PRACTICAL										
1.	U25PT17B	Exercise Therapy(ExT)- I	DSC	5	0	4	7	40	60	200
								50	50	
2.	U25PT18B	Electro Therapy(ET) –I	DSC	5	0	4	7	40	60	200
								50	50	
3.	U25PT19B	Biomechanics and Kinesiology(BK)- I	DSC	4	0	2	5	40	60	200
								50	50	
4.	U25PT20B	Emergency Care and Life Support Skills(ECLS) -I	CE	3	0	2	4	40	60	200
								50	50	
5.	U25PT21P	Yoga and Systems of Medicine (YoG) - I	CE	2	1	2	4	40	60	200
								50	50	
6.	U25PT22T	Pharmacology (PC) -I	MDC	4	0	0	4	40	60	100
7.	U25PT23T	Public Health & Health Promotion (PH)-I	MDC	4	0	0	4	40	60	100
8.	U25PT24T	Pathology and Microbiology(PM) - I	DSC	4	0	0	4	40	60	100
9.	U25PT25P	Clinical Observation(COb) - I	SEC	0	0	6	3	100	-	100
Third Semester Total							42	670	730	1400

U25PT17B	Exercise Therapy (ExT)- I	L	T	P	C	Total
		5	0	4	7	135

COURSE OUTCOMES:

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

CO1 :	Explain the principles, indications, contraindications, and therapeutic applications of relaxation and suspension therapy, and demonstrate appropriate relaxation and suspension techniques for the upper and lower limbs
CO2 :	Apply the principles of functional re-education and postural correction by performing movement training, posture assessment, corrective techniques, and patient education for functional independence
CO3 :	Demonstrate breathing exercises, chest expansion assessment, and organization of group exercises by selecting appropriate techniques based on therapeutic indications and patient needs
CO4 :	Analyze the biomechanical and physiological principles of stretching and perform appropriate passive and active stretching techniques for upper and lower limb muscles while considering precautions and contraindications
CO5 :	Evaluate musculoskeletal dysfunction and apply appropriate manual therapy and peripheral joint mobilization techniques, including traction, based on clinical reasoning, evidence, indications, contraindications, and patient assessment findings

UNIT I : Relaxation and Suspension Therapy	15 Hrs.
Relaxation: Discuss Muscle Tone, Postural tone, Voluntary Movement, Degrees of relaxation, Pathological tension in muscle, Stress mechanics, types of stresses, Effects of stress on the body mechanism, Discuss the Indications of relaxation, Methods & techniques of relaxation-Principles & uses: Demonstrate General, Local, Jacobson's, Mitchel's, additional methods, Suspension therapy: Discuss the principles, indications, contraindications and benefits of suspension therapy, Demonstrate types of suspension therapy – axial, vertical, pendulum techniques of suspension therapy for upper limb & lower limb.	

UNIT II : Functional Re-Education and Posture	15 Hrs.
Functional Re-Education: Discuss the muscle activities of Lying to sitting, Demonstrate Activities on the Mat/Bed, Movement and stability at floor level Sitting activities and gait Lower limb and Upper limb activities, Posture Discuss Active and Inactive Postures, Postural Mechanism, Patterns of Posture, Principles of re-education, demonstrate corrective methods and techniques, Demonstrate skills in Patient education.	

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UNIT III : Breathing Exercises and Group Exercises	15 Hrs.
Breathing Exercises: Describe normal breathing, Discuss types, techniques, indications, contraindications, therapeutic effects and precautions of breathing exercises, Perform Chest expansion measurement and evaluation Group Exercises, Group Exercises: Discuss the advantages and Disadvantages of group exercises, Demonstrate skills in Organization of Group exercises Recreational Activities and Sports.	
UNIT IV : Stretching	15 Hrs.
Stretching: Describe terms related to stretching, Discuss Tissue response towards immobilization and elongation, Discuss the determinants of stretching exercise, Discuss the Effects of stretching, Inhibition and relaxation procedures, Discuss the Precautions to be taken and contraindications of stretching, Perform passive and active stretching for upper and lower limb muscles.	
UNIT V – Manual Therapy & Peripheral Joint Mobilization	15 Hrs.
Discuss Principles, Grades, Indications and Contraindications, Effects and Uses: Maitland, Kaltenborn, Mulligan, Discuss Biomechanical basis for mobilization, Explain the Effects of joint mobilisation, in terms of Indications and contraindications, Grades of mobilization, Principles of mobilization Identify red flags for mobilisation, Perform mobilization for upper limb lower limb, and spine, Demonstrate clinical reasoning skills in selection and application of manual therapy techniques, Demonstrate skills in examining joint integrity, contractile and non-contractile tissue, Identify accessory movements and end feel, Demonstrate Assessment of articular & extra-articular soft tissue status, Myofascial assessment, Acute & Chronic muscle hold, Tightness, Pain-original & referred, Discuss the principles, Indications, Contra-Indications and evidence for schools of mobilization (Maitland, Mulligan, McKenzie, Muscle Energy Technique, Myofascial stretching, Cyriax, NeuroDynamics), Discuss the Principles, physiological and therapeutic effects of traction, Discuss the types, indications, contraindications for traction, Perform manual and mechanical tractions.	
Practical:	60 Hrs.
Demonstrate preparation for relaxation training, Measure chest expansion and demonstrate various breathing exercises, Demonstrate techniques for functional re-education lying to side lying, lying to sitting, sitting to standing, Demonstrate to use the technique of suspension therapy for mobilizing and strengthening joints and muscles, Demonstrate the techniques for muscle stretching, Special techniques of relaxation. Assess and evaluate the posture.	

Total Hours: 135

TEXT BOOKS :

1.	Hollis, M. Practical Exercise Therapy. 4th ed. Oxford: Blackwell Scientific Publications; 1995
2.	Kisner, C., Colby, L. A., & Borstad, J. Therapeutic Exercise: Foundations and Techniques. 8th ed. Philadelphia: F.A. Davis Company; 2023..
3.	Gardiner, M. D. The Principles of Exercise Therapy. 4th ed. New Delhi: CBS Publishers & Distributors; 2005
4.	Edmond, S. L. Manipulation and Mobilization: Extremity and Spinal Techniques. 3rd ed. St. Louis: Mosby; 2006.
5.	Bates, A., & Hanson, N. Aquatic Exercise Therapy. Philadelphia: W.B. Saunders; 1996..

REFERENCE BOOKS :

1.	Voss, D. E., Ionta, M. K., & Myers, B. J. Proprioceptive Neuromuscular Facilitation: Patterns and Techniques. 3rd ed. Baltimore: Williams & Wilkins; 1985.
2.	Woods, S. L. Orthopaedic Physical Therapy. Edinburgh: Churchill Livingstone; 1980.
3.	Wadsworth, C. T. Manual Examination and Treatment of the Spine and Extremities. Philadelphia: Lippincott Williams & Wilkins; 1988.
4.	humway-Cook, A., & Woollacott, M. H. Motor Control: Translating Research into Clinical Practice. 6th ed. Philadelphia: Lippincott Williams & Wilkins; 2024.
5.	Basmajian, J. V. Therapeutic Exercise. 5th ed. Baltimore: Williams & Wilkins; 1990.

WEB REFERENCES :

1.	https://www.physio-pedia.com/
2.	https://www.physiotutors.com/
3.	https://pedro.org.au/
4.	https://world.physio
5.	https://www.ncbi.nlm.nih.gov/

K. N. Teera
BoS Chairman

U25PT18B	Electrotherapy (ET)-I	L	T	P	C	Total
		5	0	4	7	135

COURSE OUTCOMES:

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

CO1 :	Explain the physiological principles of thermoregulation, electromagnetic radiation, sound physics, and justify the clinical application of electrophysical agents based on tissue healing stages.
CO2 :	Demonstrate competency in selecting, calculating dosage, and safely applying therapeutic ultrasound for the management of musculoskeletal conditions.
CO3 :	Apply the principles of therapeutic LASER by selecting appropriate treatment parameters, calculating dosage, and performing safe and evidence-based clinical applications.
CO4 :	Demonstrate the safe and effective application of cryotherapy by selecting appropriate techniques, recognizing indications and contraindications, and evaluating therapeutic outcomes.
CO5 :	Demonstrate clinical competency in the selection, application, safety, and evaluation of intermittent compression therapy using evidence-based practice for patient management.

UNIT I : Introduction To Electrotherapy	15 Hrs.
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Introduction To Electrotherapy: Explain the Physiological responses to heat gain or loss on various tissues of the body, Discuss the Physical principles of electromagnetic radiation, Discuss the Physics of sound including characteristics and propagation, Rationalize the use of electro physical agents as appropriate to the stage of healing.

UNIT II : Therapeutic Ultrasound	15 Hrs.
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Therapeutic Ultrasound: Explain the mechanism of Production, biophysical effects, types, therapeutics types, indication, and contraindication, precautions, of therapeutic Ultra sound, Calculate dosage of ultrasound for various structures and types of injuries, Demonstrate the skills in application of Therapeutic ultrasound, Demonstrate the skills in handling the equipment including preparation, maintenance and safety.

UNIT III : Therapeutic Laser	15 Hrs.
Therapeutic Laser: Discuss the historical background and physical principles of LASER, Classify LASER, Explain the Production, Biophysical effects, types, therapeutic effects, techniques of application, indication, contraindications, and precautions of LASER therapy, Calculate dosage of LASER for various structures and types of injuries, Demonstrate the skills in application of LASER, Demonstrate the skills in handling the equipment including preparation, maintenance and safety, Discuss the current evidence pertaining to LASER therapy.	

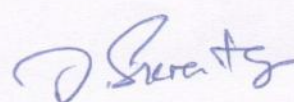
UNIT IV : Therapeutic Cold (Cryotherapy)	15 Hrs.
Therapeutic Cold (Cryotherapy): Explain the Production, Biophysical effects, types, therapeutic effects, techniques of application, indication, contraindications, and precautions of cryotherapy, Demonstrate the skills in application of cryotherapy, Demonstrate the skills in handling the equipment including preparation, maintenance and safety Discuss the current evidence pertaining to cryotherapy.	

UNIT V – Therapeutic Mechanical Pressure (Intermittent Compression Therapy)	15 Hrs.
Therapeutic Mechanical Pressure (Intermittent Compression Therapy): Discuss the Principles, biophysical effects, types, therapeutic effects, indications, and contraindications of intermittent compression therapy, Demonstrate the skills in application of compression therapy, Demonstrate the skills in handling the equipment including preparation, maintenance and safety, Discuss the current evidence pertaining to intermittent compression therapy.	

Practical:	60 Hrs.
Demonstrate the skills in application of Therapeutic ultrasound, Demonstrate the skills in handling the equipment including preparation, maintenance and safety, Demonstrate the skills in application of LASER, Demonstrate the skills in handling the equipment including preparation, maintenance and safety, Demonstrate the skills in application of cryotherapy, Demonstrate the skills in handling the equipment including preparation, maintenance and safety, Demonstrate the skills in application of intermittent compression therapy, Demonstrate the skills in handling the equipment including preparation, maintenance and safety.	

Total Hours: 135





TEXT BOOKS :

1.	Low, J., & Reed, A. (2000). Electrotherapy Explained: Principles and Practice (3rd ed.). Butterworth-Heinemann.
2.	Kitchen, S., & Bazin, S. (2002). Clayton's Electrotherapy: Theory and Practice (10th ed.). Churchill Livingstone.
3.	Kahn, J. (1994). Principles and Practice of Electrotherapy. Churchill Livingstone.

REFERENCE BOOKS :

1.	Lehmann, J. F. (1990). Therapeutic Heat and Cold (4th ed.). Williams & Wilkins
2.	Wolf, S. L. (1988). Electrotherapy: Clinics in Physical Therapy. Churchill Livingstone..

WEB REFERENCES :

1.	https://pubmed.ncbi.nlm.nih.gov/
2.	https://www.physio-pedia.com/Therapeutic_Ultrasound
3.	https://www.ncbi.nlm.nih.gov/books/
4.	https://www.physio-pedia.com/Cryotherapy

K. N. Seera
BoS Chairman

U25PT19B	Biomechanics and kinesiology (BK)- I	L	T	P	C	Total
		4	0	2	5	90

COURSE OUTCOMES:

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

CO1 :	Explain the fundamental principles of biomechanics, including kinematics, kinetics, force systems, levers, equilibrium, and biomechanical analysis in human movement.
CO2 :	Analyze the structure and function of joints, connective tissues, and muscles, and relate their biomechanical properties to normal movement and the effects of injury, immobilization, and aging.
CO3 :	Evaluate the biomechanics of the spine and upper limb joints by distinguishing normal and abnormal movement patterns and their clinical significance.
CO4 :	Analyze the biomechanics of the thorax, chest wall, and temporomandibular joint, and interpret the mechanical changes associated with pathological conditions.
CO5 :	Demonstrate the principles and safe application of intermittent compression therapy, including equipment handling, indications, contraindications, and evidence-based clinical practice.

UNIT I : Basics of Biomechanics	12 Hrs.
Basics of Bio-Mechanics: Discuss the basic Concepts in Biomechanics Kinematics and Kinetics in following terms, Types of Motion, Location of Motion, Direction of Motion, Magnitude of Motion, Definition of Forces, Force of Gravity, Reaction forces, Equilibrium, Objects in Motion, Force of friction, Concurrent force systems, Parallel force system, Work, Moment arm of force, Force components, Equilibrium of levers. Introduction to biomechanical analysis: Discuss the techniques of biomechanical analysis, Explain the importance of biomechanical analysis.	

UNIT II : Explain Structure and Function of Joint & Muscle	12 Hrs.
Explain Structure And Function Of Joint And Muscle: Joint design, Materials used in human joints, General properties of connective tissues, Human joint design, Joint function, and Joint motion, General effects of disease, injury and immobilization, Discuss Muscle structure and function -Mobility and stability functions of muscles, Elements of muscle structure, Muscle function, Effects of immobilization, injury and aging.	

UNIT III : Biomechanics of Spine: Discuss The Biomechanics of Cervical Spine, Lumbar Spine and Pelvic Complex in Terms

12 Hrs.

Biomechanics of spine: discuss the biomechanics of cervical spine, lumbar spine and pelvic complex in terms: Structure and function of cervical spine, Factors responsible for stability of cervical spine, Movements of cervical spine, Structure and function of lumbar spine, Factors responsible for stability of lumbar spine, Movements of lumbar spine, Structure and function of pelvic complex- Sacro-iliac Joint, Sacrum, symphysis pubic joint and lumbo sacral joint, Analyse the movement of spine, Identify the abnormal movements of Spine.

UNIT IV : Biomechanics of the Thorax and Chest Wall

12 Hrs.

Biomechanics Of The Thorax And Chest Wall: General structure and function, Rib cage and the muscles associated with the rib cage, Ventilator motions: its coordination and integration, Developmental aspects of structure and function, Changes in normal structure and function I relation to pregnancy, scoliosis and COPD, Identify the abnormal movements of thoracic cage, Discuss the mechanics of abnormal thoracic movement, Describe the **Temporomandibular Joint** in terms of General features, structure, function and dysfunction, Discuss the mechanics of abnormal TMJ movements.

UNIT V – Biomechanics of the Upper Extremity Joints

12 Hrs.

Explain the shoulder complex in terms of Structure and components of the shoulder complex and their integrated function, Identify the normal and abnormal movements of shoulder, Discuss static and dynamic stability of Shoulder, Describe the common abnormalities of shoulder movement , Describe elbow complex in terms of Structure and function of the elbow joint – humero ulnar and humero radial articulations, superior and inferior radioulnar joints; mobility and stability of the elbow complex; the effects of immobilization and injury, Identify the normal and abnormal movements of elbow joint, Describe the common abnormalities of elbow movement, **Discuss wrist and hand complex in terms of** : Structural components and functions of the wrist complex; structure of the hand complex; functional position of the wrist and hand, Identify the normal and abnormal movements of wrist complex, Describe the common abnormalities of wrist complex .

Practical:

30 Hrs.

Shall be conducted for various joint movements and analysis of the same. Demonstration may also be given as how to analyze cervical spine, lumbar spine, pelvic complex, Thorax, Chest wall and upper limb, The student shall be taught and demonstrated to analysis for activities of daily living – ADL – (like sitting to standing, throwing, lifting etc.), The student should be able to explain and demonstrate the movements occurring at the joints, the muscles involved, the movements or muscle action produced, and mention the axis and planes through which the movements occur in upper extremity,

The demonstrations may be done on models or skeleton.

Total Hours: 90

TEXT BOOKS :

1.	evangie, P. K., Norkin, C. C., & Lewek, M. D. (2019). Joint Structure and Function: A Comprehensive Analysis (6th ed.). F.A. Davis.
2.	Houglum, P. A., & Bertoti, D. B. (2011). Brunnstrom's Clinical Kinesiology (6th ed.). F.A. Davis.

REFERENCE BOOKS :

1.	Steindler, A. (1977). Kinesiology of the Human Body Under Normal and Pathological Conditions. Charles C Thomas Publisher.
2.	Neumann, D. A. (2017). Kinesiology of the Musculoskeletal System: Foundations for Rehabilitation (3rd ed.). Elsevier.
3.	Oatis, C. A. (2009). Kinesiology: The Mechanics and Pathomechanics of Human Movement (2nd ed.). Lippincott Williams & Wilkins.
4.	Hamill, J., Knutzen, K. M., & Derrick, T. R. (2015). Biomechanical Basis of Human Movement (4th ed.). Lippincott Williams & Wilkins.
5.	Kapandji, I. A. (2008). Physiology of the Joints, Volume 3: The Trunk and Vertebral Column (6th ed.). Churchill Livingstone Elsevier.

WEB REFERENCES :

1.	https://www.ncbi.nlm.nih.gov/books/
2.	https://pubmed.ncbi.nlm.nih.gov/
3.	https://www.aaos.org/
4.	https://www.apta.org/
5.	https://www.orthobullets.com/

K. N. Jeeva
BoS Chairman

U25PT20B	Basics of Emergency Care and Life Support Skills (ECLS) –I	L	T	P	C	Total
		3	0	2	4	75

COURSE OUTCOMES:

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

CO1 :	Explain the principles of emergency care, the concept of the golden hour, the roles and responsibilities of a first responder, scene safety, and ethical considerations in emergency situations
CO2 :	Apply appropriate personal protective measures and infection control practices to ensure the safety and well-being of the first responder in various emergency scenarios
CO3 :	Demonstrate appropriate airway management techniques and ventilation procedures to maintain a patent airway and provide effective respiratory support during emergencies
CO4 :	Assess the circulatory status of an emergency patient and perform appropriate interventions for bleeding control and airway obstruction management
CO5 :	Demonstrate the principles and sequence of cardiopulmonary resuscitation (CPR) and explain the role of an automated external defibrillator (AED) in the management of cardiac arrest

UNIT I : Introduction to Emergency care	9 Hrs.
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Introduction to Emergency Care: Emergent conditions and magnitude, Concept of golden hour, Duties and responsibilities of first responder, Ethical issues and Gather information from observation, experience and reasoning, Identification of rapidly changing situations and adapt accordingly, Planning and organization of work. Scene safety, Dealing with emotional reactions family members and bystanders.

UNIT II : Well-Being of First Responder Personal Protection	9 Hrs.
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Discuss about well-being of first responder personal protection: Steps to be taken against airborne and blood-borne pathogens, Personal protective equipment necessary for each of the following situations Hazardous materials Rescue Operations Violent Scenes Crime scenes, Electricity, Water and ice, Exposure to blood-borne pathogens Exposure to airborne pathogens.

UNIT III : Airway and Ventilation	9 Hrs.
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Airway : Mechanism of injury to opening the airway, Steps in the head-tilt chin-lift ,Steps in the jaw

thrust ,Taking out foreign body, Ensuring patent airway during seizures and vomiting, **Ventilation** Of a patient with a mask or barrier device, Steps in providing mouth-to-mouth and mouth-to-stoma ventilation

UNIT IV : Circulation

9 Hrs.

Circulation: Evaluate the cardiac status of the patient, Determine the need for and take necessary action to proper circulation, steps for control of bleeding: Pressure bandage and tourniquet, Clearing a foreign body airway obstruction.

UNIT V – CPR

9 Hrs.

CPR: Implications of cardiac arrest ,Cardiopulmonary resuscitation (CPR) ,How it works ,Steps ,When to stop CPR, Brief overview of AED Automated external defibrillator (only demonstration – no hands on)

Practical:

30 Hrs.

Provide Airway & Ventilation, Circulation, Perform Basic Life Support CPR, Perform Initial management of Thermal injury, electric injury.

Total Hours: 75

TEXT BOOKS :

1. Nancy Caroline's Emergency Care in the Streets. (2022). Nancy Caroline's Emergency Care in the Streets (9th ed.). Jones & Bartlett Learning
2. First Aid Manual. (2021). First Aid Manual (11th ed.). Dorling Kindersley in association with St John Ambulance, St Andrew's First Aid, and British Red Cross.

REFERENCE BOOKS :

1.	Indian red cross : indian first aid manual 2016 (7th edition) available at https://www.indianredcross.org/publications/FA-manual.pdf
2.	Intinalli's Emergency Medicine: A Comprehensive Study Guide. (2024). Tintinalli's Emergency Medicine: A Comprehensive Study Guide (10th ed.). McGraw-Hill.
3.	Oxford Handbook of Emergency Medicine. (2020). Oxford Handbook of Emergency Medicine (5th ed.). Oxford University Press.
4.	Basic Life Support (BLS) Provider Manual. (2020). Basic Life Support (BLS) Provider Manual. American Heart Association.

WEB REFERENCES :

1.	https://www.heart.org/
2.	https://cpr.heart.org/
3.	https://www.who.int/health-topics/emergency-care
4.	https://www.erc.edu/
5.	https://www.resus.org.uk/

K. N. Seva
BoS Chairman

U25PT21P	Yoga & Systems of Medicine (AYUS) - I	L	T	P	C	Total
		2	1	2	4	75

COURSE OUTCOMES:

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

CO1 :	Explain the philosophy, historical development, principles, and different streams and types of Yoga
CO2 :	Describe the role of Yoga in maintaining health and well-being, and its application in promoting a healthy lifestyle
CO3 :	Apply the principles of Yoga for stress management, disease prevention, and promotion of positive health in individuals and communities
CO4 :	Analyze the physiological effects of Shat Kriyas and Asanas on various body systems and their therapeutic significance
CO5 :	Evaluate the physiological benefits of Pranayama, relaxation techniques, and meditation in improving physical and mental well-being

UNIT I : Foundations of Yoga	9 Hrs.
Introduction to Yoga and its philosophy, Brief history, development of Yoga, Streams & types of Yoga.	

UNIT II : Yoga and Health	9 Hrs.
Concept of body in yoga – Pancha kosha theory, Concept of Health and Disease in yoga.	

UNIT III : Yoga in Health Promotion	9 Hrs.
Yoga In Health Promotion: Stress management through yoga, Disease prevention and promotion of positive health through yoga.	

UNIT IV : Physiological Effects of Yoga Practices	9 Hrs.
Physiological Effects Of Yoga Practices: Physiological effects of Shat kriyas, Physiological effects of Asanas.	

UNIT V: Breathing Relaxation Meditation	9 Hrs.
Breathing Relaxation Meditation: Physiological effects of Pranayamas, Physiological effects of	

Practical:

30 Hrs

Sukshma Vyayama/Sithilikarna Vyayama and Surya Namaskar, Loosening exercises of each part of the body particularly of the joints, 12 step Surya namaskar, **Yogic kriyas [Observation/ demonstration only]**, Neti (Jala Neti, Sutra Neti), Dhauti (Vamana Dhauti, Vastra Dhauti), Trataka, Shankaprakshalana (Laghu & Deergha), **Yogasanas**: Standing postures (4 hours), Tadasana (Upward stretch posture), Ardha Chakrasana (Half wheel posture), Ardha Katicakrasana (Half lumber wheel posture), Utkatasana (Chair posture), Pada Hastasana (Hand to toes posture), Trikonasana (Triangle posture), Parshva Konasana (Side angle posture), Garudasana (Eagle posture), Vrikshasana (Tree posture), **Prone positions**: Makarasana (Crocodile posture), Bhujangasana (Cobra posture), Salabhasana (Locust posture), Dhanurasana (Bow posture), Naukasana (Boat posture), Marjalarasana (Cat posture), **Supine postures**: Ardha halasana/ Uttana Padasana, Sarvangasana (All limb posture), Pawana muktasana (Wind releasing posture), Matsyasana (Fish posture), Halasana (Plough posture), Chakrasana (Wheel posture), Setu Bandhasana (Bridge posture), Shavasana (Corpse posture)

Total Hours: 75

TEXT BOOKS :

1. Lights on yoga by BKS Iyengar
2. Lights on pranayam by BKS Iyengar
3. Anatomy and Physiology of Yogic Practices - M.M Ghore, Kaivalyadhama, Lonavala, Pune
4. A Systematic course in the ancient tantric techniques of yoga and kriya - Bihar School of Yoga, Munger.
5. Yoga for different ailments - series published by SVYASA, Bangalore and Bihar Yoga Bharati.

REFERENCE BOOKS :

1. Light on Yoga – B. K. S. Iyengar. (1966). Light on Yoga. George Allen & Unwin
2. Light on Pranayama – B. K. S. Iyengar. (1981). HarperCollins.
3. Anatomy and Physiology of Yogic Practices – M. M. Gore. (2004). Kaivalyadhama, Lonavala, Pune
4. Yogic Therapy – Swami Sivananda. (1958). Umachal Yoga Ashram, Kamakhya, Assam

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| 5. | Yoga Therapy – Swami Kuvalayananda. (1955). Kaivalyadhama, Lonavala |
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WEB REFERENCES :

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| 1. | https://www.mea.gov.in/incredible-india-yoga.htm |
| 2. | https://www.yogacertificationboard.nic.in/ |
| 3. | https://www.svyasa.edu.in/ |
| 4. | https://www.biharyoga.net/ |
| 5. | https://www.kaivalyadhama.org/ |

K. N. Jeera
BoS Chairman

U25PT22T	Pharmacology(PC) - I	L	T	P	C	Total
		4	0	0	4	60

COURSE OUTCOMES:

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

CO1 :	Explain the basic principles of pharmacology, including drug classification, sources, routes of administration, pharmacokinetics, pharmacodynamics, and factors influencing drug actions and adverse effects.
CO2 :	Analyze the mechanisms of action, therapeutic uses, adverse effects, and clinical applications of drugs used in the management of inflammatory and immune disorders.
CO3 :	Evaluate the pharmacological management of neuromuscular and immune-mediated disorders by correlating drug actions with disease conditions and patient care.
CO4 :	Differentiate the actions and therapeutic applications of drugs acting on the autonomic nervous system, including cholinergic, anticholinergic, adrenergic, adrenergic blocking drugs, and peripheral muscle relaxants.
CO5 :	Apply the principles of cardiovascular pharmacology to explain the therapeutic use of drugs in heart failure, hypertension, arrhythmias, vascular diseases, and ischemic heart disease.

UNIT I : General Pharmacology	12 Hrs.
Define and Classify drugs, Describe Sources of drugs, Routes of drug administration, Distribution of drugs, Discuss Metabolism and Excretion of drugs Pharmacokinetics, Pharmacodynamics, Factors modifying drug response, adverse effects.	

UNIT II : Inflammatory/Immune Diseases	12 Hrs.
Describe Non-narcotic Analgesics and Nonsteroidal Anti-Inflammatory Drugs: Acetaminophen, NSAIDs, Aspirin, Non aspirin NSAIDs, drug Inter- actions with NSAIDs, Discuss Pharmacological Uses of Glucocorticoids, adverse effects, Physiologic Use of Glucocorticoids, Discuss Drugs Used in Treatment of Arthritic Diseases: Rheumatoid Arthritis, Osteoarthritis, Gout.	

UNIT III : Drugs For Neuromuscular Immune/Inflammatory Diseases	12 Hrs.
Discuss Drugs Used in the Treatment of Neuromuscular Immune/Inflammatory Diseases: Myasthenia gravis, Idiopathic Inflammatory Myopathies, systemic lupus Erythematosus, Scleroderma, Demyelinating Disease	

UNIT IV : Autonomic Nervous System	12 Hrs.
Describe General considerations: The Sympathetic and Parasympathetic Systems, Receptors, Somatic Nervous System, Discuss cholinergic and Anti-Cholinergic drugs, Adrenergic and Adrenergic blocking drugs, Peripheral muscle relaxants.	

UNIT V – Cardiovascular Pharmacology	12 Hrs.
Describe Drugs used in the treatment of heart failure: Digitalis, Diuretics, Vasodilators, ACE inhibitors Describe Antihypertensive Drugs, Diuretics, Beta Blockers, Calcium Channel Blockers, ACE Inhibitors, Central Acting Alpha Agonists, Peripheral Alpha Antagonists, Direct acting Vasodilators, Describe Antiarrhythmic Drugs, Discuss the Drugs used in the treatment of vascular disease and tissue ischemia, Vascular Disease, Haemostasis Lipid-Lowering agents, Antithrombotic, Anticoagulants and Thrombolytic, Discuss the Drugs used in the treatment of Ischemic Heart Disease, Nitrates, Beta-blockers, Calcium Channel Blockers, Cerebral Ischemia Peripheral Vascular Disease.	

Total Hours: 60

TEXT BOOKS :	
1.	Udaykumar P. Pharmacology for physiotherapy. Jaypee Bros. Medical Publishers;2011.
2.	Ramesh KV, Shenoy KA. Pharmacology for Physiotherapist. Jaypee Brothers Medical Publishers Pvt. Limited;2005.
3.	Tripathi KD (2023). Essentials of medical pharmacology. JP Medical Ltd;

REFERENCE BOOKS :	
1.	The Pharmacological basis of Therapeutics - Goodman and Gilman - MacMillan. (2022)
2.	Satoskar RS, Rege N, Bhandarkar SD. Pharmacology and pharmacotherapeutics. Elsevier India; 2017

WEB REFERENCES :	
1.	https://www.ncbi.nlm.nih.gov/books/
2.	https://pubmed.ncbi.nlm.nih.gov/
3.	https://www.merckmanuals.com/professional
4.	https://www.who.int/health-topics/medicines
5.	https://cdsco.gov.in/

K. N. Jena
BoS Chairman

U25PT23T	Public health & health promotion(PH) –I	L	T	P	C	Total
		4	0	0	4	60

COURSE OUTCOMES:

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

CO1 :	Explain the concepts of health and disease, determinants and indicators of health, natural history of disease, and principles of disease prevention and health promotion
CO2 :	Analyze the principles of epidemiology, methods of disease transmission, immunization, screening, and disease control measures in community health
CO3 :	Evaluate the epidemiology, prevention, and control strategies for major communicable and non-communicable diseases affecting the community
CO4 :	Examine the structure of public health administration and the implementation of national health programmes in India, with emphasis on the health needs of vulnerable populations
CO5 :	Apply the principles of demography, family planning, maternal and child health, and preventive medicine in promoting community

UNIT I : Health and Disease	12 Hrs.
Health and Disease: Definitions, Concepts, Dimensions and Indicators of Health, Concept of well-being, Spectrum and Determinants of Health, Concept and natural history of Disease, Concepts of disease control and prevention, Modes of Intervention, Population Medicine.	

UNIT II : Epidemiology and Screening	12 Hrs.
Epidemiology: definition and scope, Principles of Epidemiology and Epidemiological methods: Components and Aims, Basic measurements, Methods, Uses of Epidemiology, Infectious disease epidemiology, Dynamics and modes of disease transmission, Host defences and Immunizing agents, Hazards of Immunization, Disease prevention and control, Disinfection, Screening for Disease: Concept of screening, Aims and Objectives, Uses and types of screening.	

UNIT III : Communicable Disease and Non-Communicable Diseases	12 Hrs.
Epidemiology of communicable disease: Respiratory infections, Intestinal infections, Arthropod-borne infections, Zoonoses, Surface infections, Hospital acquired infections Epidemiology of chronic non-communicable diseases and conditions Cardio vascular diseases: Coronary heart disease, Hypertension, Stroke, Rheumatic heart disease, Cancer, Diabetes, Obesity, Blindness, Accidents and Injuries.	

UNIT IV : Public Health Administration and Health Programmes in India	12 Hrs.
Public health administration- an overview of the health administration set up at Central and state level, the national health programme highlighting the role of social, economic and cultural factors in the implementation of the national programmes. Health problems of vulnerable groups- pregnant and lactating women, infants and pre-school children, occupational groups, Health programmes in India: Vector borne disease control programme, National leprosy eradication programme, National tuberculosis programme, National AIDS control programme, National programme for control of blindness, Iodine deficiency disorders (IDD) programme, Universal Immunisation programme, Reproductive and child health programme, National cancer control programme, National mental health programme. National diabetes control programme, National family welfare programme, National sanitation and water supply programme, Minimum needs programme.	

UNIT V – Demography and Family Planning & Preventive Medicine	12 Hrs.
Demography and Family Planning: Demographic cycle, Fertility, Family planning objectives of national family planning programme and family planning methods, A general idea of advantage and disadvantages of the methods. Preventive Medicine: Preventive Medicine in Obstetrics, Paediatrics and Geriatrics, MCH problems, Antenatal, Intranatal and post-natal care, Care of children, Child health problems, Rights of child and National policy for children, MCH services and indicators of MCH care, Social welfare programmes for women and children, Preventive medicine and geriatrics.	

Total Hours: 60

TEXT BOOKS :	
1.	Park K: Park's textbook of preventive and social medicine. 24th Ed, M/s Banarasidas Bhanot, Jabalpur, 2017
2.	Rao SB: Principles of community medicine. 4th Ed, AITBS Publishers & distributors, New Delhi, 2005.
3.	Rahim A: Principles and practice of community medicine. 1st Ed, Jaypee brothers, New Delhi. 2008.
4.	Gupta MC & Mahajan BK: Textbook of preventive and social medicine. 3rd Ed, Jaypee Brothers, New Delhi, 2003

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REFERENCE BOOKS :

1.	Matzen RN, Lang RS: Clinical preventive medicine. Mosby, Missouri, 1984
2.	Abramson JH, Abramson ZH: Survey methods in community medicine, Churchill Livingstone, Edinburgh, 1999
3.	Jekel JF, Katz DL, Elmore JG: Epidemiology, Biostatistics and Preventive Medicine, 2nd Ed, Saunders, Philadelphia, 2001

WEB REFERENCES:

1.	https://www.who.int/health-topics
2.	https://www.who.int/publications/i/item/9789241547079
3.	https://www.mohfw.gov.in
4.	https://nhm.gov.in
5.	https://ncdc.mohfw.gov.in

K. N. Jeeva
BoS Chairman

U25PT24T	Pathology and microbiology(PM)- I	L	T	P	C	Total
		4	0	0	4	60

COURSE OUTCOMES:

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

CO1 :	Explain the mechanisms of cell injury, inflammation, tissue repair, healing, and their pathological significance in disease processes
CO2 :	Analyze the pathophysiology of fluid and hemodynamic disorders, immunological mechanisms, and autoimmune and immunodeficiency diseases
CO3 :	Evaluate the pathological basis of neoplasia and nutritional disorders, including their etiology, diagnosis, progression, and clinical implications
CO4 :	Explain the classification of microorganisms, principles of sterilization, disinfection, asepsis, immunology, and hypersensitivity reactions relevant to clinical practice
CO5 :	Apply the principles of microbiology to identify the causes, transmission, prevention, diagnosis, and management of common infectious diseases

UNIT I : Cell Injury	12 Hrs.
Cell Injury: Discuss the Causes of disease, cell injury, Describe the mechanism of cell injury – hypoxia, free radical injury. Necrosis and gangrene, Inflammation: Explain the pathology inflammation, Differentiate acute and chronic inflammation, Healing: Explain the process of primary healing, secondary healing, Discuss the factors affecting healing and repair of soft tissues and skin.	

UNIT II : Fluid and Hemodynamics	12 Hrs.
Describe Fluid and hemodynamic derangements Discuss the pathophysiology of edema, hyperemia, Hemorrhage, shock, embolism, thrombosis, and infarction, Immune mechanisms: Discuss Immune mechanisms (natural and acquired), Discuss the features of autoimmune diseases and immunodeficiency diseases.	

UNIT III : Tumors and Nutritional Disorders	12 Hrs.
Tumors: Discuss the characteristic of benign and malignant tumors, Describe grading and staging of malignant tumors, Describe general effects of malignancy on the host, Outline the carcinogenic agents, Outline the methods of diagnosis of malignancy, Nutritional Disorders: Classify the Nutritional disorders, Discuss the deficiency disorders (protein deficiency, vitamin deficiency (A, B, C, D, E, K) iodine deficiency), Discuss the effect of nutrition deficiency on skeletal muscles, bones	

and neurological functions, **Hypersensitivity reactions:** Describe the hypersensitivity reactions

UNIT IV: Microorganisms and Infections

12 Hrs.

Classify microorganisms, Discuss the type, source and mechanism of Infection, Describe the prevention and management of common infections, Describe the causative factors, and pathology of common Infectious diseases.

UNIT V : Management of Infections

12 Hrs.

Outline of the management of common infective diseases, List the causative factors, pathology, clinical features, diagnosis and management of Bacterial disease (Diphtheria, Whooping Cough Tetanus, Pyogenic, Diphtheria, Gram negative infection, bacillary dysentery, STD Gastroenteritis, Food Poisoning, Tuberculosis, Leprosy, Syphilis).

Total Hours: 60

TEXT BOOKS :

1. Cotran, Kumar & Robbins Robbins Pathological Basis of Disease - - W.B. Saunders.
2. Harsh Mohan Text book of Pathology - - Jaypee Brothers
3. Goodman and Boissonnault Pathology: Implications for Physical Therapists - - W.B. Saunders.
4. Bhatia & Lal Essential of Medical Microbiology - - Jaypee Brothers.
5. Medical Microbiology - Mims - Jaypee Brothers.

REFERENCE BOOKS :

1. Walter & Israel, General Pathology - - Churchill Livingstone.
2. Anderson Muirs Textbook of Pathology - - Edward Arnold Ltd.
3. Ackerman and Richards - Microbiology: An Introduction for the Health Sciences – W.B. Saunders.

WEB REFERENCES :

1. <https://www.who.int/health-topics>
2. <https://www.cdc.gov>
3. <https://www.merckmanuals.com/professional>
4. <https://www.ncbi.nlm.nih.gov/books>
5. <https://medlineplus.gov>

K. N. Seera
BoS Chairman

U25PT25P	Clinical Observation (COb)	L	T	P	C	Total
		0	0	6	3	90

Students will be posted in rotation in the physiotherapy OPDs and various wards of hospitals attached with the college. The students will observe the process of providing physiotherapy care for the patients. They may assist the clinical staff as well in executing non clinical aspects of service delivery. Each student shall maintain a case portfolio / diary to record the various activities performed during clinical posting. This diary should be presented before the final exam and the grade should be awarded by the college.

K.N. Jena
BoS Chairman

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