



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 – II**



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
Program: Bachelor of Physiotherapy

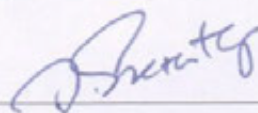
Batch: 2025 -2029
Regulation: R-2025

SEMESTER -II										
SL.N O	COURS E CODE	COURSE TITLE	CATEGOR Y	PERIOD S			CREDIT S	MAX. MARKS		
				L	T	P		CA M	ES E	TOTA L
THEORY AND PRACTICAL										
1.	U25PT09B	Human Anatomy (HA)-II	DSC	6	0	4	8	40	60	200
								50	50	
2.	U25PT10B	Human Physiology(HP)- II	DSC	6	0	4	8	40	60	200
								50	50	
3.	U25PT11T	Biochemistry(BC) -II	MDC	3	0	0	3	40	60	100
4.	U25PT12T	Sociology(SOC)	MDC	4	0	0	4	40	60	100
5.	U25PT13B	Fundamentals of Exercise Modalities(FoEM) -II	DSC	4	0	2	5	40	60	200
								50	50	
6.	U25PT14B	Fundamentals of Electro Physical Agents(FoEA)-II	DSC	4	0	2	5	40	60	200
								50	50	
7.	U25PT15T	Fundamentals Of Health Care Delivery System In India (FoHS)- II	MDC	4	0	0	4	40	60	100
8.	U25PT16P	Clinical Orientation(COr)- II	SEC	0	0	4	2	-		100
								100		
9.	VAC	Computers and Information Science (IT)-II	VAC	0	0	4	2	100		100
10.	AEC	English, Communication and Soft Skills(EG)-II	AEC	0	0	4	2	100		100
First Semester Total							43	780	620	1400

K.N. Jena



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U25PT09B	Human Anatomy (HA) -II	L	T	P	C	Total
		6	0	4	8	150

COURSE OUTCOMES:

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

CO1 :	Identify bones (osteology) and soft tissues of the lower limb to analyze gait, movement, and lower-body injuries
CO2 :	Describe abdominal organs, the peritoneum, large blood vessels, and reproductive systems to understand referred pain and visceral relationships
CO3 :	Explain the position, function, and blood supply of major glands to recognize systemic conditions impacting physical therapy
CO4 :	Identify skull structures, facial muscles, extra ocular muscles, and neck triangles essential for treating cervical or craniofacial disorders
CO5 :	Understand the central and autonomic nervous systems, brain regions, and spinal pathways to assess and treat neurological movement conditions

UNIT I : Musculoskeletal Anatomy of Lower Extremity	18 Hrs.
Identify Osteology: Hip bone, femur, tibia, fibula, patella, tarsals, metatarsals and phalanges. Identify Soft parts: Gluteal region, Anterior, posterior, medial and lateral aspects of the thigh (Femoral triangle, femoral canal and inguinal canal), medial side of the thigh (Adductor canal), lateral side of the thigh, popliteal fossa, anterior and posterior compartment of leg, sole of the foot, lymphatic drainage of lower limb, venous drainage of the lower limb, arterial supply of the lower limb, arches of foot, skin of foot. Discuss Joints of the lower limb: Hip Joint, Knee joint, Ankle and joint, joints of the foot.	

UNIT II : Abdomen	18 Hrs.
Describe Peritoneum: Parietal peritoneum, visceral peritoneum, folds of peritoneum, functions of peritoneum, and describe large blood vessels of the gut. Identify Location, size, shape, features, blood supply, nerve supply and functions of the following: stomach, liver, spleen, pancreas, kidney, urinary bladder, intestines, and gall bladder. Describe Pelvis: Position, shape, size, features, blood supply and nerve supply of the male and female reproductive system.	

UNIT III : Endocrine Glands	18 Hrs.
Describe Position, shape, size, function, blood supply and nerve supply of the following glands: Hypothalamus and pituitary gland, thyroid glands, parathyroid glands, Adrenal glands, pancreatic islets, ovaries and testes, pineal glands, thymus.	

UNIT IV : Musculoskeletal Anatomy of Head And Neck	18 Hrs.
Identify Osteology: Mandible and bones of the skull, Identify Soft parts: Muscles of the face and neck and their nerve and blood supply-extra ocular muscles, triangles of the neck.	

UNIT V Neuro Anatomy :	18 Hrs.
Discuss Organization of Central Nervous system - Spinal nerves and autonomic nervous system mainly pertaining to cardiovascular, respiratory and urogenital system (Cranial nerves, Peripheral nervous system, Peripheral nerve, Neuromuscular junction, Sensory end organs, Central Nervous System, Spinal segments and areas, Brain Stem, Cerebellum, Inferior colliculi, Superior Colliculi, Thalamus, Hypothalamus, Corpus striatum, Cerebral hemisphere, Lateral ventricles, Blood supply to brain, Basal Ganglia, The pyramidal system, Pons, medulla, extra pyramidal systems, Anatomical integration).	

Practical :	60 Hrs.
Identify the parts of bones (Lower limb and spine), Identify the muscles of lower extremity, Head and Neck & Abdomen on a dissected human body/3 D models. Identify the joints of lower extremity, Head and Neck & Abdomen on a dissected human body/3 D models. Identify the surface markings of joints, fascia, ligaments and muscles of lower extremity ,Head and Neck & Abdomen, on a model, Identify the gross structure of brain and spinal cord on a dissected, Human body/3 D models.	

TEXT BOOKS :	
1.	Inderbir Singh, Text book of Anatomy with color Atlas – Vol. 1, 2, 3. Jaypee Brothers 7th edition 2019.
2.	Chaurasia BD. Human anatomy Volume- I, II & III, CBS Publisher; 2004.
3.	Singh I. Textbook of human neuroanatomy. Jaypee Brothers Publishers; 2006.
4.	Kadasne'S T.B. of Anatomy Vol.1 Upper and Lower Extremities2009

REFERENCE BOOKS :	
1.	Singh V. Textbook of clinical neuroanatomy.
2.	Romanes GJ. Cunningham's manual of practical anatomy
3.	Mcminn's Last's Anatomy – Regional and applied, Churchill Livingstone.
4.	Mcminn, et al - A Colour Atlas of Human Anatomy, Mosby.
5.	Snell – Clinical Anatomy- Lippincott

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WEB REFERENCES :

1. <https://teachmeanatomy.info>
2. <https://openstax.org>
3. <https://medlineplus.gov>
4. <https://www.visiblebody.com>

K. N. Teera
BoS Chairman

U25PT10B	Human Physiology(HP)- II	L	T	P	C	Total
		6	0	4	8	150

COURSE OUTCOMES:

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

CO1 :	Evaluate how the kidneys form urine, regulate fluid volume, clear metabolic waste, and maintain acid-base balance using counter-current and transport mechanisms
CO2 :	Describe sex determination, gametogenesis (spermatogenesis/oogenesis), the hormonal control of menstrual cycles, and the physiological changes occurring during pregnancy and lactation
CO3 :	Classify major hormones, map their mechanisms of action, and predict the clinical outcomes or disorders (e.g., Diabetes, Grave's disease) arising from hyper- or hypo-secretion
CO4 :	Explain the ionic basis of resting membrane potentials, action potentials, neuromuscular transmission, and the structural sliding-filament mechanics of skeletal muscle
CO5 :	Trace sensory and motor pathways within the central and peripheral nervous systems, and differentiate the physiological impacts of upper/lower motor neuron lesions or spinal cord injuries. Explain how acute bout and chronic training of physical exercise alter the functional capacities of the respiratory, cardiovascular, and musculoskeletal systems

UNIT I : Renal System	18 Hrs.
Describe the functions of renal system: Nephrons – cortical and juxtamedullary. Juxtaglomerular apparatus. Glomerular membrane. Renal blood flow and its regulation. Functions of kidneys. Discuss the Mechanism of Urine Formation: Glomerular Filtration: Mechanism of glomerular filtration. GFR – normal value and factors affecting. Renal clearance. Inulin clearance. Creatinine clearance. Explain Tubular Reabsorption: Reabsorption of Na⁺, glucose, HCO₃⁻, urea and water. Filtered load. Renal tubular transport maximum. Glucose clearance: TmG. Renal threshold for glucose. Discuss the Mechanism of concentrating and diluting the Urine: Counter-current mechanism. Regulation of water excretion. Diuresis. Diuretics. Describe Mechanism of micturition. Cystometrogram. Atonic bladder, automatic bladder. Describe Acid-Base balance	

UNIT II : Reproductive System	18 Hrs.
Discuss the physiology of reproductive organs: Sex determination, Sex differentiation disorder, Describe Male Reproductive System: Functions of testes, Pubertal changes in males, Spermatogenesis, testosterone action, Regulation of secretion. Semen, Describe Female Reproductive System: Functions of ovaries and uterus. Pubertal changes in females. Oogenesis.	

Hormones: estrogen and progesterone-action. Regulation of secretion, **Describe Menstrual Cycle:** Phases. Ovarian cycle. Uterine cycle. Hormonal basis. Menarche. Menopause, **Describe Pregnancy:** Pregnancy tests. Physiological changes during pregnancy. Functions of placenta. Lactation. Contraception methods.

UNIT III : Endocrine System

18 Hrs.

Enumerate Major endocrine glands: Describe classification, mechanism of action and Functions of hormones, **Describe Pituitary hormones:** Secretory cells, action on target cells, and regulation of secretion of each hormone, Describe **Thyroid hormone and calcitonin:** secretory cells, synthesis, storage, action and regulation of secretion. **Disorders:** Myxedema, Cretinism, Grave's disease Describe Parathyroid hormones: secretory cell, action, regulation of secretion. **Disorders:** Hyperparathyroidism, Hyperthyroidism, Calcium metabolism and its regulation, **Describe Adrenal Medulla:** Secretory cells, action, regulation of secretion of adrenaline and noradrenaline, **Disorders:** Pheochromocytoma, **Describe Endocrine Pancreas:** Secretory cells, action, regulation secretion of insulin and glucagon, Glucose metabolism and its regulation, **Disorder:** Diabetes mellitus.

UNIT IV : Nerve Muscle Physiology

18 Hrs.

Discuss Resting membrane potential. **Action potential** – ionic basis and properties, Describe Structure and functions of neurons. Classification, Properties and impulse transmission of nerve fibres. Nerve injury – degeneration and regeneration, **Describe Neuroglia:** Types and functions, Classify Skeletal Muscle Structure, Discuss the physiology of neuromuscular transmission, Discuss the applied aspects of neuromuscular disorders, **Explain the Effects of acute and chronic exercise on:** Respiratory, Cardio vascular, Musculoskeletal system.

UNIT V - Nervous System

18 Hrs.

Describe Organisation of CNS – central and peripheral nervous system: Describe Functions of nervous system. Synapse: Functional anatomy, classification, Synaptic transmission. Properties, **Discuss Sensory Mechanism:** Sensory receptors: function, classification and properties, **Sensory pathway:** The ascending tracts, Posterior column tracts, lateral spinothalamic tract and the anterior spinothalamic tract – their origin, course, termination and functions. The trigeminal pathway, Discuss Sensory cortex, **Somatic sensations:** crude touch, fine touch tactile localization, tactile discrimination, stereo gnosis vibration sense, Describe kinaesthetic sensations, **Pain sensation:** mechanism of pain. Cutaneous pain – slow and fast pain, hyperalgesia. Deep pain. Visceral pain – referred pain, Describe Motor Cortex, **Motor pathway:** The descending tracts – pyramidal tracts, extrapyramidal tracts – origin, course, termination and functions. Upper motor neuron and lower motor neuron. Paralysis, monoplegia, paraplegia, hemiplegia and quadriplegia, Describe Muscle tone – definition, and properties hypotonia, atonia and hypertonia. UMNL and LMNL, **Discuss Spinal cord Lesions:** Complete transection and Hemi section of the spinal cord, Describe Cerebellum:

Functions. Cerebellar ataxia.

Practical:

60 Hrs.

Recommended demonstrations include but are not limited to : Elicit superficial and deep tendon reflexes, Determine muscle tone-Perform the following clinical examination procedures: Body Temperature measurement, Pulse rate, Blood Pressure, Oxygen saturation, Respiratory rate.

TEXT BOOKS :

1. Text book of Physiology –Anand & Manchanda, Tata McGraw Hill 2000.
2. Human Physiology – Vol. 1 & 2, Chatterjee. CC, Calcutta. Medical Allied 15 Edition 2025.
3. Concise Medical Physiology. Chaudhari, S.K, New Central Agency, Calcutta 7th edition 2016.
4. Principles of Anatomy and Physiology. Tortora & Grabowski –Harper Collins 16th edition 2023.
5. Text book of Practical Physiology – Ghai – Jaypee 2013.

REFERENCE BOOKS :

1. Text book of Medical Physiology –Guyton Arthur (Mosby.)
2. Best & Taylor's Physiological Basis of Medical Practice
3. West's Respiratory Physiology.
4. Nunn and Lumb's Applied Respiratory Physiology

WEB REFERENCES :

1. <https://openstax.org/details/books/anatomy-and-physiology>
2. <https://medlineplus.gov>
3. <https://www.merckmanuals.com/professional>
4. <https://www.khanacademy.org/science/health-and-medicine>

K. N. Seena
BoS Chairman

U25PT11T	Biochemistry(BC)-II	L	T	P	C	Total
		3	0	0	3	45

COURSE OUTCOMES:

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

CO1 :	Explain the mechanisms of enzyme action, factors affecting enzyme activity, inhibition types, and the clinical significance of diagnostic enzymes
CO2 :	Illustrate the structural composition of nucleotides and differentiate between the structure and functions of DNA and various RNA types
CO3 :	Analyze the classification, dietary sources, coenzyme functions, deficiency disorders, and toxicities of individual fat-soluble and water-soluble vitamins
CO4 :	Outline the physiological roles, absorption, transport, and metabolic disorders related to essential macro and micro minerals
CO5 :	Interpret blood and urine biochemical parameters alongside liver and renal function tests to assess physiological and pathological states

UNIT I : Enzymes	9 Hrs.
Definition, Active site, Cofactor (Coenzyme, Activator), Proenzyme. Classification with examples, Factors effecting enzyme activity, Enzyme inhibition and significance, Isoenzymes, Diagnostic enzymology (clinical significance of enzymes).	

UNIT II : Nucleotide and Nucleic Acid Chemistry	9 Hrs.
Nucleotide chemistry: Nucleotide composition, functions of free nucleotides in body. Nucleic acid (DNA and RNA), Chemistry: Difference between DNA and RNA, Structure of DNA (Watson and Crick model), Functions of DNA, Structure and functions of tRNA, rRNA, mRNA.	

UNIT III : Vitamins	9 Hrs.
Definition, classification according to solubility, Individual vitamins - Sources, Coenzyme forms, functions, RDA, digestion, absorption and transport, deficiency and toxicity.	

UNIT IV : Mineral Metabolism	9 Hrs.
Definition, Sources, RDA, Digestion, absorption, transport, excretion, functions, disorder of Individual minerals - Calcium, phosphate, iron, Magnesium, fluoride, selenium, molybdenum, copper. Phosphate, calcium and iron in detail.	

UNIT V - Clinical Biochemistry	9 Hrs.
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Normal levels of blood and urine constituents, Relevance of blood and urine levels of Glucose, Urea, Uric acid, Creatinine, Calcium, Phosphates, pH and Bicarbonate, Liver function tests, Renal function tests.

Total Hours: 45

TEXT BOOKS:

1.	Textbook of Biochemistry- Chatterjee M.N.-Jaypee Brothers 8th edition 2011.
2.	Textbook of Biochemistry for Medical Students Vasudeval D.M. Jaypee Brothers 10th edition 2023.
3.	Clinical Biochemistry- metabolic & Clinical aspects- Marshall & Bangert- Churchill Livingstone 3rd edition 2014.
4.	Biochemistry Southerland-Churchill Livingstone 1990.

REFERENCE BOOKS :

1.	Drugs in Sports: David R. Mottram and Sally Gunnel E. & F.N. Span.
2.	Normal and Therapeutic Nutrition Robison H. Cortinne et al.; Mac Millian Publish Company, New York.
3.	Physiological Chemistry. By Harpar

WEB REFERENCES :

1.	https://openstax.org/details/books/biology-2e
2.	https://www.ncbi.nlm.nih.gov/books/
3.	https://medlineplus.gov/
4.	https://biochemistryfreandeasy.com/
5.	https://www.khanacademy.org/science/biology

K.N. Jena
BoS Chairman

U25PT12T	Sociology(SOC)	L	T	P	C	Total
		4	0	0	4	60

COURSE OUTCOMES:

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

CO1 :	Understand sociological concepts, research methods, and their direct importance to healthcare professionals
CO2 :	Analyze how social factors, socialization, and social groups influence health, illness, and rehabilitation
CO3 :	Evaluate the impact of family dynamics and diverse community structures on patient health and nutrition
CO4 :	Examine how cultural beliefs, stress from social change, and social planning shape health outcomes
CO5 :	Identify major socio-economic problems and evaluate social security legislations supporting disabled and vulnerable populations

UNIT I : Introduction to Sociology	12 Hrs.
Introduction. Meaning- Definition and scope of sociology, Its relation to Anthropology, Psychology, Social Psychology, Methods of Sociological investigations- Case study, social survey, questionnaire, Interview and opinion poll methods, Importance of its study with special reference to Health Care Professionals.	

UNIT II : Social Factors in Health and Disease Situations	12 Hrs.
Meaning of social factors: Role of social factors in health and illness. Socialization: Meaning and nature of socialization, Primary, Secondary and Anticipatory socialization, Agencies of socialization, Social Groups: Concepts of social groups, influence of formal and informal groups on health and sickness, The role of primary groups and secondary groups in the hospital and rehabilitation setup.	

UNIT III : Family	12 Hrs.
The family: Meaning and definitions, Functions of types of family, Changing family patterns Influence of family on the individual health, family and nutrition, the effects of sickness in the family and psychosomatic disease and their importance to physiotherapy. Community: Rural community, Meaning and features –Health hazards of ruralities, health hazards to tribal community, Urban community: Meaning and features- Health hazards of urbanities.	

UNIT IV : Culture and Health	12 Hrs.
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Concept of Health: Concept of Culture, Culture and Health, Culture and Health Disorders, **Social change:** Meaning of social changes, Factors of social changes, Human adaptation and social change, Social change and stress, Social change and deviance, Social change and health programme, The role of social planning in the improvement of health and rehabilitation.

UNIT V - Social Problems of Disabled:	12 Hrs.
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Consequences of The Following Social Problems In Relation To Sickness And Disability, Remedies To Prevent These Problems- Population explosion, Poverty and unemployment, Beggary, Juvenile delinquency, Prostitution, Alcoholism, Problems of women in employment, Geriatric problems, Problems of underprivileged. **Social Security:** Social security and social legislation in relation to the disabled.

TEXT BOOKS:

1. McGee - Sociology - Drydon Press Illinois 1977.
2. Kupuswamy - Social Changes in India - Vikas, Delhi 1990.
3. Ahuja - Social Problems - Bookhive, Delhi 4th edition 2023.
4. Ginnsberg - Principles of Sociology - Sterling Publications 1979.
5. Parter & Alder - Psychology & Sociology applied to medicine - W.B. Saunders 3rd edition 2009.
6. Julian - Social Problems - Prentice Hall 1995, Indian Social Problems - Madan, Vol-I-Madras 1980
7. Bhushan, V., & Sachdeva, D. R. (2005). Introduction to sociology. Kitab Mahal 2005.

REFERENCE BOOKS:

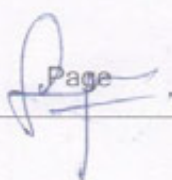
1. Sociology Anthony Giddens
2. Sociology themes and perspectives Haralambos and Holborn
3. Society an introductory analysis Maclver and Page
4. Rules of sociological methods Emile Durkheim
5. Essay on sociology Max Weber
6. Sociological imagination C Wright Mills

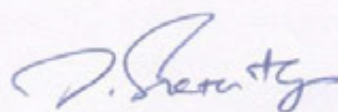
WEB REFERENCES :

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| 1. | https://openstax.org/details/books/introduction-sociology-3e |
| 2. | https://www.asanet.org/ |
| 3. | https://www.simplypsychology.org/sociology.html |
| 4. | https://nhm.gov.in/ |
| 5. | https://www.who.int/health-topics/social-determinants-of-health |

K.N. Teera
BoS Chairman




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U25PT13B	Fundamentals of Exercise Modalities (FoEM) - II	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 principles, aims, indications, and limitations of manual muscle testing. Demonstrate proper MMT procedures and techniques for individual and group muscle testing. Perform accurate strength grading for the lower limb, spine, and facial muscles
CO2 :	Differentiate between active, free, active-assisted, and assisted-resisted exercises. Analyze the physiological adaptations of muscle strength, power, and endurance during training. Prescribe appropriate active therapeutic movements based on clinical indications and contraindications
CO3 :	Compare manual and mechanical resistance exercises, including isometric, concentric, and eccentric types. Distinguish between constant vs. variable resistance and open-chain vs. closed-chain kinematics. Apply progressive resistance exercise principles safely while observing precautions and contraindications
CO4 :	Identify the physiological causes of immobility and the clinical effects of passive movement. Apply proper techniques and principles when administering passive movements region-wise. Demonstrate safe mobilization exercises for various joints to maintain or improve range of motion
CO5 :	Classify distinct soft tissue manipulation and massage techniques. Outline the physiological effects, therapeutic benefits, and contraindications of massage therapy. Execute practical skills in effleurage, stroking, kneading, petrissage, deep friction, vibration, and shaking

UNIT I : Muscle testing	12 Hrs.
Discuss the Principles & Aims: Indications & Limitations, and Techniques of MMT for group & individual testing, Demonstrate Manual Muscle testing procedure, Perform MMT for lower limb spine and face muscles.	

UNIT II : Classification of Therapeutic Exercise	12 Hrs.
Technique, effects, therapeutic use Demonstrate: Active Movements, discuss active movements in terms of Definition of strength, power & work, endurance, muscle actions, causes of decreased muscle performance, Explain the Physiological adaptation to training: Strength & Power, Endurance. Demonstrate Free exercise: Classification, principles, techniques, indications, contraindications, effects and uses , Demonstrate Active Assisted Exercise: Discuss the principles, techniques, indications, contraindications, effects and uses Assisted-Resisted Exercise: principles, techniques, indications, contraindications, effects and uses	

UNIT III : Resisted Exercise	12 Hrs.
Demonstrate Resisted Exercise: Discuss the principles, indications, contraindications, precautions & techniques, effects and uses Types of resisted exercises: Manual and Mechanical resistance exercise, Isometric exercise, Dynamic exercise: Concentric and Eccentric, Dynamic exercise: Constant versus variable resistance, Isokinetic exercise, Open-Chain and Closed-Chain exercise	

UNIT IV : Passive Movements	12 Hrs.
Demonstrate Passive Movements: Discuss Causes of immobility, Classification of Passive movements, Specific definitions related to passive movements, Principles of giving passive movements, Indications, contraindications, effects of uses, Techniques of giving passive movements demonstrate Mobilization exercises of the joints region-wise- passive, active	

UNIT V - Soft Tissue Manipulation	12 Hrs.
Classify various types of soft tissue manipulation techniques: Discuss Physiological effects, therapeutic effects and contraindications of soft tissue manipulation. Describe effleurage, stroking, kneading, petrissage, deep friction, vibration and shaking etc. Perform effleurage, stroking, kneading, petrissage, deep friction, vibration and shaking etc.	

Practical:	30 Hrs.
Demonstrate the relaxed passive movement of joints of upper limb and lower limb on human model Instruct the patient to perform of the active mobilization exercises of joints of upper limb and lower limb on human model, Perform passive mobilization exercises of different joints region wise on self / human model, Demonstrate the testing of muscle strength/ function region wise – upper limb, lower limb and trunk On human model, Perform all the soft tissue manipulative techniques region wise – upper limb, lower limb, neck, back and face On human model - Demonstration ONLY [to be shown to the student by the teacher]- Accessory passive movement	

TEXT BOOKS :	
1.	Principle of Exercise Therapy -Gardiner - C.B.S. Delhi
2.	Practical Exercise Therapy - Hollis - Blackwell Scientific Publications.
3.	Therapeutic Exercises Foundations and Techniques - Kisner and Colby -F.A. Davis.
4.	Principles and practices of therapeutic massage – Sinha 3rd edition. Jaypee brothers Delhi
5.	Margaret Hollis-Textbook of Massage.
6.	Muscle testing and functions - Kendall - Williams & Wilkins.
7.	Daniels and Worthingham's - Muscle testing - Hislop & Montgomery - W.B. Saunders.
8.	Measurement of Joint Motion: A Guide to Goniometry - Norkins& White - F.A. Davis.

Page

REFERENCE BOOKS :

1.	Therapeutic Exercises - Basmajian - Williams and Wilkins.
2.	Licht SH, editor. Massage, manipulation, and traction. E. Licht;
3.	World Health Organization; Global Strategy on Diet, Physical Activity and Health
4.	McArdle WD, Katch FI, Katch VL. Exercise physiology: nutrition, energy, and human performance. Lippincott Williams & Wilkins; 2010.
5.	Kennedy-Armbruster C, Yoke M. Methods of group exercise instruction. Human Kinetics; 2014.
6.	ACSM's Guidelines for Exercise Testing and Prescription

WEB REFERENCES :

1.	https://www.scribd.com/presentation/608513892/Introduction-to-Exercise-Therapy
2.	https://now.aapmr.org/exercise-prescription-and-basic-principles-of-therapeutic-exercise/
3.	https://www.ncbi.nlm.nih.gov/books/NBK555914/
4.	https://www.physio-pedia.com/Introduction_to_Therapeutic_Exercise
5.	https://www.sciencedirect.com/science/article/pii/S0004951414607364

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BoS Chairman

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U25PT14B	Fundamentals of Electro Physical Agents- (FoEA) II	L	T	P	C	Total
		4	0	2	5	90

COURSE OUTCOMES:

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

CO1 :	Demonstrate safe selection, dosing, and application of Interrupted Direct Current (IDC) and TENS parameters (pulse width, frequency, and intensity) to manage pain and stimulate targeted tissues based on underlying physiological neuro-theories (e.g., Gate Control Theory)
CO2 :	Perform and critically analyze electro-diagnostic tests, including the formulation of Strength-Duration (S.D.) Curves, to evaluate nerve and muscle tissue, accurately calculate chronaxie and rheobase ratios, and identify types of lower motor neuron lesions
CO3 :	Differentiate and administer superficial heating treatments specifically Infrared Radiation (IRR), Paraffin Wax Baths, and Moist Heat pads by applying correct laws of physics and heat transfer mechanics matching specific tissue depths
CO4 :	Identify absolute and relative contraindications and precautions for both electrical currents and thermal modalities to prevent adverse clinical incidents such as electrochemical or thermal burns
CO5 :	Exhibit standard operational skills in pre-checking electrotherapy equipment, preparing patients physically and psychologically, and executing evidence-based therapeutic interventions independently within clinical settings

UNIT I : Interrupted direct current:

12 Hrs.

Interrupted direct current: Biophysics, principles, therapeutic uses, indications, contra-indications, operational skills of equipment and patient preparation.

UNIT II : Transcutaneous Electrical Nerve Stimulations (TENS)

12 Hrs.

Transcutaneous Electrical Nerve Stimulations (TENS): Types of low frequency, pulse widths, frequencies and intensities used as TENS applications, Theories of pain relief by TENS. Principles of clinical application, effects and uses, indications, contraindications, precautions. Operational skills of equipment patient preparation.

UNIT III : Electrical Reactions and Electro-Diagnostic Tests

12 Hrs.

Electrical Reactions and Electro-Diagnostic Tests: Electrical stimuli and normal behavior of nerve and muscle tissue. **Types of lesions** and development of reaction of degeneration. Faradic/Intermittent direct current test., S.D. Curve and its application. Chronaxie, Rheobase and pulse ratio.

UNIT IV : Infrared Rays	12 Hrs.
Infrared Rays -Wavelength, frequency, types and sources of IRR generation techniques of irradiation, physiological and therapeutic effects indications, contraindications, precautions, Operational skills of equipment and patient Preparation.	

UNIT V - Superficial Heat:	12 Hrs.
Superficial Heat: Paraffin wax bath, moist heat, electrical heating pads. Mechanism of production, Mode of heat transfer, Physiological & therapeutic effects, Indications, contraindications, precautions, operational skills of equipment and patient preparation.	

Practical:	30 Hrs.
Demonstrate the application of special techniques of low frequency current including Faradic foot bath, faradism under pressure, Demonstrate the plotting of strength duration curve and find out Chronaxie and Rheobase, Demonstrate the techniques of application of various types of IR lamps to various body regions, Demonstrate the techniques of application of paraffin wax bath to various body Regions, Demonstrate the techniques of application of TENS to various body regions.	

Total Hours: 90

TEXT BOOKS :	
1.	Electro therapy Explained: Principles & Practice Low & Reed, Butterworth Heinemann.
2.	Claytons Electro therapy, Forster & Palastange Baillier Tindal.

REFERENCE BOOKS :	
1.	Principles & Practice of Electrotherapy, Kahn, Churchill Livingstone
2.	clinical electrotherapy Currier and Nelson
3.	Therapeutic Heat & Cold, Lehmann, Williams & Wilkins.

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WEB REFERENCES :

1. <http://evolve.elsevier.com/Watson/electrotherapy>
2. <http://booksite.elsevier.com/9780750688437>
3. https://www.apta.org?utm_source=chatgpt.com
4. https://www.physio-pedia.com/Electrotherapy?utm_source=chatgpt.com
5. https://world.physio?utm_source=chatgpt.com

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U25PT15T	Fundamentals of Health Care Delivery System In India (FoHS) –II	L	T	P	C	Total
		4	0	0	4	60

COURSE OUTCOMES:

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

CO1 :	Analyze the objectives, action plans, targets, and operations of various National Health Programmed in India. Evaluate the historic achievements and systemic constraints of national healthcare initiatives
CO2 :	Analyze the objectives, action plans, targets, and operations of various National Health Programmed in India. Evaluate the historic achievements and systemic constraints of national healthcare initiatives
CO3 :	Explain the impact of corporatization on the delivery and accessibility of modern healthcare. Identify the drivers and consequences of the globalization of healthcare services. Critique the potential outcomes and prospects of new healthcare sector reforms
CO4 :	Outline the training, practice requirements, and distinct clinical settings for various healthcare professionals. Contrast the roles, responsibilities, and scopes of primary care versus specialty care. Analyze the underlying causes and systemic impacts of the workforce imbalance between primary and specialty care
CO5 :	Evaluate different healthcare financing models and their direct impact on the quality of healthcare delivery. Apply general insurance concepts and terminology specifically to the context of health insurance systems

UNIT I : National Health Programme:	12 Hrs.
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National Health Programme- Background objectives, action plan, targets, operations, achievements and constraints in various National Health Programme. Health scenario of India- past, present and future.

UNIT II : The concepts of health and disease	12 Hrs.
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Introduction to the profession of physiotherapy: role of physiotherapy in national health issues and the expectations of society from physiotherapists, The concepts of health and disease, risk factors, and the role of health promotion and disease prevention.

UNIT III : Health Care	12 Hrs.
Explore the corporatization of health care, Identify the globalisation of health care. Assess the prospects of new health care reform .	

UNIT IV : Health Services Professionals	12 Hrs.
Understand various types of health services professionals and their training, practice requirements, and practice settings, Differentiate between primary care and specialty care, and identify the causes of the imbalance between primary care and specialty care.	

UNIT V - Health Care Financing	12 Hrs.
Study the role of health care financing and its impact on the delivery of health care, Understand the basic concept of insurance and how general insurance terminology applies to health insurance.	

Total Hours: 60

TEXT BOOKS:	
1.	Essential in Community health practice (4 th reprint, 2024)
2.	India's public health care delivery: policies for universal health care.
3.	Park's text book of preventive and social medicine (latest edition)
4.	Konzier & Erb's fundamentals (10 th edition)

REFERENCE BOOKS:	
1.	Health care delivery system in India – mohammed Rizwan
2.	Essentials in community Health practice(4 th reprint,2024)- kamalam S. et al.
3.	World Health Organization; Global Strategy on Diet, Physical Activity and Health
4.	Park's text book of preventive and social medicine (latest edition)

WEB REFERENCES :	
1.	https://onlinelibrary.wiley.com/doi/abs/10.1002/9781118410868.wbehibs491
2.	https://onlinelibrary.wiley.com/doi/abs/10.1002/9781405165518.wbecosh006
3.	https://pubmed.ncbi.nlm.nih.gov/12264582/
4.	https://www.apa.org/about/policy/guidelines-health-care-delivery-systems.pdf
5.	https://de.slideshare.net/slideshow/16-health-care-delivery-systems-in-india-ppt/274351877

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U25PT16P	Clinic orientation and visit(COr) - II	L	T	P	C	Total
		0	0	4	2	60

The objective of this particular section of the foundation course is to sensitize potential learners with essential knowledge; this will lay a sound foundation for their learning across the under-graduate program and across their career. Innovative teaching methods should be used to ensure the attention of a student and make them more receptive such as group activities, interactive fora, role plays, and clinical bed-side demonstrations.

The community orientation and clinical visit will include visit to the entire chain of healthcare delivery system -Sub center, PHC, CHC, SDH, DH and Medical College, private hospitals, dispensaries and clinics.

The student will also be briefed regarding governance at village level including interaction and group discussion with village panchayat and front line health workers. Clinical visit to their respective professional department within the hospital.

VAC	Computers and information science (IT) –II	L	T	P	C	Total
		0	0	4	2	60

COURSE OUTCOMES:

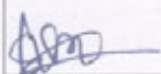
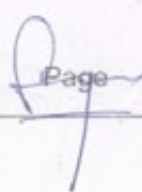
After completion of the course, the students will be able to

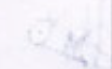
CO1 :	Navigate the spreadsheet interface confidently. Enter and organize data efficiently. Format worksheets for professional presentation. Generate clear charts and graphs. Execute proper worksheet printing settings
CO2 :	Design engaging presentation slides from scratch. Manipulate multimedia like photos and videos. Apply advanced text formatting techniques. Integrate data graphs into presentations. Utilize different presentation view modes effectively
CO3 :	Explain core operating system concepts clearly. Identify different types of operating systems. Understand fundamental hardware-software interactions
CO4 :	Differentiate between LAN, MAN, and WAN. Classify distinct network topologies accurately. Identify key physical network components. Compare Internet and Intranet architectures
CO5 :	Trace the history of the internet. Utilize basic protocols like FTP and Telnet. Navigate web browsers effectively. Apply computer systems in clinical settings

UNIT I : Introduction to Excel	12 Hrs.
Introduction to Excel: Introduction, about worksheet, entering information, saving workbooks and formatting, printing the worksheet, creating graphs.	

UNIT II : Introduction to power-point	12 Hrs.
Introduction to power-point: Introduction, creating and manipulating presentation, views, formatting and enhancing text, slide with graphs/ photos/ Videos.	

UNIT III : Introduction of Operating System	12 Hrs.
Introduction of Operating System: Introduction, operating system concepts, types of operating system.	



UNIT IV : Computer networks	12 Hrs.
Computer networks: Introduction, types of network (LAN, MAN, WAN, Internet, Intranet), network topologies (star, ring, bus, mesh, tree, hybrid), components of network.	

UNIT V - Internet and its Applications	12 Hrs.
Internet and its Applications: Definition, brief history, basic services (E-Mail, File Transfer Protocol, telnet, the World Wide Web (WWW)), www browsers, use of the internet. Application of Computers in clinical settings.	

Total Hours: 60

TEXT BOOKS:	
1.	The Architecture of Computer Hardware, Systems Software, and Networking: An Information Technology Approach
2.	Information Technology: An Introduction for Today's Digital World
3.	Computing EssentialsAuthors: Timothy O'Leary, Linda O'Leary, Daniel O'Leary

REFERENCE BOOKS:	
1.	Microsoft Office 2021 Inside OutAuthors: Ed Bott, Carl Siechert
2.	Computer FundamentalsAuthors: Pradeep K. Sinha, Priti Sinha
3.	Computer NetworksAuthor: Andrew S. Tanenbaum

WEB REFERENCES :	
1.	microsoft.com
2.	edu.gcfglobal.org/en/topics/office/
3.	geeksforgeeks.org/computer-network-tutorials/

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AEC	English, communication and soft skills(EG)-II	L	T	P	C	Total
		0	0	4	2	60

COURSE OUTCOMES:

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

CO1 :	Explain the fundamental process and channels of communication
CO2 :	Apply therapeutic communication techniques in professional interactions
CO3 :	Design and implement effective communication methods tailored for teaching.Facilitate active learning environments using structured communication tools
CO4 :	Adapt educational communication strategies to meet diverse patient needs
CO5 :	Identify environmental, physiological, and psychological communication barriers

UNIT I : Types & process of communication	12 Hrs.
Types & process of communication – verbal, non-verbal and written communication. Upward, downward and lateral communication.	

UNIT II : Therapeutic communication	12 Hrs.
Therapeutic communication: empathy versus sympathy.	

UNIT III : Communication methods for Teaching	12 Hrs.
Communication methods for teaching and learning.	

UNIT IV : Communication methods for Patient	12 Hrs.
Communication methods for patient education.	

UNIT V - Barriers of communication	12 Hrs.
Barriers of communication & how to overcome.	

Total Hours: 60

TEXT BOOKS:

- | | |
|----|---|
| 1. | English Communication Skills for Physiotherapy Students |
| 2. | Therapeutic Communication for Health Care Professionals by Carol Tamparo and Wilburta Lindh |
| 3. | Effective Communication Skills for Health Professionals by Philip Burnard |

REFERENCE BOOKS:

- | | |
|----|---|
| 1. | Business Communication by R.C. Bhatia |
| 2. | Communication Skills by Sanjay Kumar and Pushp Lata (Oxford University Press) |

WEB REFERENCES :

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|----|---------------------------|
| 1. | K-Hub E-Library Portal: |
| 2. | PubMed Central (PMC) |
| 3. | The NPTEL Digital Archive |

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