UNIVERSITY OF ENGINEERING AND MANAGEMENT, JAIPUR

BACHELORS OF PHYSIOTHERAPY SYLLABUS

PROGRAMME CODE:

DURATION- 4 ½ YEARS

DETAILED SYLLABUS WITH SCHEME OF EXAMINATION

SESSION- 2024-2025

DEPARTMENT OF PHYSIOTHERAPY

UNIVERSITY OF ENGINEERING AND MANAGEMENT, JAIPUR

PREAMBLE

Physiotherapy (PT) is a Movement Science with an established theoretical and scientific base and widespread clinical applications in the Prevention, Restoration & Rehabilitation, Maintenance and Promotion of optimal physical function. Physiotherapists diagnose and manage movement dysfunction and enhance physical and functional abilities. This physical dysfunction may be the sequelae of involvement of any of the systems like Musculoskeletal, Neurological, Cardiovascular, Respiratory, or other body systems.

These practitioners contribute to society and the profession through practice, teaching, administration, and the discovery and application of new knowledge about physiotherapy experiences of sufficient excellence and breadth by research to allow the acquisition and application of essential knowledge, skills, and behaviours as applied to the practice of physiotherapy.

Physiotherapist (PT) are autonomous, effective, and compassionate professionals, who practice collaboratively in a variety of healthcare set ups such as neonatal to geriatric, from critical care to community fitness to sports training. Emerging graduate and post graduate students are required to demonstrate a substantial knowledge base, possess skills related to Physiotherapy practices, possess high emotional quotient to address family health and meet community responsibilities, demonstrate gender sensitivity and sociocultural relevant competence. They should be aware of legal issues governing professional practice and follow evidence based clinical practices.

INTRODUCTION

Physiotherapy is a branch of modern medical science which includes examination, assessment, interpretation, physical diagnosis, planning and execution of treatment and advice to any person for the purpose of preventing, correcting, alleviating and limiting dysfunction, acute and chronic bodily malfunction including life saving measures via chest physiotherapy in the intensive care unit, curing physical disorders or disability, promoting physical fitness, facilitating healing and pain relief and treatment of physical and psychological disorders through modulating psychological and physical response using physical agents, activities and devices including exercise, mobilization, manipulations, therapeutic ultrasound, electrical and thermal agents and electrotherapy for diagnosis, treatment and prevention.

`Physiotherapist' is a qualified professional who has acquired all the above-mentioned knowledge and skills for entry into practice after being awarded a bachelor's degree in the subject of "Physiotherapy" from a recognized institute affiliated to the University conducting a fulltime course not less than four years and six months of internship.

OUR MISSION

University of Engineering and Management, Department of Physiotherapy Syllabus Mission:

"In line with our commitment to delivering quality education at the Undergraduate and Postgraduate levels, the Department of Physiotherapy aims to:

1. Cultivate strong foundational skills for students entering the profession.
2. Impart skill-based education to achieve competency in professional practice.
3. Foster research initiatives aimed at developing methods to alleviate movement impairment and dysfunction.
4. Instil a sense of ethical practice in students.
5. Inculcate a commitment to lifelong learning among our students, ensuring they stay abreast of global excellence standards and human values."

University of Engineering and Management, Department of Physiotherapy

"With a dedication to providing quality education at both the Undergraduate and Postgraduate levels, Department of Physiotherapy strives to:

1. Inculcate professional competence through comprehensive education.
2. Identify and address current needs through research initiatives, contributing to the advancement of the field.
3. Nurture relationships with a focus on societal engagement and development.
4. Encourage the development of future leaders committed to accountable patient care."

Department of Physical Therapy and Rehabilitation Sciences Syllabus Mission:

"As part of our mission to advance the health of humankind, the Department of Physical Therapy and Rehabilitation Sciences is dedicated to the following goals in our syllabus:

1. Achieving excellence in education to equip students with the highest level of competence.
2. Discovering new knowledge through research initiatives.
3. Developing leaders in health care and science.
4. Providing quality, effective, and professional education to gain national and international recognition.

Our syllabus is designed to align with these missions, ensuring a comprehensive and impactful learning experience for students."

VISION

"Pioneering Health Advancements: Our vision for the Department of Physical Therapy and Rehabilitation Sciences is to lead in advancing healthcare by:

1. Striving for educational excellence that empowers students to be leaders in health and science.
2. Fostering a research-driven environment that contributes to the body of knowledge in physical therapy.

3. Developing a cadre of professionals committed to the highest standards of patient care.
4. Achieving national and international acclaim for the quality, effectiveness, and professionalism of our education.
5. Inspiring a vision of health that integrates academic rigor, compassion, and a dedication to the well-being of humankind."

OBJECTIVES OF THE BACHELOR'S IN PHYSIOTHERAPY (BPT) PROGRAM

This program is formulated to enable student to gain adequate knowledge, skills and clinical hands-on experience leading to an ability to establish independent professional practice. The overall content of the curriculum focuses on learning experiences and clinical education experiences for each student that encompasses the following:

1. Ethical, evidence-based, efficient Physiotherapy treatment of adult as well as paediatric patients/clients with an array of conditions (e.g., musculoskeletal, neuromuscular, cardiovascular/pulmonary, integumentary etc) across the lifespan and the continuum of care, to all people irrespective of gender, caste, nation, states and territories, region, minority groups or other groups.

2. Ability to prevent movement dysfunction or maintain/restore optimal function and quality of life in individuals with movement disorders.

3. Ability to operate as independent practitioners, as well as members of health service provider teams, act as first contact practitioners, from whom patients/clients may seek direct services without referral from another health care professional.

4. Ability to promote the health and wellbeing of individuals and the public/society, emphasizing the importance of physical activity and exercise.

5. Prevent impairments, activity limitations, participatory restrictions, and disabilities in individuals at risk of altered movement behaviours due to health factors, socio-economic stressors, environmental factors, and lifestyle factors.

6. Provide interventions/treatment to restore integrity of body systems essential for movement, maximize function and recuperation, minimize incapacity, and enhance the quality of life, independent living and workability in individuals and groups of individuals with altered

movement behaviours resulting from impairments, activity limitations, participatory restrictions, and disabilities.

7. Ability to modify environmental, home and work access and barriers to ensure full participation in one is normal and expected societal roles.

8. Become an essential part of the health and community/welfare services delivery systems, practice independently of other health care/service providers and also within interdisciplinary rehabilitation/habilitation programs, health professional practice in self-employed set up or employment at the multiple settings such as hospitals, nursing homes, institutions catering services to specific conditions (like paraplegic /geriatric homes), primary as well as rural & urban health care set up, community health , domiciliary practice like residential areas, education & research centres, fitness /wellness centres like health clubs, occupational health centres, Schools including special schools, geriatric care units, and others.

ABOUT THE DEPARTMENT

Physical therapy (or physiotherapy), often abbreviated PT, is a health care profession primarily concerned with the remediation of impairments and disabilities and the promotion of mobility, functional ability, quality of life and movement potential through examination, evaluation, diagnosis, and physical intervention carried out by Physical Therapists or Physiotherapists and Physical Therapist Assistants or Physical Rehabilitation Therapists. Physical therapy involves the interaction between physical therapist, patients/clients, other health care professionals, families, care givers, and communities in a process where movement potential is assessed and diagnosed, and goals are agreed upon. Physical therapy is performed by a physiotherapist.

ABOUT THE COURSE

Physical therapy (**PT**), also known as **physiotherapy**, is one of the Allied health professions that, by using mechanical force and movements [Bio-mechanics or Kinesiology], Manual therapy, exercise therapy, and electrotherapy, remediates impairments and promotes mobility and function. Physical therapy is used to improve a patient's quality of life through examination, diagnosis, prognosis, and physical intervention. It is performed by **physical therapists** (known as **physiotherapists** in many countries).

The syllabus is divided into eight semesters. In the first two semesters there are five theory papers and four practical in the four subjects. In the third and fourth semester there are five

theory papers and two practical subjects. In the fifth and sixth semester there are four theory papers and one practical subject. In the seventh and eighth semester there are six theory subjects and three practical. Each theory paper is divided into two units and all the units carry equal weightage. All papers and practical are compulsory. Each theory paper carries 100 marks. Each practical carries 100 marks

PROGRAM OUTCOMES (PO)

The program learning outcomes relating to BPT degree program are summarized below:

PO1 Demonstrate compassionate communication and interpersonal skills with patients, their families, society, and fellow professionals.
PO2 Cultivate a strong and positive Therapist-Patient relationship by incorporating a holistic and patient-centred approach.
PO3 Exhibit understanding and adherence to moral, ethical, and legal principles associated with Physiotherapy management.
PO4 Apply comprehensive academic knowledge of human anatomy, physiology, and pathology to physiotherapy practice.
PO5 Utilize biomechanical understanding in the management of musculoskeletal, neurological, and cardio-respiratory conditions.
PO6 Implement Physiotherapy interventions by integrating assessment skills across various clinical subjects, such as Orthopaedics, General Surgery, Medicine, Neurology, Paediatrics, Dermatology & Gynaecology & Obstetrics, Community Medicine, and Sociology.

PROGRAM SPECIFIC OBJECTIVES

PSO1 Graduates will possess the skills to excel in diverse work environments, including governmental hospitals, private multi-specialty hospitals, academic institutes, and corporate settings such as MNCs, BSNL, Amazon, Infosys, and Défense Ministry of India.
PSO2 Graduates will be equipped to contribute to the field of physiotherapy both nationally and internationally, demonstrating an understanding of global practices and a commitment to environmental sustainability.
PSO3 Graduates will proficiently employ a range of modern physiotherapeutic modalities and techniques (MFR, TAPING, CUPPING, NEEDLING, NDT, PNF) to address patient needs effectively.
PSO4 Graduates will engage in lifelong learning, demonstrating the ability to gather patient history, differentially diagnose conditions, and prescribe appropriate treatment strategies in line with evolving healthcare practices.
PSO5 Graduates will possess the entrepreneurial skills necessary to establish and manage their own physiotherapy clinics or engage in joint ventures, fostering independence and innovation in their professional pursuits.

PROGRAME EDUCATIONAL OBJECTIVES (PEOs)

Goal 1: Promotes health and wellness, examines, evaluates, diagnoses, prognoses, and provides intervention and manages physical therapy services for individuals with movement dysfunction.
Goal 2: Functions in a highly professional, ethical, legal, and culturally competent manner and demonstrates commitment to society and the profession.
Goal 3: Communicates and educates the individual, family, community, and other professionals about rehabilitation, positive health, prevention, and wellness.
Goal 4: Critically evaluates and applies evidence as a basis for physical therapy practice, determines the effectiveness of intervention, and contributes to the body of knowledge in physical therapy.

Scheme Of Bachelor of Physiotherapy (B. P. T.) Examination [I^{ts} Semester]

S. No.	Subject	Total hours (Theory + Practical)			Credits		
		T	P	Total	T	P	Total
1	ANA101 Human Anatomy I	4	4	8	4	2	6
2	PHY102 Human Physiology I	3	2	5	3	1	4
3	EXT103 Fundamentals of Exercise Therapy II	3	4	7	3	2	5
4	ELT104 Fundamentals of Electro Physical Agents I	2	2	4	2	1	3
5	PSY105 Psychology	2	-	2	2	0	2
6	FHC106 Fundamentalsof health caredelivery System in India I	2	-	2	2	0	2
7	ENG107 English I (NUES)	1	-	1	1	0	1
8	IT 109 Information Technology I (NUES)	1	-	1	1	0	1
	Grand Total			30			24

BPT 1st Year (1st Semester)

Subject	Theory		Practical		Total Marks
	Internal Marks (30% Weightage)	External (70% Weightage)	Internal (40% Weightage)	External (60% Weightage)	
Human Anatomy-I	100	100	-	-	**200**
Human Physiology-I	100	100	-	-	**200**
Fundamentals of Exercise Therapy I	100	100	100	100	**400**
Fundamentals of Electro Physical Agents I	100	100	100	100	**400**
Psychology	100	100	-	-	**200**
Fundamentals of health care delivery System in India I	100	100	-	-	**200**
English I (NUES)	100	100	-	-	**200**
Information Technology	100	100	-	-	**200**
Grand Total					**2000**

SCHEME OF BACHELOR OF PHYSIOTHERAPY (B. P. T.) Examination [2nd Semester]

S. No.	Subject	Total hours (Theory + Practical)			Credits		
		T	**P**	**Total**	**T**	**P**	**Total**
1	ANA101 Human Anatomy II	4	4	8	4	2	6
2	PHY102 Human Physiology II	3	2	5	3	1	4
3	EXT103 Fundamentals of Exercise Therapy II	3	4	7	3	2	5
4	ELT104 Fundamentalsof Electro Physical Agents II	2	2	4	2	1	1
5	BHC105 Biochemistry	2	-	2	2	0	2
6	SOG106 Sociology	2	-	2	2	0	2
7	ENG107 English II (NUES)	1	-	1	1	0	1
8	IT108 Information Technology II (NUES)	1	-	1	1	0	1
	Clinic Orientation						
	Grand Total			30			24

BPT 1st Year (2nd Semester)

Subject	Theory		Practical		Total Marks
	Internal Marks (30% Weightage)	External (70% Weightage)	Internal (40% Weightage)	External (60% Weightage)	
Human Anatomy-II	100	100	-	-	200
Human Physiology-II	100	100	-	-	200
Fundamentals of Exercise Therapy I	100	100	100	100	400
Fundamentals of Electro Physical Agents II	100	100	100	100	400
Biochemistry	100	100	-	-	200
Sociology	100	100	-	-	200
English II (NUES)	100	100	-	-	200
Information Technology II	100	100	-	-	200
Grand Total					2000

SUBJECT: HUMAN ANATOMY I

COURSE CODE: ANA101

CREDITS: 4

Course Objectives: The objectives of this course will be to emphasize the identification and application of the fundamental concepts and methods of life or physical science. To explore natural phenomena, observation & experimentation. To understand, identify, and describe the basic anatomical structures associated with cells and tissue, and muscular, skeletal, and nervous systems. It helps to develop basic dissection in the field of anatomy.

Course Outcomes (CO):

After taking this course a student will:

CO1: Describe common anatomical terms.

CO2: Discuss the classifications of bones, their general features, structure, functions, and the mechanism of displacement and common sites of fractures.

CO3: Identify the skeletal muscles, their origin, insertion, nerve supply, actions, and main relations.

CO4: Recognize anatomical structures and describe the topographic anatomy of the regions of the abdomen, pelvis, perineum, thorax, and extremities.

CO5: Describe the components of the nervous system, including the cerebrum, brainstem, cerebellum, spinal cord, peripheral nerves, sensory motor, and autonomic nervous systems.

S. No.	Topics	Hours	Course Outcomes (CO)
1	**Unit 1**	10 H	CO1, CO2, CO3, CO4
	Define Scope of Anatomy	1 H	CO1
	Anatomical Position and anatomical Terminology (Groove, tuberosity, trochanters etc.)	1 H	CO1
	Anatomical positions of body, axes, and planes	1 H	CO1
	Bones:		CO2
	Composition, Functions, Classification based on Morphology	1 H	CO2
	Development and Structure; Formation / Development of Bones esp. Long Bones; Parts of Long Bones	1 H	CO2
	Blood Supply of Bones	1 H	CO2
	Cartilage: Types and Features of cartilage	1 H	CO1
	Joints:		
	Definition and types	1 H	CO1
	Features of fibrous, Cartilaginous & Synovial joints, sub-types of synovial joints	1 H	CO1
	Movements of joints, factors permitting and limiting these movement	1 H	CO1
	Blood supply of joints; applied aspects	1 H	CO1
	Muscles:		CO4
	Comparative Feature of Skeletal, Smooth and Cardiac Muscles, parts & structure of Skeletal Muscle including fascicular architecture	1 H	CO3
	Blood supply and nerve supply of Skeletal Muscle; Motor Unit	1 H	CO4
	Types of Skeletal Muscles based on their action i.e. Agonists, Antagonists, Fixators, Synergists, Origin & Insertion, Tendon; Isometric & Isotonic contractions; Applied Aspects	1 H	CO4
	Connective Tissue:		
	Composition i.e. Cellular & Non-Cellular components; Types and functions of connective tissue; Ligaments; Applied Aspects	1 H	CO1
2	**Unit 2**: Musculo Skeletal Anatomy of Upper Extremity	8 H	CO4, CO3,
	Osteology: Clavicles, Scapula, Humerus, Radius, Ulna, Carpals, Metacarpals, and Phalanges	2 H	CO4
	Soft parts: Breast, pectoral region, axilla, front of arm, back of arm, cubital fossa, front of forearm, back of forearm,	2 H	CO4

	palm, dorsum of hand, muscles, nerves, blood vessels and lymphatic drainage of upper extremity		
	Shoulder girdle, shoulder joint, elbow joints, radio ulnar joint, wrist joint and joints of the hand	2 H	CO3
	Arches of hand, skin of the palm and dorsum of hand	2 H	CO4
3	**Unit 3**: Thorax	8 H	CO5
	Cardio-vascular system:		CO5
	Mediastinum: Divisions and contents Pericardium	1 H	CO5
	Thoracic Wall: position, shape and parts of the heart; conducting System	1 H	CO5
	Blood Supply and nerve supply of the heart; names of the blood vessels and their distribution in the body – region wise	1 H	CO5
	Respiratory system:		CO5
	Outline the respiratory passages, Pleura and lungs: position, parts, relations, blood supply and nerve supply; Lungs – emphasize on bronchopulmonary segments	1 H	CO5
	Diaphragm: Origin, insertion, nerve supply and action, openings in the diaphragm	1 H	CO5
	Intercostal muscles and Accessory muscles of respiration: Origin, insertion, nerve supply and action	1 H	CO5
4	**Unit 4**: Musculo Skeletal Anatomy of Lower Extremity	8 H	CO3, CO4
	Osteology: Hip bone, femur, tibia, fibula, patella, tarsals, metatarsals and phalanges	2 H	CO4
	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	2 H	CO4
	Joints of the lower limb: Hip Joint, Knee joint, Ankle and joint, joints of the foot	2 H	CO3
5	**Unit 5**: Musculo Skeletal Anatomy of trunk & vertebral column	8 H	CO3, CO4
	Osteology: Cervical, thoracic, lumbar, sacral and coccygeal vertebrae and ribs.	1 H	CO4
	Discuss Soft tissue: Pre and Para vertebral muscles, intercostal muscles, anterior abdominal wall muscles, Inter-vertebral disc.	1 H	CO4
	Describe Pelvic girdle and muscles of the pelvic floor.	1 H	CO3

SUBJECT: Human Anatomy Practical

COURSE CODE: ANA191

CREDITS: 2

S. No.	Practical	Hours	Course Outcomes (CO)
1	Identify the parts of bones (Upper limb, lower limb, and spine)	6 H	CO3, CO4
2	Identify the muscles of extremities, trunk, and face on a dissected human body/3D model	6 H	CO4, CO1
3	Identify the joints of extremities, trunk, and face on a dissected human body/3D model	6 H	CO3, CO2
4	Identify the course and relationships of major peripheral nerves including plexuses formation	6 H	CO5
5	Identify the surface markings of joints, fascia, ligaments, and muscles of extremities, trunk, and face on a model	6 H	CO4
6	Identify the gross structure of heart, lungs, brain, and spinal cord on a dissected human body/3D model	6 H	CO5

Essential Readings:

1. Snell RS. Clinical anatomy: an illustrated review with questions and explanations. Lippincott Williams & Wilkins; 2004.

2. Inderbir Singh, Textbook of Anatomy with color Atlas – Vol. 1, 2, 3. Jaypee Brothers 3. 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

5. Singh V. Textbook of clinical neuroanatomy. Elsevier Health Sciences; 2014.

6. Dutta AK. Essentials of human anatomy, head and neck

External Courses:

1. NPTEL Medical Course Anatomy
   https://dth.ac.in/medical/course.php
2. Anatomy Specialization, University of Michigan, Course Era
   https://www.coursera.org/specializations/anatomy

SUBJECT: HUMAN PHYSIOLOGY-I

SUBJECT CODE: PHY102

CREDITS: 3

Course Objectives:

The following goals are designed to ensure students comprehensively understand physiology. These goals serve as the cohesive framework for all physiology topics, emphasising the development of precise terminology for effective communication. Students will identify anatomical structures and elucidate the physiological functions of body systems. They will integrate concepts to relate physiological knowledge to practical scenarios, encompassing healthy lifestyle choices and imbalances in homeostasis. Furthermore, students will demonstrate proficiency in laboratory techniques for assessing the physiological functions of each organ system and interpret graphs depicting anatomical and physiological data.

Course Outcomes (CO):

After taking this course, a student will:

CO1: Acquire thorough knowledge of general physiology about cells, blood, nerves, and muscles.

CO2: Demonstrate understanding of the theoretical and practical aspects of the nervous system, including its classification and the physiology of voluntary movement.

CO3: Gain proficiency in understanding the excretory system and its functions through applied physiology.

CO4: Comprehend the physiological foundations of the endocrine system and its clinical implications.

CO5: Understand the physiology of the reproductive systems and the physiological changes occurring during pregnancy.

CO6: Illustrate human respiratory system physiology through diagrams and explanations.

CO7: Attain theoretical and practical knowledge of the cardiovascular and gastrointestinal systems, applying this knowledge in clinical contexts.

Sl. No	Topics	Hours	Course Outcome
1.	**General Physiology**	**3**	
	Cell: Morphology. Organelles: their structure and functions.	2	CO1
	Transport across the cell, diffusion, osmosis.	1	CO1
2.	**Blood**	**5**	
	Composition and function of blood, lymph and plasma, and Blood cells:	1	CO1
	structure, types, function, counts and variation of RBC, WBC, Platelet, Haemoglobin	1	CO1
	Erythropoiesis, Coagulation of blood (clotting factor), blood groups, immunity&, & anticoagulants. Cross-matching	2	CO1
	Indications and complications of Blood Transfusion, anaemia, jaundice, haemophilia.	1	CO1
3.	**Cardiovascular system:**	**9**	
	Physiological anatomy, structure, properties & nerve supply of heart, cardiac muscles, and blood vessels	2	CO7
	Action potential & pacemaker potential. Conducting system in terms of Components. Impulse conduction Cardiac Cycle, ECG.	4	CO7
	Stroke volume and regulation of Cardiac Output: Normal values, determinants, regulation &its variations of BP.	3	CO7
4.	**Respiratory System:**	**7**	
	Functions of – Pleura, trachea-bronchial tree, alveolus, respiratory membrane, and their nerve supply, Respiratory muscles mechanisms.	3	CO6
	Spirometry, Transport of respiratory gases: Diffusion across the respiratory membrane. Oxygen transport – Different forms, oxygen haemoglobin, dissociation curve (Bohr effect, Haldane effect).	2	CO6

	Regulation of Respiration: Neural Regulation. Hering-Breuer reflex. Voluntary control. Hypoxia: Hyperbaric oxygen therapy. Acclimatization Hypercapnia. Asphyxia. Cyanosis, Dysbarism. Respiratory changes during exercise it's important.	2	CO6
5.	**Digestive System:**	**5**	
	Composition, functions, production, and regulation of the digestive system, Salivary Secretion: Stomach, Saliva, mastication, Swallowing.	2	CO7
	Gastric juice: Gland, composition, function, regulation. Gastrin: Production, function and regulation. Peptic ulcer.	2	CO7
	Gastric motility. Gastric emptying. Vomiting.	1	CO7
	Pancreatic Secretion: Composition, production, function, &regulation of liver, Gall bladder & Bile.	1	CO7
6.	**Renal System:**	**11**	
	Functions of renal system. Nephrons – cortical and juxtamedullary. Juxtaglomerular apparatus. Glomerular membrane.	2	CO3
	Renal blood flow and its regulation. Functions of kidneys	1	CO3
	Functions of kidneys. Mechanism of Urine Formation: Glomerular Filtration: Mechanism of glomerular filtration. GFR – normal value and factors affecting. Renal clearance. Inulin clearance.	3	CO3
	Creatinine clearance, Tubular Reabsorption: Reabsorption of Na+, glucose, HCO3-, urea, and water. Filtered load. Renal tubular transport maximum. Glucose clearance.	2	CO3
	Renal threshold for glucose. Mechanism of concentrating and diluting the Urine: Counter-	2	CO3

	current mechanism. Regulation of water excretion. Diuresis. Diuretics.		
	Mechanism of micturition. cystometrogram. Atonic bladder, automatic bladder.	1	CO3

SUBJECT CODE: PHY192 I

CREDITS: 1

S. No.	Topics	Hours	Course Outcome
1.	Collection of Blood.	1	CO1
2.	Study of Hemacytometer. Haemoglobinometry.	1	CO1
	white blood cell count, red blood count, Leishman's staining	1	CO1
3.	Determination of Blood Group.	2	CO1
4.	Bleeding time and Clotting time (BTCT).	1	CO1
5.	Spirometry: Lung Volume and Capacity.	1	CO6
6.	Measurement of blood pressure.	1	CO6

Essential Readings:

1. K. Sembulingam, Essentials of Medical Physiology, Jaypee, All Chapters

2. Concise Medical Physiology – Sujit K. Chowdhuri.

3. Textbook of Physiology for Physiotherapy – Prof. A. K Jain.

Essential Courses

https://www.coursera.org/learn/blood-film-morphology

https://www.coursera.org/learn/physiology

https://www.coursera.org/learn/infarction

https://www.coursera.org/learn/chronic-respiratory-diseases-crd-in-primary-care-settings

https://www.coursera.org/learn/managing-asthma-allergies-diabetes-and-seizures-in-school

Course: FUNDAMENTALS OF EXERCISE MODALITIES I

Course Code: EXT 103 I

Credits: 4

SEMESTER 1

Course Outcomes (CO):

1. Apply the principles of physics in describing movements (Force, inertia, Laws of motion)
2. Explain planes and axis of movements
3. Discuss the methods of measuring joint movements
4. Demonstrate joint movement measurements (Including electronic goniometer)
5. Demonstrate fundamental and derived positions and muscle actions
6. Demonstrate transfer techniques
7. Perform basic assessment techniques (Motor, sensory, coordination and balance) Demonstrate knowledge and skills in prescribing basic movement aids

S. No.	Topics	Hours	Course Outcome
1	**Unit 1:** Basic principles Describe the aims of Exercise Therapy, The techniques of Exercise Therapy, Approach to patient's problems, and Assessment of patient's condition – Measurements of Vital parameters	2	CO1
	Apply the principles of mechanics applied to Exercise Therapy: Force, Composition, Resolution, Equilibrium-stable, unstable, neutral gravity-LOG-COG, levers-types, Speed, velocity, work, energy, power, acceleration, momentum, friction and inertia, axes and planes, pulley and springs	7	CO1, CO2

	Discuss Muscle work group action of muscles, angle of pull and mechanical efficiency of the muscles.	1	CO2
2	**Unit 2:** Starting and Derived Positions Demonstrate the starting positions, their muscle work, effects and uses and Standing, Kneeling, Sitting, Lying and Hanging.	2	CO2, CO5
	Demonstrate derived positions. Discuss the muscle work of each derived position	2	CO2, CO5
3	**Unit 3** Definition and Classification of Active and Passive Movements with advantages, disadvantages, indications, contraindication, techniques	4	CO3
	Measurement of Joint Range Methods of testing: Measuring range of motion (ROM). Discuss Reliability and validity of goniometry. Functional ROM and normal range of motion of various joint. Technique of Goniometry.	8	CO3, CO4
	Perform ROM measurement of individual joint's using goniometer.	8	CO3, CO4
	Measurement of Limb Length- True, apparent and segmental limb length Measurement of angle of Pelvic Inclination	5	CO3, CO4
	Total	39	

Recommended Textbooks

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.

Recommended 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

Course: FUNDAMENTALS OF EXERCISE MODALITIES I PRACTICAL

Course Code: EXT 193 I

Credits: 2

SEMESTER 1

S. No.	Topics	Hours	Course Outcome
1	Demonstrate the different types of muscle contraction, muscle work, group action of muscles and co-coordinated movements on self.	6	CO1, CO2
2	Demonstrate various fundamental and derived positions. And describe muscle work and uses on self.	6	CO2, CO5
3	Measure the ROM of joints using handheld goniometer – upper limb, lower limb & trunk on human model	8	CO3, CO4
4	Demonstrate the relaxed passive movement of joints of upper limb and lower limb on human model.	6	CO2, CO3
5	Instruct the patient to perform of the active mobilisation exercises of joints of upper limb and lower limb on human model	8	CO5
6	Measurement of Limb Length- True, apparent and segmental limb length	2	CO7
7	Measurement of angle of Pelvic Inclination	2	CO7
	Total	38	

SUBJECT: FUNDAMENTALS OF ELECTRO PHYSICAL AGENTS I

SUBJECT CODE: ELT104

CREDITS: 3

Course Objectives: The "Fundamentals of Electro Physical Agents" course aims to provide students with a comprehensive understanding of electrotherapy principles and applications in physiotherapy. Students will learn the basics of electricity production and its effects on human tissues, the therapeutic effects of various electrotherapeutic modalities, and operational skills for different equipment. Additionally, the course covers pain physiology, clinical decision-making, equipment maintenance, and safety precautions to ensure effective treatment delivery.

Course Outcomes (CO):

After taking this course, a student will:

CO1: Explain fundamental principles of physics related to electricity production and its transmission.

CO2: Explain the production, physiological and therapeutic effects of biophysics, principles, therapeutic uses, indications, and contraindications of electrical stimulation agents.

CO3: Demonstrate competencies in operational skills of equipment, patient preparation, and techniques of application of electrical stimulation agents.

CO4: Discuss the physiology and pathophysiology of pain

CO5: Discuss theories of pain and their implications for physiotherapy clinical decision making.

Course Contents:

S. No.	Topics	Hours	Course Outcome
1	**UNIT 1 Physical Principles in Relation to Physiotherapy**	**8**	CO1
	Structure and Properties of Matter: solids, liquids, and gases; adhesion, surface tension, viscosity, density, and elasticity.	**1**	CO1
	Structure of Atoms and Molecules: atoms, molecules, elements, and compounds, electron theory, static and current electricity.	**2**	CO1
	Conduction and Insulation: conductors, insulators, potential difference, resistance, and intensity.	**1**	CO1
	Ohm's Law: application to AC and DC currents.	**1**	CO1
	Rectifying Devices: thermionic valves, semiconductors, transistors, amplifiers, transducers, oscillator circuits.	**2**	CO1
	Capacitance and Condensers: in DC and AC circuits.	**1**	CO1
2	UNIT 2 Effects **of Current Electricity**	**7**	CO2
	Chemical Effects: ions and electrolytes, ionization, production of E.M.F by chemical actions.	**2**	CO2
	Magnetic Effects: molecular theory of magnetism, magnetic fields, electromagnetic induction.	**1**	CO2
	Measurement Devices: milliammeters and voltmeters, transformers and choke coils.	**1**	CO2
	Thermal Effects: Joule's law and heat production.	1	**CO2**
	Physical Principles of Light and Sound: properties of light and sound.	**1**	**CO2**
	Electromagnetic Spectrum: biophysical application.	**1**	
3	**UNIT 3 Electrical Supply**	**7**	**CO2**
	Overview: main supply of electric current.	**1**	CO2
	Dangers and Precautions: short circuits, electric shocks, safety devices, earthing, fuses.	**1**	CO2
	Emergency Management: first and initial management of electric shock.	**2**	CO2
4	**UNIT 4 Low Frequency Currents**	**15**	**CO3**
	Introduction: direct, alternating, and modified currents.	**1**	CO3
	Iontophoresis: biophysics, principles, therapeutic uses, indications, contraindications, operational skills of equipment and patient preparation.	**2**	CO3
	Faradic Current: biophysics, principles, therapeutic uses, indications, contraindications, operational skills of equipment and patient preparation.	**2**	CO3

	Interrupted Direct Current: biophysics, principles, therapeutic uses, indications, contraindications, operational skills of equipment and patient preparation.	**3**	CO3
	Transcutaneous Electrical Nerve Stimulation (TENS): types of low frequency, pulse widths, frequencies, and intensities used in TENS applications.	**1**	CO3
	TENS Theories of Pain Relief	**1**	CO4
	TENS Principles of Clinical Application: effects and uses, indications, contraindications, precautions.	**1**	CO4
	TENS Operational Skills: equipment and patient preparation.	**1**	**C04**
	Advanced Safety Protocols and Innovations: latest advancements in safety devices and protocols to prevent electric shocks and other hazards.	**3**	**C05**

SUBJECT: Fundamentals of Electro Physical Agents Practical I

SUBJECT CODE: ELT194 I

CREDITS: 2

Practical's Topics

S.No.	Practical	Hours	Course Outcome
1	Identify components and safety devices involved in the electric supply of the electrotherapy department	**3**	**CO1**
2	Experience sensory and motor stimulation of nerves and muscles by various types of low-frequency currents on self	**3**	**CO2**
3	Locate and stimulate different motor points region-wise, including the upper & lower limb, trunk, face on a human model	**3**	**C03**

Essential Readings:

1. Electro therapy Explained: Principles & Practice Low& Reed, Butterworth Heinemann.

2. Claytons Electro therapy, Forster & Palastange Baillier Tindal.

SUBJECT: PSYCHOLOGY

SUBJECT CODE: PSY105

CREDITS: 2

Course Objectives:

The course covers essential psychological parameters relevant to physiotherapeutic practice and introduces students to fundamental sociological concepts, principles, social processes, and institutions. It also examines various social factors impacting families in both rural and urban communities.

Course Outcome:

At the end of the course, the candidate will be able to:

CO1: Define psychology and its role in the health delivery system. Explore psychological maturation during human development, growth, and changes during ageing.

CO2: Analyse the significance of psychological status in health and disease, environmental and emotional influences on personality and mental health.

CO3: Develop skills in patient interaction, including the therapist-patient relationship and professional collaboration. Emphasis on understanding the impact of disease on patients' psychological well-being.

Sl. No	Topics	Hours	Course Outcome
1.	**Introduction to Psychology:**	**2 Hrs**	
	Structuralism, functionalism, psychoanalysis, methods of introspection, observation, inventory, and experimental method	1	CO1
	Branches of psychology: pure psychology & applied psychology with the importance of the study of psychology to physiotherapy	1	CO1
2.	**Developmental Psychology:**	**2 Hrs**	
	Nature, characteristics, & factors influencing growth & development, & outline developmental stages: infancy, childhood, adolescence, adulthood, &Old age.	1	CO1
	Role of heredity & environment with their relative importance in physical, psychological, & social development.	1	CO2
3.	**Emotions and perception**:	**4 Hrs**	
	Definition, nature, concepts, types, principles, factors theories of anger, fear, anxiety, sensation, attention, illusion & hallucination, physiological changes due to emotional state.	1	CO1
	Definitions, concepts, factors, needs, and theories of motivation, learning (including classical & operant conditioning, trial and error), primary & secondary motives, characteristics, types, & assessment of intelligence tests (verbal, performance, IQ, mental age).	2	CO1, CO3
	Effective ways to learn massed/spaced, whole /part, recitation/reading, serial/free recall, incidental/intentional learning, knowledge of results, association, & mnemonic methods.	1	CO1
5.	**Psychology of Frustration and Stress**	**2 Hrs**	

	Definition, causes, reactions, sources, types, physiological symptoms, and management of frustration, stress, conflicts, adjustment maladjustment, anxiety, tension, psychosomatic problems, and coping strategies.	2	CO1, CO3
6.	**Personality**	**4 Hrs**	
	Define Personality and describe factors in personality development • Describe tools of Measurement of Personality-: observation, situational test, questionnaire, rating scale, interview, and projective techniques.	2	CO1,CO2
	Defence Mechanisms: denial of reality, rationalization, projection, reaction formation, identification, repression, regression, intellectualization, undoing, introjection, acting out.	1	CO2
	Psychological reactions of a patient during admission and treatment of anxiety may include shock, denial, suspicion, loneliness, shame, guilt, rejection, fear, withdrawal, depression, egocentrism, justification, & loss of hope	1	CO2, CO3
7.	**Social psychology:**	**1 Hrs**	
	Types of leaders with different theoretical approaches to leadership, development of attitude, and change of attitude.	1	CO1
8	**Clinical psychology:**	**3 Hrs**	
	Models of training, abnormal behaviour assessment, clinical judgment, psychotherapy, and self-management methods.	1	CO2, CO3
	Physiotherapist-patient interaction, aggression, self-imaging, stress management, assertive training, group therapy, body awareness, pediatric, child, and geriatric clinical psychology.	2	CO3

Essential Books:

1. Morgan C.T. & King R.A. Introduction to Psychology– recent edition [Tata McGraw-Hill publication]

2. Munn N.L. Introduction to Psychology [Premium Oxford, I.B.P. publishing.]

3. Clinical Psychology –Akolkar

4. Hurlock EB. Development psychology. McGraw-Hill

Essential Courses:

https://www.coursera.org/learn/positive-psychiatry

https://www.coursera.org/learn/psychological-first-aid

https://www.coursera.org/specializations/abnormal-psychology

https://www.coursera.org/learn/positive-psychology

SUBJECT: Fundamentals of Health Care Delivery System in India

SUBJECT CODE: FHC106

CREDITS: 2

Course Objectives:

Course Outcomes (CO):

After taking this course, a student will:

CO1: Understand the basic structure and function of healthcare delivery systems in India.

CO2: Comprehend the organization of healthcare delivery at different levels in India and identify issues within the system.

CO3: Recognize the importance and methods of community participation in healthcare.

CO4: Compare and contrast the Indian healthcare system with those of developed countries.

CO5: Evaluate the role of the private sector and identify the causes of imbalance between primary and specialty care.

CO6: Explain the objectives, impact, and policy framework of the National Health Mission and National Health Policy.

CO7: Understand the role of healthcare financing, insurance, corporatization, and globalization in shaping the healthcare system.

S. No.	Topics	Hours	Course Outcome
1	Introduction to the Healthcare Delivery System	1	CO1
2	Healthcare Delivery System in India at Primary, Secondary, and Tertiary Care	1	CO2
3	Community Participation in the Healthcare Delivery System	1	CO3
4	Contribution of NGOs in Healthcare Delivery and Community Health Programs	1	CO3
5	Health System in Developed Countries	1	CO4
6	Private Sector	1	CO5
7	National Health Mission	1	CO6
8	National Health Policy	1	CO6
9	Issues in Health Care Delivery System in India	1	CO2
10	Human Resources for Health: Challenges Related to the Shortage and Distribution of Healthcare Professionals	1	CO2
11	National Health Programme: Background, Objectives, Action Plan, Targets, Operations, Achievements, and Constraints	1	CO6
12	Health Scenario of India: Past, Present, and Future	1	CO2
13	Introduction to the Profession of Physiotherapy: Role of Physiotherapy in National Health Issues	1	CO1
14	Recent Technological Advancements and Their Application in Physiotherapy	1	CO1
15	Concepts of Health and Disease: Risk Factors, and the Role of Health Promotion and Disease Prevention	1	CO7
16	Impact of Non-Communicable Diseases, Lifestyle Changes, and Environmental Factors on Future Health Scenarios	1	CO7
17	Corporatization of Healthcare	1	CO7
18	Globalization of Healthcare	1	CO7
19	Prospects of New Healthcare Reforms	1	CO7
20	Role and Growth of Telemedicine and Digital Health Platforms in Global Healthcare	1	CO7
21	Health Services Professionals: Types, Training, Practice Requirements, and Practice Settings	1	CO7
22	Differentiation Between Primary Care and Specialty Care: Causes of Imbalance	1	CO5
23	Role of Healthcare Financing: Impact on the Delivery of Healthcare	1	CO7
24	Basic Concepts of Insurance: How General Insurance Terminology Applies to Health Insurance	1	CO7

Essential Readings:

1. "Textbook of Community Medicine" by Rajvir Bhalwar
2. "Park's Textbook of Preventive and Social Medicine" by K. Park
3. "Essentials of Global Health" by Richard Skolnik
4. "Public Health: What It Is and How It Works" by Bernard J. Turnock

External Courses:

1. Healthcare Delivery Providers by University of Minnesota
   https://www.coursera.org/learn/healthcare-delivery-providers
2. Assessing Health Program Delivery by Johns Hopkins University
   https://www.coursera.org/learn/assessing-health-program-delivery
3. Healthcare Organization Operations by Rutgers University
   https://www.coursera.org/specializations/healthcare-organization-operations

COURSE CODE- 107

COURSE TITLE - ENGLISH, COMMUNICATION AND SOFT SKILLS

Subject description: The objective of this course is to enable the student to effectively communicate with patient, colleague and professional. The student

will also be able to understand and implement the basic communication skills required for personal, hospital, and department management and interpersonal

management.

Course outcomes

CO 1 apply basics of grammar and writing skills apply and communicate ideas orally and in writing with a high level of proficiency

use appropriate expressions in varied situations and topics of interest ,speak in English both in terms of fluency and comprehensibility

demonstrate independence in using basic language structure in oral and written

Major topics to be covered under Communication course

COURSE CONTENT

1. Basic Language Skills: Grammar and Usage.
2. Business Communication Skills. With focus on speaking - Conversations, discussions, dialogues, short presentations, pronunciation.
3. Teaching the different methods of writing like letters, E-mails, report, case study, collecting the patient data etc. Basic compositions, journals, with a
focus on paragraph form and organization.
4. Basic concepts & principles of good communication

COURSE CODE- 108

COURSE TITLE- COMPUTERS AND INFORMATION SCIENCE

SUBJECT DESCRIPTION: The students will be able to appreciate the role of computer technology. The course has focus on computer organization,

computer operating system and software, and MS windows, Word processing, Excel data worksheet and PowerPoint presentation. Topics to be covered under

the subject are as follows:

Course outcome

CO 1 know the parts of computer

CO 2 have working knowledge of a computing system

CO3 use computer for word processing and presentation and data management

CO4 use the internet for personal and professional purpose

CO5 understand the role of digital technology in the health sciences

Course Content

1. Introduction to computer: Introduction, characteristics of computer, block diagram of computer, generations of computer, computer languages.
2.Input output devices: Input devices (keyboard, point and draw devices, data scanning devices, digitizer, electronic card reader, voice recognition devices, vision-input devices), output devices (monitors, pointers, plotters, screen image projector, voice response systems).
3. Processor and memory: The Central Processing Unit (CPU), main memory.
4. Storage Devices: Sequential and direct access devices, magnetic tape, magnetic disk, optical disk, mass storage devices.
5.Introduction of windows: History, features, desktop, taskbar, icons on the desktop, operation with folder, creating shortcuts, operation with windows (opening, closing, moving, resizing, minimizing and maximizing, etc.

SUBJECT: Human Anatomy- II
COURSE CODE: ANA101- II
CREDITS: 4

Course Objectives: The objectives of this course will be to emphasize on Identification and application of the fundamental concepts and methods of a life or physical science. To explore natural phenomena, observation & experimentation. To understand, identify, and describe the basic anatomical structures associated with cells and tissue, and muscular, skeletal, and nervous systems. It helps to develop basic dissection in the field of anatomy.

Course Outcomes (CO):
After taking this course a student will:

CO1: Identify the skeletal muscles, their origin, insertion, nerve supply, actions, and main relations.

CO2: Identify the borders of the named anatomical regions along with their associated fascia, ligaments, tendons, or cartilages.

CO3: Recognize anatomical structures and describe the topographic anatomy of the regions of the abdomen, pelvis, perineum, thorax, and extremities.

CO4: Describe the anatomy of the components of organ systems of the body based on the anatomical region (thorax, abdomen, pelvis, and perineum).

S. No.	Topics	Hours	Course Outcome
1	**Unit 1: Abdomen**	14 H	CO2, CO3
	Describe Peritoneum: Parietal peritoneum, visceral peritoneum, folds of peritoneum, functions of peritoneum.	2 H	CO2
	Describe large blood vessels of the gut.	2 H	CO2
	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.	8 H	CO3
	Describe Pelvis: Position, shape, size, features, blood supply, and nerve supply of the male and female reproductive system.	2 H	CO3
2	**Unit 2: Endocrine Glands**	10 H	CO2, CO3
	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.	6 H	CO2, CO3
3	**Unit 3: Musculo Skeletal Anatomy of Head and Neck**	8 H	CO1
	Identify Osteology: Mandible and bones of the skull.	3 H	CO1
	Identify Soft parts: Muscles of the face and neck and their nerve and blood supply-extraocular muscles, triangles of the neck.	5 H	CO1
4	**Unit 4: Neuro Anatomy**	12 H	CO4
	Discuss Organization of Central Nervous System: Spinal nerves and autonomic nervous system mainly pertaining to cardiovascular, respiratory, and urogenital systems. 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).	12 H	CO4

SUBJECT: Human Anatomy Practical- II

COURSE CODE: ANA191- II

CREDITS: 2

S. No.	Topics	Hours	Course Outcomes
	Head & Neck		
1	Mouth cavity	2 H	CO4
2	Nasal cavity	2 H	CO4
3	Pharynx and Larynx (Parts, Sensory distribution)	2 H	CO4
4	Cranial bones (Identification of individual bone, general features, different foramina in relation to cranial nerve, Cranial fossae and their relation to brain and Hypophysis)	3 H	CO2
5	Identification of Anterior and Posterior triangles of Neck with their contents.	2 H	CO3
6	Radiological Anatomy of Musculo Skeletal system.	1 H	CO3
	Abdomen & Pelvis		
7	Abdominal viscera	1 H	CO2
8	Sacrum	1 H	CO3
9	Bony pelvis	1 H	CO2
10	Viscera of Pelvis	1 H	CO1
11	Blood vessels	1 H	CO1
	Nervous System		
12	Spinal cord (with its meninges & Blood supply)	2 H	CO2
13	Parts of brain (including meninges, Hind Brain, Mid Brain, Fore brain – Cerebral hemisphere, functional areas, and blood supply)	5 H	CO3

Essential Readings:

1. Snell RS. Clinical anatomy: an illustrated review with questions and explanations. Lippincott Williams & Wilkins; 2004.

2. Inderbir Singh, Text book of Anatomy with color Atlas – Vol. 1, 2, 3. Jaypee Brothers 3. 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

5. Singh V. Textbook of clinical neuroanatomy. Elsevier Health Sciences; 2014.

6. Dutta AK. Essentials of human anatomy, head and neck

External Courses:

1. NPTEL Medical Course Anatomy
   https://dth.ac.in/medical/course.php
2. Anatomy Specialization, University of Michigan, Course Era
   https://www.coursera.org/specializations/anatomy

SUBJECT: HUMAN PHYSIOLOGY-II

SUBJECT CODE: PHY102 - II

CREDITS: 3

Course Objectives:

The following goals are designed to ensure students comprehensively understand physiology. These goals serve as the cohesive framework for all physiology topics, emphasising developing precise terminology for effective communication. Students will identify anatomical structures and elucidate the physiological functions of body systems. They will integrate concepts to relate physiological knowledge to practical scenarios, encompassing healthy lifestyle choices and imbalances in homeostasis. Furthermore, students will demonstrate proficiency in laboratory techniques for assessing the physiological functions of each organ system and interpret graphs depicting anatomical and physiological data.

Course Outcomes (CO):

After taking this course, a student will:

CO1: Acquire thorough knowledge of general physiology about cells, blood, nerves, and muscles.

CO2: Demonstrate understanding of the theoretical and practical aspects of the nervous system, including its classification and the physiology of voluntary movement.

CO3: Gain proficiency in understanding the excretory system and its functions through applied physiology.

CO4: Comprehend the physiological foundations of the endocrine system and its clinical implications.

CO5: Understand the physiology of the reproductive systems and the physiological changes occurring during pregnancy.

CO6: Illustrate human respiratory system physiology through diagrams and explanations.

CO7: Attain theoretical and practical knowledge of the cardiovascular and gastrointestinal systems, applying this knowledge in clinical contexts.

PHYSIOLOGY-II

Course Contents:

S. No.	Topics	Hours	Course Outcome
1.	**Reproductive System**	**17 Hrs**	
	Physiology of Reproductive Organs: Structure and function of reproductive organs.	1	CO5
	Overview of sex determination, sex differentiation, and common reproductive disorders.	1	CO5
	Male Reproductive System: Functions of the testes in spermatogenesis and hormone production.	1	CO5
	Pubertal changes in males and their physiological implications.	1	CO5
	The action of testosterone and its regulation of secretion. Composition and functions of semen.	1	CO5
	Female Reproductive System: Functions of the ovaries in oogenesis and hormone secretion.	1	CO5
	Role of the uterus in the reproductive process.	1	CO5
	Pubertal changes in females and their physiological effects.	1	CO5
	Actions of estragon and progesterone, including their regulation of secretion.	1	CO5
	Menstrual Cycle: Phases of the menstrual cycle: ovarian and uterine phases.	1	CO5

	Hormonal basis of the menstrual cycle and its regulation.	1	CO5
	Significance of menarche and menopause in female reproductive health.	1	CO5
	Pregnancy: Physiological changes occurring during pregnancy.	1	CO5
	Functions and importance of the placenta.	1	CO5
	Methods and significance of pregnancy tests.	1	CO5
	Mechanisms of lactation and their role in infant nutrition.	1	CO5
	Overview of contraception methods for family planning and birth control.	1	CO5
2.	**Endocrine system**	**9 Hrs**	
	Enumerate Major endocrine glands. Classification, mechanism of action and Functions of hormones	1	CO4
	Pituitary hormones: Secretory cells, action on target cells, and regulation of secretion of each hormone.	1	CO4
	Thyroid hormone and calcitonin: secretory cells, synthesis, storage, action and regulation of secretion. Disorders: Myxoedema, Cretinism, Grave's disease	1	CO4
	Parathyroid hormones: secretory cell, action, regulation of secretion. Disorders: Hypoparathyroidism. Hyperthyroidism. Calcium metabolism and its regulation.	1 1	CO4 CO4
	Adrenal Medulla: Secretory cells, action, regulation of secretion of adrenaline and noradrenaline	2	CO4

	Disorders: Phoechro- mycetoma. Endocrine Pancreas: Secretory cells, action, regulation secretion of insulin and glucagon. Glucose metabolism and its regulation. Disorder: Diabetes mellitus.	3	CO4
2.	**Nerve Muscle Physiology**	**14 Hrs**	
	Resting Membrane Potential and Action Potential: description, membrane potential and its importance**.**	1	CO2
	Analysis of action potential: ionic basis, properties, and propagation.	1	CO2
	Structure and Functions of Neurons: Detailed examination of neuron structure and functional components.	2	CO2
	Classification of neurons by structure and function.	1	CO2
	Properties of nerve fibres and mechanisms of impulse transmission.	1	CO2
	Overview of nerve injury, including degeneration and regeneration processes.	1	CO2
	Neuroglia: Types and Functions: Classification and roles of neuroglia (glial cells) in the nervous system.	1	CO2
	Functions of neuroglial cells in supporting and protecting neurons.	1	CO2
	Skeletal Muscle Structure: Classification and structural components of skeletal muscle fibres.	1	CO2
	Physiology of Neuromuscular Transmission: Mechanisms governing neuromuscular transmission.	1	CO2

	Role of neurotransmitters in muscle contraction and relaxation.	1	CO2
	Applied Aspects of Neuromuscular Disorders Clinical implications and management strategies for neuromuscular disorders.	1	CO2
	Diagnostic methods and therapeutic approaches in treating neuromuscular diseases.	1	CO2
3.	**Nervous System:**	**27 Hrs**	
	Overview of central and peripheral nervous system, Functions of Nervous System.	1	CO2
	Functional anatomy, Classification& properties of synapse. Synaptic transmission.	1	CO2
	Sensory Mechanism: Functions and classification of sensory receptors.	1	CO2
	Sensory pathways: posterior column tracts, lateral spinothalamic tract, anterior spinothalamic tract, and trigeminal pathway.	2	CO2
	Sensory Cortex Sensations: Types of sensations: crude touch, fine touch, tactile discrimination, vibration sense. Mechanism of pain sensation: cutaneous pain (slow and fast pain), hyperalgesia, deep pain, visceral pain (referred pain).	2	CO2
	Motor Cortex and Motor Pathways Overview of motor pathways: pyramidal tracts, extrapyramidal tracts.	2	CO2
	Muscle Tone: Definition and properties of muscle tone: hypotonia, atonia, hypertonia.	1	CO2

	Upper motor neuron lesions (UMNL) and lower motor neuron lesions (LMNL).	1	CO2
	Spinal Cord Lesions: Effects and characteristics of complete transection and heme section of the spinal cord.	2	CO2
	Cerebellum and Posture, cerebellar ataxia.	2	CO2
	Postural reflexes: spinal, medullary, midbrain, and cerebral reflexes.	2	CO2
	Thalamus, Hypothalamus, Reticular Formation, and Limbic System.	2	CO2
	Structure, Functions and nuclei of the thalamus, hypothalamus, Basal Ganglia and Cerebral Cortex.	2	CO2
	Cerebral cortex lobes, Brodmann's areas, and higher functions like learning, memory, and speech.	2	CO2
	Cerebrospinal Fluid (CSF) and Blood Brain Barrier: Formation, composition, characteristics, importance circulation, & functions of CSF.	2	CO2
	Significance of lumbar puncture.	1	CO2
	Autonomic Nervous System: Features and actions of the parasympathetic and sympathetic nervous systems.	1	CO2
5.	**Physiology Of Exercise:**	**2Hrs**	
	Effects of acute and chronic exercise on respiratory, cardiovascular and musculoskeletal system, Metabolism	2	CO1

SUBJECT CODE: PHY192 - II

CREDITS: 1

Sl.No.	Topics	Hours	Course Outcome
1.	Elicit superficial and deep tendon reflexes.	1	CO2
2.	Determine muscle tone.	1	CO2
3.	Cranial nerves	1	CO2

Essential Readings:

1. K. Sembulingam, Essentials of Medical Physiology, Jaypee, All Chapters

2. Concise Medical Physiology – Sujit K. Chowdhuri.

3. Textbook of physiology for physiotherapy – Prof. A. K Jain

Essential Courses:

https://www.coursera.org/learn/medical-emergencies-cpr-toxicology-wilderness

https://www.coursera.org/learn/epidemics

https://www.coursera.org/learn/advanced-neurobiology1

https://www.coursera.org/learn/science-exercise

Course: FUNDAMENTALS OF EXERCISE MODALITIES II

Course Code: EXT 103 II

Credits: 4

SEMESTER 2

Course Outcomes (CO):

1. Apply the principles of physics in describing movements (Force, inertia, Laws of motion)
2. Explain planes and axis of movements
3. Discuss the methods of measuring joint movements
4. Demonstrate joint movement measurements (Including electronic goniometer)
5. Demonstrate fundamental and derived positions and muscle actions
6. Demonstrate transfer techniques
7. Perform basic assessment techniques (Motor, sensory, coordination and balance) Demonstrate knowledge and skills in prescribing basic movement aids

S. No.	Topics	Hours	Course Outcome
1	**Unit 1:** Muscle testing Discuss the Principles & Aims, Indications & Limitations, and Techniques of MMT for group & individual testing	2	CO3, CO4
	Demonstrate Manual Muscle testing procedure Perform MMT for upper limb, lower limb spine and face muscles	4	CO3, CO4
2	**Unit 2:** Classification of therapeutic exercise: Technique, effects, therapeutic use	1	CO6, CO7
	Demonstrate Active Movements	2	CO5, CO6, CO7

	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.	1	CO5, CO6, CO7
	Demonstrate Free exercise: Classification, principles, techniques, indications, contraindications, effects and uses	2	CO5, CO6, CO7
	Demonstrate Active Assisted Exercise: Discuss the principles, techniques, indications, contraindications, effects and uses Assisted-Resisted Exercise: principles, techniques, indications, contraindications, effects and uses	3	CO5, CO6, CO7
	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	3	CO5, CO6, CO7
	Demonstrate Passive Movements	2	CO5, CO6, CO7
	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	3	CO5, CO6, CO7
	Demonstrate Mobilization exercises of the joints region-wis passive, active	5	CO5, CO6, CO7
3	**Unit 3:** Classify various types of soft tissue manipulation techniques.	1	CO6, CO7
	Discuss Physiological effects, therapeutic effects and contraindications of soft tissue manipulation.	2	CO6, CO7

	Describe effleurage, stroking, kneading, petrissage, deep friction, vibration and shaking etc.	3	CO6, CO7
	Perform effleurage, stroking, kneading, petrissage, deep friction, vibration and shaking etc.	6	CO6, CO7
	Total	40	

Recommended Textbooks

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.

Recommended 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

Course: FUNDAMENTALS OF EXERCISE MODALITIES II PRACTICAL

Course Code: EXT 193 II

Credits: 2

SEMESTER 2

S. No.	Topics	Hours	Course Outcome
1	Perform passive mobilisation exercises of different joints region wise on self / human model.	10	CO6, CO7
2	Demonstrate the testing of muscle strength/ function region wise – upper limb, lower limb and trunk on human model.	10	CO6, CO7
3	Perform all the soft tissue manipulative techniques region wise – upper limb, lower limb, neck, back and face on human model	6	CO6, CO7
4	Demonstration ONLY Digital goniometry Pelvic inclinometer Dynamometry Accessory passive movement	12	CO6, CO7
	Total		

Recommended 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.

Recommended 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

SUBJECT: FUNDAMENTALS OF ELECTRO PHYSICAL AGENTS II

SUBJECT CODE: ELT104 II

CREDITS: 3

Course Objectives:

The objective of the "Fundamentals of Electro Physical Agents course is to equip students with a comprehensive understanding of the basic principles and physics underlying electrotherapy and its application in physiotherapy.

Course Outcomes (CO):

After taking this course, a student will:

CO1: Explain fundamental principles of physics related to electricity production and its transmission.

CO2: Explain the production, physiological and therapeutic effects of biophysics, principles, therapeutic uses, indications, and contraindications of electrical stimulation agents.

CO3: Demonstrate competencies in operational skills of equipment, patient preparation, and techniques of application of electrical stimulation agents

Course Contents:

S. No.	Topics	Hours	Course Outcome
1	**UNIT 1 Electrical Reactions and Electro-Diagnostic Tests**	**13**	
	Electrical Stimuli: normal behaviour of nerve and muscle tissue.	3	CO3
	Types of Lesions: development of reaction of degeneration.	2	CO3
	Faradic/Intermittent Direct Current Test.	3	CO3
	S.D. Curve: application.	3	CO3
	Chronaxie and Rheobase: pulse ratio.	2	CO3
2	**UNIT 2 Infrared Rays**	**27**	CO3
	Properties: wavelength, frequency, types and sources of IRR generation.	2	CO3
	Techniques of Irradiation: physiological and therapeutic effects, indications, contraindications, precautions.	3	CO3
	Operational Skills: equipment and patient preparation.	3	CO3
	Superficial Heat: paraffin wax bath, moist heat, electrical heating pads.	3	CO3
	Mechanism of Production.	3	CO3
	Mode of Heat Transfer.	1	CO3
	Physiological & Therapeutic Effects.	3	CO3
	Indications, Contraindications, Precautions.	3	CO3
	Operational Skills: equipment and patient preparation.	3	CO3
	Ultraviolet Radiation (UVR).	3	CO3

SUBJECT: FUNDAMENTALS OF ELECTRO PHYSICAL AGENTS II

SUBJECT CODE: ELT194 II

CREDITS: 2

Practical

S.NO	Practical's Topics	HOURS	Course Outcome
1	Demonstrate the application of special techniques of low-frequency current including Faradic foot bath, faradism under pressure.	8	CO3
2	Demonstrate the application techniques of Iontophoresis	8	CO3
3	Demonstrate the plotting of strength-duration curve and find out Chronaxie and Rheobase	8	CO3

Essential Readings:

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

Essential Courses:

1. basis of Electro therapy
https://youtu.be/h09Zw6czaO4?si=jEl4k8CIaiEdz8hR

2. Interferential Current therapy

https://youtu.be/rfhGBTUF5Ys?si=JNkoIpvVo9OKOk1R

SUBJECT: BIOCHEMISTRY

SUBJECT CODE: BHC105

CREDITS: 2

Course Objectives:

Course Outcomes (CO):

After taking this course, a student will:

CO1: Demonstrate skills in both chemistry and biology.

CO2: Various biomolecules which are present in the body and functions and the formation and fate of these biomolecules

CO3 - Discuss nutritional aspects of carbohydrates, lipids, proteins & vitamins & their metabolism with special reference to obesity.

CO4 - Acquire knowledge in brief about Clinical biochemistry, with special reference to Liver & renal function tests, Blood study for Lipid profile, metabolism of fat, Carbohydrates, proteins, bone minerals, and electrolyte balance.

S. No	Topics	Hours	Course Outcome
1.	General Biochemistry	**4**	CO1
	BIO-PHYSICS: Concepts of Ph. and buffers, Acid-base equilibrium, osmotic pressure, and its Physiological applications	2	CO1
	Cell- Morphology, Structure and function	2	CO1
2.	**Carbohydrates chemistry**	**6**	CO2 &CO3
	Definition, general classification with examples, Glycosides bond, Structures, composition, sources, properties, and functions of Monosaccharides, Disaccharides, Oligosaccharides, and Polysaccharides,	1	CO2

	Carbohydrate Metabolism – Introduction, Glycolysis Aerobic, Anaerobic, and its significance,	1	CO3
	Citric acid cycle- significance, Substrate level phosphorylation,	1	CO3
	Glycogen metabolism- Glycogenesis, Glycogenolysis, and Metabolic disorders related to glycogen metabolism. Gluconeogenesis, Cori cycle	2	CO3
	Hormonal regulation of glucose, Glycosuria, Diabetes mellitus, Role of carbohydrates in diet: Digestible carbohydrates and dietary fibers.	1	CO3
3.	**Amino-acid Chemistry**	**4**	
	Definition, Classification, Peptide bonds, Peptides: Definition, biologically important peptides, amino acid classifications, essential amino acids, zwitterion.	2	CO2
	Protein chemistry: Definition, Classification, and configuration of protein, Functions of proteins.	1	
	Role of proteins in diet: Quality of proteins - Biological value, net protein utilization. . Nitrogen balance	1	CO2
4.	**Lipid Chemistry**	**2**	
	Definition, general classification, Definition, classification, properties, and functions of Fatty acids, Definition, structure, and importance of Triacylglycerol, Phospholipids, and Cholesterol.	1	CO2
	Essential fatty acids and their importance, Lipoproteins: Definition, classification, properties, Sources, and Function Ketone bodies, Role of lipids in the diet.	1	CO2
5.	**Nutrition**	**7**	

	Introduction and Importance of Nutrition: Calorific Values and Respiratory Quotient – Definition and Significance; Energy Requirements of a Person - Basal Metabolic Rate: Definition, Normal Values, Factors Affecting BMR; and the Specific Dynamic Action of Food.	2	CO2
	Physical activities - Energy expenditure for various activities. Calculation of energy requirement of a person, Balanced diet, recommended dietary allowances, Nutritional disorders.	1	CO2
	Vitamins – Definition, classification according to solubility, Discuss every individual vitamin - Sources, Coenzyme forms, functions, RDA, digestion, absorption and transport, deficiency and toxicity	2	CO3
	Mineral Metabolism - 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.	2	CO3
6.	**Enzymes**	**3**	
	Definition, Active site, Cofactor (Coenzyme, Activator), Proenzyme. Classification with examples Factors affecting enzyme activity	1	CO2
	Enzyme inhibition and its applications. Diagnostic enzymology	2	CO3
7.	**Nucleotide and Nucleic Acid Chemistry**	**2**	
	Nucleotide chemistry: Nucleotide composition, functions of free nucleotides in the body. Nucleic acids (DNA and RNA) chemistry: Difference between DNA and RNA	1	CO2

	Structure of DNA (Watson and Crick model), Functions of DNA. Structure, functions, and significance of tRNA, rRNA, mRNA.	1	CO2
8.	**Clinical Biochemistry**	**3**	
	Discuss normal levels of blood and urine constituents, biochemical parameters, and their significance. Relevance of blood and urine levels of Glucose	2	CO4
	Discuss each of the parameters in the body and their significance: urea, uric acid, creatinine, calcium, phosphates, and Liver function tests. Renal function tests	1	CO4

Essential Readings:

1. Textbook of Biochemistry- Chatterjee M.N.-Jaypee Brothers.
2. Textbook of Biochemistry for Medical Students Vasudeval D.M. Jaypee
3. BrothersClinical Biochemistry- metabolic & Clinical aspects- Marshall &Bangert-Churchill Livingstone.
4. Biochemistry Southerland-Churchill Livingstone
5. Drugs in Sports: David R. Mottram and Sally Gunnel E. &F.N.Span.
6. Normal and Therapeutic Nutrition Robison H. Cortinne et al;, Mac Millian Publish Company, New York.
7. Physiological Chemistry. By Harpar

Essential Courses:

1. https://www.coursera.org/learn/energy-metabolism
2. https://www.coursera.org/learn/dna-decoded
3. https://www.coursera.org/learn/weight-management-beyond-balancing-calories
4. https://www.coursera.org/learn/weight-management-beyond-balancing-calories
5. https://www.coursera.org/learn/vital-signs

Online resources: - https://www.youtube.com/@Biochemistryguide

SUBJECT: SOCIOLOGY

COURSE CODE: SOG106

CREDITS: 2

Course Objectives: The objectives of this course will be to emphasize the identification and application of the fundamental concepts and methods of life or physical science. To explore natural phenomena, observation & experimentation. To understand, identify, and describe the basic anatomical structures associated with cells and tissue, and muscular, skeletal, and nervous systems. It helps to develop basic dissection in the field of anatomy.

Course Outcomes (CO):

CO1: Discuss the sociological concepts in relation to health, health care, and disorders.

CO2: Explain social theories in relation to health and health care.

CO3: Discuss biomedical and biopsychosocial health models.

CO4: Explain the concept of social groups, influence of groups on health and sickness, the role of primary groups and secondary groups in hospitals and rehabilitation settings.

CO5: Discuss the influence of family on human personality, individual's health, family and nutrition, and the effects of sickness on family along with psychosomatic disease.

CO6: Analyse the social cause for activity limitations and participatory restrictions caused by various disorders.

Course Content

S. No.	Topics	Hours	Course Outcomes
1	**Introduction**		
	Meaning- Definition and scope of sociology	1	CO1
	Its relation to Anthropology, Psychology, Social Psychology	1	CO2
	Methods of Sociological investigations: Case study, social survey, questionnaire, Interview, and opinion poll methods	1	CO2
	Importance of its study with special reference to Health Care Professionals	1	CO1
	Social Factors in Health and Disease Situations		
	Meaning of social factors	1	CO1
	Role of social factors in health and illness	1	CO1
	Socialization		
	Meaning and nature of socialization	1	CO2
	Primary, Secondary and Anticipatory socialization	1	CO2
	Agencies of socialization	1	CO2
	Social Groups		
	Concepts of social groups, influence of formal and informal groups on health and sickness	1	CO4
	The role of primary groups and secondary groups in the hospital and rehabilitation setup	1	CO4
	Family		
	The family, meaning, and definitions	1	CO5
	Functions and types of family	1	CO5
	Changing family patterns	1	CO5
	Influence of family on the individual's health, family, and nutrition	1	CO5
	The effects of sickness in the family and psychosomatic disease and their importance to physiotherapy	1	CO5
2	**Community**		

	Rural community: Meaning and features – Health hazards of realities, health hazards to tribal community	1	CO1
	Urban community: Meaning and features - Health hazards of urbanities	1	CO1
3	**Culture and Health**		
	Concept of Health	1	CO3
	Concept of Culture	1	CO3
	Culture and Health	1	CO3
	Culture and Health Disorders	1	CO3
4	**Social Change**		
	Meaning of social changes	1	CO1
	Factors of social changes	1	CO1
	Human adaptation and social change	1	CO1
	Social change and stress	1	CO1
	Social change and deviance	1	CO1
	Social change and health programme	1	CO1
	The role of social planning in the improvement of health and rehabilitation	1	CO1
5	**Social Problems of Disabled**		
	Population explosion	1	CO6
	Poverty and unemployment	1	CO6
	Beggary	1	CO6
	Juvenile delinquency	1	CO6
	Prostitution	1	CO6
	Alcoholism	1	CO6
	Problems of women in employment	1	CO6
	Geriatric problems	1	CO6
	Problems of underprivileged	1	CO6
6	**Social Security**		
	Social security and social legislation in relation to the disabled	2	CO6

Essential Readings:

1. McGee - Sociology - Drydon Press Illinois.

2. Kupuswamy - Social Changes in India - Vikas, Delhi.

3. Ahuja - Social Problems - Bookhive, Delhi.

4. Ginnsberg - Principles of Sociology - Sterling Publications.

5. Parter & Alder - Psychology & Sociology applied to medicine - W.B. Saunders.

6. Julian - Social Problems - Prentice Hall. Indian Social Problems - Madan, Vol-I-Madras

7. Bhushan, V., & Sachdeva, D. R. (2005). Introduction to sociology. Kitab Mahal

COURSE CODE- 107

COURSE TITLE - ENGLISH, COMMUNICATION AND SOFT SKILLS

Subject description: The objective of this course is to enable the student to effectively communicate with patient, colleague and professional. The student

will also be able to understand and implement the basic communication skills required for personal, hospital, and department management and interpersonal

management.

Course outcomes

CO 1 Apply basics of grammar and writing skills apply and communicate ideas orally and in writing with a high level of proficiency

use appropriate expressions in varied situations and topics of interest, speak in English both in terms of fluency and comprehensibility

demonstrate independence in using basic language structure in oral and written

Course Content
1. Special characteristics of health communication
2. Types & process of communication – verbal, non-verbal and written communication. Upward, downward and lateral communication.
3. Therapeutic communication: empathy versus sympathy.
4. Communication methods for teaching and learning.
5. Communication methods for patient education.
6. Barriers of communication & how to overcome

COURSE CODE- 108

COURSE TITLE- COMPUTERS AND INFORMATION SCIENCE

SUBJECT DESCRIPTION: The students will be able to appreciate the role of computer technology. The course has focus on computer organization,

computer operating system and software, and MS windows, Word processing, Excel data worksheet and PowerPoint presentation. Topics to be covered under

the subject are as follows:

Course outcome

CO 1 knows the parts of computer

CO 2 have working knowledge of a computing system

CO3 use computer for word processing and presentation and data management

CO4 use the internet for personal and professional purpose

CO5 understand the role of digital technology in the health sciences

Course Content

1 Introduction to MS-Word: introduction, components of a word window, creating, opening and inserting files, editing a document file, page setting and formatting the text, saving the document, spell checking, printing the document file, creating and editing of table, mail merge.
2 Introduction to Excel: introduction, about worksheet, entering information, saving workbooks and formatting, printing the worksheet, creating graphs.
3 Introduction to power-point: introduction, creating and manipulating presentation, views, formatting and enhancing text, slide with graphs.