



M.S. Ramaiah University of Applied Sciences

Program Structure and Course Details

Of

Bachelor of Physiotherapy

Batch 2022 onwards



M.S. Ramaiah University of Applied Sciences

M.S. Ramaiah College of Physiotherapy

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Programme Specifications Bachelor of Physiotherapy



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Programme Specifications

Bachelor of Physiotherapy

Programme:
Bachelor of Physiotherapy

College:
Physiotherapy

M.S. Ramaiah College of Physiotherapy
M.S. Ramaiah University of Applied Sciences

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Section 1
Programme Specifications: Bachelor of Physiotherapy

College	M.S. Ramaiah College of Physiotherapy
Programme	BPT
Dean of College	Prof. Savita Ravindra

1.1 Title of The Award

Bachelor of Physiotherapy

1.2 Mode of Study

Full Time

1.3 Awarding Institution /Body

M.S. Ramaiah University of Applied Sciences

1.4 Joint Award

Not Applicable

1.5 Teaching Institution

M. S. Ramaiah College of Physiotherapy, M.S. Ramaiah University of Applied Sciences

1.6 Date of Programme Specifications

July 2022

1.7 Programme Approved date by the Academic Council of the University26th September 2022**1.8 Next Review Date:**

July 2025 / 2026

1.9 Programme Approving Regulating Body and Date of Approval

1.10 Programme Accredited Body and Date of Accreditation

1.11 Grade Awarded by the Accreditation Body

1.12 Programme Accreditation Validity Duration

1.13 Programme Benchmark


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1.14 Rationale for the Programme

India is undergoing a silent revolution in health. The life expectancy in India has been on an upward trend from 40 years in the 1960s to almost 70 years currently. This increase in lifespan places a responsibility on the society towards increasing the quality of life commensurately.

This gains consequence as the definition of unit of society is changing from that of a family to that of an individual, thereby changing the understanding of quality-of-life. This emphasis on quality of life has led the society to focus on aspects of health such as movement quality, pain free life and independent living.

Physiotherapy as a profession has been growing alongside other healthcare professions, the new millennium has seen a large spurt in the field of research. Exercise as a fundamental component of human life has been used by many professions. The research in the field of exercise has proven its benefits. This has helped mould it into a therapeutic modality and a prescriptive intervention. Electricity and other related physical modalities can be leveraged to achieve therapeutic benefits far beyond their basic uses if vectored scientifically. The advancements of the science of physiotherapy have helped prove the benefits of early intervention across the healthcare continuum, from casualty to community and across the life span.

The world is moving towards evidence-based practice and the societal expectation has changed. There is a clear need to institute a bachelor's level program in this field to equip a physiotherapist with not only skill and experience but also of sufficient knowledge, research, and education. A trained physiotherapist can help maintain movement independence and maximise physical potential. The Graduate physiotherapist shall be able to independently provide evidence-based care in the spheres of promotion, prevention, treatment/intervention, and rehabilitation for enhanced well-being of the individual and society.

1.15. Domain / Goals

1. Clinical Care / Physiotherapy Care
2. Communication
3. Member of a multi-disciplinary Health Care provider team
4. Ethics & Accountability
5. Professionalism.
6. Social Accountability & Responsibility
7. Lifelong Learning & Scientific Enquiry

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1.16. Programme Outcomes

At the end of the Bachelors Programme, the student will be able to:

- BPT01: Acquire and apply the knowledge, skills, and professional attitudes required to provide evidence-based physiotherapy care across the health care delivery system.
- BPT02: Integrate knowledge of basic sciences, research and physiotherapeutics in clinical decision making.
- BPT03: Demonstrate evidence-based practice involving planning, critical thinking, self-reflection in clinical decisions making and diagnosis.
- BPT04: Demonstrate abilities to communicate and function effectively as a member of the multidisciplinary health care team.
- BPT05: Display professional conduct and behaviours as per the prescribed legal and ethical standards of national council.
- BPT06: Exhibit competency in health promotion and prevention of disability within the context of profession at local, regional and national levels.
- BPT07: Apply skills and principles of lifelong learning and acknowledge their own need for continuous professional development.

1.17. Programme Structure

The University follows the annual scheme for the programme wherein the students will take year-end examination for the prescribed courses completed in each of the academic year. In addition, the students enrolled in the BPT programme shall also undertake the required number of courses and optional elective courses.

The following are the courses a student is required to complete to appear in the year end-examination:

Year 1 Bachelor of Physiotherapy (Course Codes)

S. No.	Course Title	Course Code
1	Human Anatomy	PT C 1 01 A
2	Human Physiology	PT C 1 02 A
3	Biochemistry	PT C 1 03 A
4	Biomechanics of Human Motion	PT C 1 04 A
5	Psychology	PT C 1 05 A
6	Sociology	PT C 1 06 A
	Programme Electives	
7	English*	PTE 1 01 A
8	Kannada*	PTE 1 02 A
9	Scope of Physiotherapy Practice	PTE 1 03 A
	Open Elective**	
11	Digital Fluency	PT O 1 01 A
12	Environmental Studies	PT O 1 02 A

*The student has to opt for either English or Kannada

** The student has to opt for any one

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1.18. Teaching Learning Methods

The Teaching and Learning Methods will include but not limited to:

1. Lectures
2. Seminars
3. Group discussions
4. Self-directed Learning
5. Assignments
6. Demonstrations and Skill Labs
7. Pre-Clinical Laboratories
8. Bed Side Teaching
9. Field visits
10. Evidence Based Projects
11. Role Play
12. Simulation Based Learning

1.19. SCHEME OF EXAMINATION SUBJECTS AND DISTRIBUTION OF MARKS

BPT I							
S.I No	Subject	Theory		Practical			Total
		Written	Continuous Evaluation	Practical	Continuous Evaluation	Viva-Voce	
		Maximum Marks	Maximum Marks	Maximum Marks	Maximum Marks	Maximum Marks	Maximum Marks
1	Human Anatomy	100	20	40	10	30	200
2	Human Physiology	100	20	40	10	30	200
3	Biochemistry	80	20	-	-	-	100
4	Biomechanics of Human Motion	100	20	40	10	30	200
5	Section A- Psychology	40	10	-	-	-	100
	Section B- Sociology	40	10	-	-	-	

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Section 2: COURSE SPECIFICATIONS**1. YEAR I BPT Course****Course Specifications: Human Anatomy**

Course Title	Human Anatomy
Course Code	PTC101A
College	Physiotherapy

1. Course Summary

It is designed to provide students with the working knowledge of the structure of the human body which is essential foundation for their clinical studies. Studies are concerned with the topographical and functional anatomy of the limbs and thorax. Particular attention is paid to the muscles, bones and joints of the regions. The abdomen, pelvis, perineum, head and neck and central nervous system (CNS) are studied with particular reference to topics of importance to physiotherapists. The study of the CNS includes detailed consideration of the control of motor function.

2. Course Size and Credits:

Number of Credits	Annual
Credit Structure (Lecture: Tutorial: Practical)	Annual
Total Hours of Interaction	240
Number of Weeks annually	35
Department Responsible	Anatomy
Total Course Marks	200 marks Component: Theory Written: 100 Marks Continuous evaluation: 20 marks Component: Practical Practical – 40 marks Continuous evaluation – 10 marks Viva-voce – 30 marks
Pass Criterion	As per the Academic Regulations
Attendance Requirement	As per the Academic Regulations

3. Course Outcomes (COs)

After the successful completion of this course, the student will be able to:

CO-1. Identify and describe anatomical aspects of muscle, bones & joints and analyse movements of upper extremity, Thorax, Head, Neck & Face, lower extremity & pelvis

CO-2. Localize various surface landmarks.

CO-3. Identify and describe various components and contents of the thorax- with special emphasis to tracheo-bronchial tree & cardio- pulmonary system and lower extremity and pelvis.

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CO-4. Identify and describe the source, course of major arterial, venous and lymphatic system, with special emphasis to upper extremities, thorax, spine, LE and pelvis.

CO-5. Identify and describe various parts of Central Nervous System (C.N.S) - Fore-brain, Midbrain, Hind-brain, Brain stem, courses of cranial nerves; functional components - course distribution- Anatomical bases of clinical lesions.

4. Course Contents

1. Embryology

- Formation of the Germ layers and their derivations.
- Development of skin, Fascia, blood vessels, lymphatic,
- Development of bones, axial and appendicular skeleton and muscles, d) Neural tube, brain vessels and spinal cord,
- Development of brain and brain stem structures

2. General Anatomy (11 Hours)

- Introduction to Anatomy– Importance and subdivisions b) Terms and terminologies
- General Anatomy of Connective tissue d) General Anatomy of Bones
- General Anatomy of Joints
- General Anatomy of Muscles
- General Anatomy of Cardiovascular system h) General Anatomy of Lymphatic system
- General Anatomy of Nervous system
- Introduction to skin and fascia

3. Upper Extremity (21 Hours)

- Osteology – Clavicles, Scapula, Humerus, Radius, Ulna, Carpals, Metacarpals, Phalanges. b) Soft Parts - Pectoral region, Breast, Axilla, Brachial Plexus, Front of arm & cubital fossa Back of arm, Front of fore arm, Back of fore arm, Palm – 1, Palm – 2, Dorsum of hand, Venous and lymphatic drainage of upper extremity
- Joints - Shoulder Girdle & Shoulder Joint, Elbow and Radio ulnar Joints, Wrist Joint and Joints of hand

4. Lower Extremity (21 Hours)

- Osteology - Hip bone, Femur, Tibia, Fibula, Patella, Tarsals, Metatarsals and Phalanges
- Soft Parts - Front of the thigh, Femoral triangle & Adductor canal, Medial compartment of thigh, Gluteal region – 1, Gluteal region – 2, Back of thigh, Popliteal fossa, Anterior and lateral compartment of leg, Posterior compartment of leg, Arches of foot, Sole – 1, Sole – 2, Venous and lymphatic drainage of lower extremity
- Joints - Hip Joint, Knee joint, Ankle joint & joints of the foot

5. Head and Neck (22 Hours)

- Osteology - Norma Occipitalis & Verticalis, Norma Frontalis, Norma Lateralis, Norma Basalis – 1, Norma Basalis – 2, Interior of Cranial Cavity, Mandible, Cervical Vertebrae
- Soft Parts - Muscles of the face, Blood and nerve supply, Posterior triangles of the neck, Carotid & muscular triangle, Digastric & sub mental triangle, Muscles of mastication, Temporomandibular joint, Orbit – 1, Orbit – 2, Eyeball, Nasal septum & lateral wall of nasal cavity, Ear – 1, Ear – 2, Tongue

6. Neuroanatomy (19 Hours)

Central Nervous system

1. Dural folds

2. Dural venous sinuses

Cerebrum - Sulci & Gyri, Functional areas, Blood supply to brain, Diencephalon –

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thalamus, hypothalamus, Basal ganglia

Brainstem - Medulla Oblongata, Pons, Mid brain

Ventricles of brain - Lateral ventricles, Third and Fourth ventricles, Spinal Cord

Cerebellum, Pyramidal and Extrapyrimal systems, Spinal nerves, segments and areas, Autonomic

Nervous System – 1, Autonomic Nervous System – 2, Anatomical integration

7. Thorax (12 Hours)

a. **Osteology** – Sternum, Typical Ribs, Atypical Ribs, Thoracic Vertebrae b. **Soft Parts** - Intercostal spaces and contents,

a. Mediastinum: Divisions and contents, Superior Mediastinum, Pleura, Lungs, Diaphragm

b. Pericardium, External features of Heart, Interior of heart, Autonomic nerve supply to Heart & Lungs

8. Abdomen and Pelvis (14 Hours)

a. Osteology - Lumbar Vertebrae & Inter-vertebral disc, Sacrum, Pelvis b. **Soft Parts** - Abdominal wall muscles, Inguinal canal, Peritoneum – Layers, folds & functions, GIT – 1 – Location, parts & Blood supply of - Stomach, Spleen & Pancreas, GIT – 2 – Location, parts

& Blood supply of – Liver & Gall Bladder, Renal System – Location, parts & Blood supply of - Kidney & Urinary Bladder, Male reproductive system – Testis & Vas deference, Female reproductive system

– Uterus, Female reproductive system – Uterine tube & Ovary Pelvic Diaphragm, Perineum – Boundaries, division & muscles, Per and Para vertebral Muscles, Autonomic nerve supply to abdominal organs

9. Endocrine Glands (4 Hours)

Hypothalamus & Pituitary Gland - Position, shape, size, function, blood supply and nerve supply Thyroid glands & parathyroid glands - Position, shape, size, function, blood supply and nerve supply Adrenal glands & pancreatic islets - Position, shape, size, function, blood supply and nerve supply Ovaries, Testes & Thymus - Position, shape, size, function, blood supply and nerve supply

PRACTICAL

List of Practical / Demonstrations

1. Upper extremity including surface Anatomy
2. Lower extremity including surface Anatomy
3. Head & Spinal cord and Neck and Brain including surface Anatomy
4. Thorax including surface anatomy, abdominal muscles joints
5. Neuroanatomy
6. Abdomen and Pelvis

5. Course Map (CO-PO- Map)

Course Outcome	Program Outcomes						
	BPT O1	BPT O2	BPT O3	BPT O4	BPT O5	BPT O6	BPT O7
CO 1	3	3					
CO 2			2				
CO 3		2	2				
CO 4			2				
CO 5	3	3	3				

3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution

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6. Course Teaching and Learning Methods

Sl. No.	Teaching and Learning Methods	
1	Lectures	✓
2	Seminars	✓
3	Group discussions	✓
4	Self-directed Learning	✓
5	Assignments	✓
6	Demonstrations and Skill Labs	✓
7	Pre-Clinical Laboratories	✓
8	Bed side teaching	
9	Field visits	
10	Evidence Based Projects	
11	Role Play	
12	Simulation Based Learning	

7. Course Assessment and Reassessment

The details of the components and subcomponents of course assessment are presented in the Academic Regulation document pertaining to the Bachelor of Physiotherapy (BPT) Programme. The procedure to determine the final course marks is also presented in the Academic Regulation document.

8. Course Resources

1. General Anatomy by Subadhra Devi
2. Text book of General Anatomy by Vishram Singh
3. General Anatomy by B.D. Chaurasia (by CBS Publishers)
4. Anatomy of Upper Limb & Thorax (Vol I) by B.D. Chaurasia
5. Anatomy of Lower Limb & Abdomen (Vol II) by B.D. Chaurasia
6. Anatomy of Head & Neck (Vol III) by B.D. Chaurasia
7. Anatomy of Brain (Neuroanatomy) (Vol IV) B.D. Chaurasia
8. Anatomy of Upper Limb & Thorax (Vol I) by Vishram Singh
9. Anatomy of Lower Limb & Abdomen (Vol II) by Vishram Singh
10. Anatomy of Head, Neck & Brain (Vol III) by Vishram Singh
11. Clinical Neuro Anatomy – By Vishram Singh
12. Surface and Radiological Anatomy – By A.Halim
13. Surface and Radiological Anatomy – By Renu Chauhan

9. Course Organization

Course Code	PTC101A		
Course Title	Human Anatomy		
Course Leader's Name	Dr. Veena Vidya Shankar		
Course Leader's Contact Details	Phone:	99803 08735	
	E-mail:	veena24shankar@gmail.co	
Course Specifications Approval Date	26.09.2022		
Next Course Specifications Review Date	01.07.2026		
Subsequent Course Specifications Review Date			



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Course Specifications: Human Physiology

Course Title	Human Physiology
Course Code	PTC102A
College	Physiotherapy

1. Course Summary

The course in Physiology over the first year is designed to give the student an in-depth knowledge of fundamental reactions of living organisms, particularly in the human body. The major topics covered include the following: the cell; primary tissue; connective tissue; skin; muscle; nervous tissue; blood; lymphoid tissues; respiration; blood vessels; circulation; cardiac cycle; systemic circulation; sensory receptors; special senses; motor unit; spinal cord; control of movement; hypothalamic functions; gastrointestinal tract; kidneys; uterus; urinary tract; pregnancy; endocrine system.

Practical classes include hematology experiments, clinical examinations, amphibian chart, and recommended demonstrations.

2. Course Size and Credits:

Number of Credits	Annually
Credit Structure (Lecture: Tutorial: Practical)	Annually
Total Hours of Interaction	210
Number of Weeks annually	35
Department Responsible	Physiology
Total Course Marks	200 marks Component: Theory Written: 100 Marks Continuous evaluation: 20 marks Component: Practical Practical – 40 marks Continuous evaluation – 10 marks Viva-voce – 30 marks
Pass Criterion	As per the Academic Regulations
Attendance Requirement	As per the Academic Regulations

3. Course Outcomes (COs)

After the successful completion of this course, the student will be able to:

CO-1. Acquire the knowledge of the relative contribution of each organ system in maintenance of the homeostasis.

CO-2. Describe physiological functions of various systems, with special reference to Neuro-musculo-skeletal, Hematology, Cardio-respiratory, and alterations in function with aging.

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CO-3. Analyze physiological responses & adaptation to environmental stresses- with special emphasis on physical activity & temperature.

CO-4. Acquire the skill of basic clinical examination, with special emphasis to Cardiovascular and Respiratory system, & Exercise tolerance.

4. Course Contents

1. General Physiology (2 Hours)

Cell: Morphology. Organelles: their structure and functions

Transport Mechanisms across the cell membrane

Body fluids: Distribution, composition. Tissue fluid – formation.

2. Blood (8 Hours)

Introduction: Composition and functions of blood. Plasma: Composition, formation, functions. Plasma proteins RBC: count and its variations. Erythropoiesis- stages, factors regulating. Reticulo- endothelial system (in brief) Haemoglobin - Anemia (in detail), types of Jaundice. Blood indices, PCV, ESR. WBC: Classification. Morphology, functions, count, its variation of each. Immunity Platelets: functions, Hemostatic mechanisms: Blood coagulation–factors, mechanisms. Their disorders. Anticoagulants. Blood Groups: Landsteiner's law. Types, significance, determination, Erythroblastosis foetalis. Blood Transfusion: Cross matching. Indications and complications Lymph: Composition, formation, circulation and functions.

3. Nerve Muscle Physiology (15 Hours)

Introduction: Resting membrane potential. Action potential – ionic basis and properties.

Nerve: Structure and functions of neurons. Classification, Properties and impulse transmission of nerve fibres. Nerve injury – degeneration and regeneration. Neuroglia: Types and functions. Muscle:

Classification. Skeletal muscle: Structure. Neuromuscular junction: Structure. Neuromuscular transmission, myasthenia gravis, Excitation-Contraction coupling, Rigor mortis. Motor unit. Properties of skeletal muscles, Strength- Duration curve, Length-tension relationship, fatigue, load. Smooth muscle: Structure, types, mechanism of contraction. Plasticity.

4. Cardiovascular System (20 Hours)

Introduction: Physiological anatomy and nerve supply of the heart and blood vessels. Organisation of CVS. Cardiac muscles: Structure. Ionic basis of action potential and pacemaker potential. Properties. Conducting system: Components. Impulse conduction Cardiac Cycle: Definition. Phases of cardiac cycle. Pressure and volume curves. Heart sounds – causes, character. ECG: Definition. Different types of leads. Waves and their causes. P-R interval. Heart block. Cardiac Output: Definition. Normal value. Determinants. Stroke volume and its regulation. Heart rate and its regulation and their variations. Arterial Blood Pressure: Definition. Normal values and its variations. Determinants. Peripheral resistance. Regulation of BP. Arterial pulse. Shock – Definition. Classification–causes and features. Regional Circulation: Coronary, Cerebral and Cutaneous circulation. Cardiovascular changes during exercise.

5. Respiratory System (15 Hours)

Introduction: Physiological anatomy – Pleura, tracheo-bronchial tree, alveolus, respiratory membrane and their nerve supply. Functions of respiratory system. Respiratory muscles. Mechanics of breathing: Intrapleural and Intrapulmonary pressure changes during respiration. Chest expansion. Lung compliance: Normal value, pressure-volume curve, factors affecting compliance and its variations. Surfactant – Composition, production, functions. RDS Spirometry: Lung volumes and capacities. Timed vital capacity and its clinical significance. Maximum ventilation volume. Respiratory minute volume. Dead Space: Types and their definition. Pulmonary Circulation. Ventilation-perfusion ratio and its importance. Transport of respiratory gases: Diffusion across the respiratory membrane. Oxygen

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transport – Different forms, oxygen- haemoglobin dissociation curve. Factors affecting it. P50, Haldane and Bohr effect. Carbon dioxide transport: Different forms, chloride shift. Regulation of Respiration: Neural Regulation. Hering-breuer's reflex. Voluntary control. Chemical Regulation. Hypoxia: Effects of hypoxia. Types of hypoxia. Hyperbaric oxygen therapy. Acclimatization Hypercapnia. Asphyxia. Cyanosis – types and features. Dysbarism Disorders of Respiration: Dyspnoea. Orthopnoea. Hyperpnoea, hyperventilation, apnoea, tachypnoea. periodic breathing – types Artificial respiration Respiratory changes during exercise.

6. Digestive System (4 Hours)

Introduction: Physiological anatomy and nerve supply of alimentary canal. Enteric nervous system & Salivary Secretion: Saliva: Composition. Functions. Regulation. Mastication (in brief) Swallowing: Definition. Different stages. Functions. Stomach: Functions. Gastric juice: Gland, composition, function, regulation. Gastrin: Production, function and regulation. Peptic ulcer. Gastric motility. Gastric emptying. Vomiting. Pancreatic Secretion: Composition, production, function. Regulation. Liver: Functions of liver. Bile secretion: Composition, functions and regulation. Gall bladder: Functions. Intestinal motility & Defaecation.

7. Renal System (4 Hours)

Introduction: Physiological anatomy. Nephrons – cortical and juxtamedullary. Juxta- glomerular apparatus. Glomerular membrane. Renal blood flow and its regulation. Functions of kidneys. Mechanism of Urine Formation: Glomerular Filtration: Mechanism of glomerular filtration. GFR – normal value and factors affecting. Renal clearance. Inulin clearance. Creatinine clearance. Mechanism of concentrating and diluting the Urine: Counter-current mechanism. Regulation of water excretion. Diuresis. Diuretics. Micturition: Mechanism of micturition. Cystometrogram. Atonic bladder, automatic bladder. Skin and temperature regulation.

8. Endocrine System (5 Hours)

Endocrine gland, mechanism of action, function, regulation of secretion & Disorders. Pituitary Gland: Anterior Pituitary and Posterior Pituitary hormones. Disorders: Gigantism, Acromegaly, Dwarfism, Diabetes insipidus. Pituitary-Hypothalamic Relationship. Thyroid Gland: Thyroid hormone. Myxoedema, Cretinism, Grave's disease. Parathyroid. Calcium metabolism: Calcitonin, calcitriol. Hypoparathyroidism. Hyperthyroidism. Adrenal Gland: Adrenal Cortex: of Aldosterone, Cortisol, Androgens. Disorders: Addison's disease, Cushing's syndrome, Conn's syndrome, Adrenogenital syndrome. Adrenal Medulla: adrenaline and noradrenaline. Disorders: Pheochromocytoma. Endocrine Pancreas insulin and glucagon. Glucose metabolism and its regulation. Disorder: Diabetes mellitus.

9. Reproductive System (3 Hours)

Introduction: Physiological anatomy reproductive organs. Sex determination. Sex differentiation. Disorder & Male Reproductive System: Functions of testes. Pubertal changes in males. Spermatogenesis. Testosterone: action. Regulation of secretion. Semen. Female Reproductive System: Functions of ovaries and uterus. Pubertal changes in females. Oogenesis. Hormones: oestrogen and progesterone-action. regulation of secretion. Menstrual Cycle: Phases. Ovarian cycle. Uterine cycle. Hormonal basis. Menarche. Menopause. Pregnancy: Pregnancy tests. Physiological changes during pregnancy. Functions of placenta. Lactation. Contraception methods

10. Special Senses (10 Hours)

Vision: Introduction: Functional anatomy of eye ball. Functions of cornea, iris, pupil, aqueous humor – glaucoma, lens – cataract, vitreous humor, rods and cones. Photopic vision. Scotopic vision. Visual Pathway and the effects of lesions. Refractive Errors: myopia, hypermetropia, presbyopia and astigmatism. Visual Reflexes: Accommodation, Pupillary and Light. Visual acuity and Visual field. Light adaptation. Dark adaptation. Color vision – color blindness. Nyctalopia. Audition: Physiological anatomy of the ear. Functions of external ear, middle ear and inner ear. Structure of Cochlea and organ of corti.

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Auditory pathway. Types of Deafness. Tests for hearing. Audiometry. Taste: Taste buds. Primary tastes. Gustatory pathway. Smell: Olfactory membrane. Olfactory pathway. Vestibular Apparatus: Crista ampullaris and macula. Functions. Disorders.

11. Nervous System (20 Hours)

Introduction: Organisation of CNS – central and peripheral nervous system. Functions of nervous system. Synapse: Functional anatomy, classification, Synaptic transmission. Properties. 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. Sensory cortex. Somatic sensations: crude touch, fine touch, tactile localization, tactile discrimination, stereognosis, vibration sense, kinesthetic sensations. Pain sensation: mechanism of pain. Cutaneous pain – slow and fast pain, hyperalgesia. Deep pain. Visceral pain – referred pain. Gate control theory of pain. tabes dorsalis, sensory ataxia. Motor Mechanism: 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. Reflex Action: components, Bell-Magendie law, classification and Properties. Monosynaptic and polysynaptic reflexes, superficial reflexes, deep reflexes. Stretch reflex – structure of muscle spindle, pathway, higher control and functions. Inverse stretch reflex. Muscle tone – definition, and properties hypotonia, atonia and hypertonia. UMNL and LMNL. Spinal cord Lesions: Complete transection and Hemisection of the spinal cord. Cerebellum: Functions. Cerebellar ataxia. Posture and Equilibrium: Postural reflexes – spinal, medullary, midbrain and cerebral reflexes. Thalamus and Hypothalamus: Nuclei. Functions. Thalamic syndrome. Reticular Formation and Limbic System: Components and Functions. Basal Ganglia: Structures included and functions. Parkinson's disease. Cerebral Cortex: Lobes. Brodmann's areas and their functions. Higher functions of cerebral cortex – learning, memory and speech. EEG : Waves and features. Sleep: REM and NREM sleep. CSF: Formation, composition, circulation and functions. Lumbar puncture and its significance. Blood brain barrier. Hydrocephalus. ANS: Features and actions of parasympathetic and sympathetic nervous system.

12. Physiology of Exercise (7 Hours)

A. Effects of acute and chronic exercise on

- 1) Muscle strength/power/endurance
- 2) B.M.R./R.Q.
- 3) Hormonal and metabolic effect
- 4) Cardiovascular system
- 5) Respiratory system
- 6) Body fluids and electrolyte

B. Effect of gravity / altitude /acceleration / pressure on physical parameters

13. Applied Physiology (7 Hours)

a) Pulmonary Functions

1. Properties of gases, Mechanics of respiration, Diffusion capacity, special features of pulmonary circulation and their application.
2. Respiratory adjustments in exercises.
3. Artificial respiration
- 4 Breath sounds.

b) Cardio vascular Functions

1. Blood flow through arteries, arterioles, capillaries, veins and venuoles.
2. Circulation of Lymph, Oedema
3. Factors affecting cardiac output.



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4. Circulatory adjustment in exercise and in postural and gravitational changes,
5. Pathophysiology of fainting and heart failure.

c) Muscles and Nervous System Functions

1. Peripheral nervous system, Neuromuscular transmission, Types of nerve fibres.
2. Action potential, Strength-duration curve, ECG, EMG, VEP, NCV
3. Degeneration and regeneration of nerve, Reactions of denervations.
4. Synaptic transmission, Stretch reflex- Mechanism and factors affecting it.
5. Posture, Balance and Equilibrium/Coordination of voluntary movement
6. Voluntary motor action, clonus, Rigidity, Discordination,
7. Special senses- Vision, taste, hearing, vestibular, Olfaction
8. Sympathetic and Parasympathetic regulation, Thermoregulation d.) Blood functions

d) Blood functions

1. Thalassemia Syndrome, Hemophilia, VWF
2. Anemia, Leucocytosis
3. Bone marrow transplant

e) Metabolic Functions

Diabetes Mellitus, Physiological basis of Peptic Ulcer, Jaundice, GIT disorders and Dietary fiber, Thyroid functions, Vitamins deficiency,

PRACTICAL

I. Haematology (15 Hours)

To be done by the students

1. Study of Microscope and its uses
2. Determination of RBC count
3. Determination of WBC count
4. Differential leukocyte count (Smear&count)
5. Estimation of hemoglobin
6. Determination of blood groups
7. Determination of bleeding time
8. Determination of clotting time

II. Clinical Examination (20 Hours)

1. Examination of Radial pulse.
2. Recording of blood pressure
3. Examination of CVS
4. Examination of Respiratory system
5. Examination of Sensory system
6. Examination of Motor System
7. Examination of reflexes
8. Examination of cranial nerves

III. Amphibian Experiments – Demonstration and Dry charts Explanation. (5 Hours)

1. Instruments used for frog experiments. Kymograph, heart liver, Muscle trough, stimulator.
2. Simple muscle curve.
3. Effect of increasing the strength of the stimuli
4. Effect of temperature on muscle contraction.
5. Effect of two successive stimuli.
6. Effect of Fatigue.



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7. Effect of load on muscle contraction
8. Genesis of tetanus and clonus.
9. Normal cardiogram of amphibian heart. IV.

Recommended
Demonstration

1. Artificial Respiration
2. ECG
3. Mosso's Ergometry

5. Course Map (CO-PO-Map)

Course Outcome	Program Outcomes						
	BPT O1	BPT O2	BPT O3	BPT O4	BPT O5	BPT O6	BPT O7
CO 1	2		2				
CO 2	2	2				1	
CO 3			3			3	
CO 4	3		3			2	

3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution

6. Course Teaching and Learning Methods

Sl. No.	Teaching and Learning Methods	
1	Lectures	✓
2	Seminars	✓
3	Group discussions	✓
4	Self-directed Learning	✓
5	Demonstrations and Skill Labs	✓
6	Field visits	
7	Inter disciplinary meetings and discussions	
8	Continuing Professional Development Programs	
9	Pre Clinical Laboratories	✓
10	Evidence Based Project	
11	Role Play	
12	Simulation based learning	

7. Course Assessment and Reassessment

The details of the components and subcomponents of course assessment are presented in the Academic Regulation document pertaining to the Bachelor of Physiotherapy (BPT) Programme. The procedure to determine the final course marks is also presented in the Academic Regulation document.

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8. Course Resources**Recommended text books:**

1. Text book of medical physiology – Guyton Arthur
2. Concise medical physiology – Chaudhuri Sujit K.
3. Human Physiology – Chatterjee C.C.
4. Text book of practical Physiology – Ranade.
5. Text of Physiology – A.K.Jain.
6. Basics of Medical physiology- Venkatesh D & Sudhakar H H
7. Manipal Manual of Physiology – Prof. C N Chandrashekar

Reference:

8. Review of Medical Physiology – Ganong William F.
9. Physiological basis of medical practice – Best & Taylor

9. Course Organization

Course Code	PTC102A	
Course Title	Human Physiology	
Course Leader's Name	Dr. Hemalatha	
Course Leader's Contact Details	Phone:	9597026813
	E-mail:	dr.hemalatha04@gmail.com
Course Specifications Approval Date	26.09.2022	
Next Course Specifications Review Date	01.07.2026	
Subsequent Course Specifications Review Date		

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Course Specifications: Biochemistry

Course Title	Biochemistry
Course Code	PTC103A
College	Physiotherapy

1. Course Summary

This course provides the knowledge and skills in fundamental organic chemistry and introductory biochemistry that are essential for further studies. It covers basic biochemical, cellular, biological, and microbiological processes, basic chemical reactions in the prokaryotic and eukaryotic cells, the structure of biological molecules, introduction to the nutrients i.e., carbohydrates, fats, enzymes, nucleic acids, and amino acids.

2. Course Size and Credits:

Number of Credits	Annual
Credit Structure (Lecture: Tutorial: Practical)	Annual
Total Hours of Interaction	60
Number of Weeks annually	35
Department Responsible	Biochemistry
Total Course Marks	100 marks Component: Theory Written: 80 Marks Continuous evaluation: 20 marks
Pass Criterion	As per the Academic Regulations
Attendance Requirement	As per the Academic Regulations

3. Course Outcomes (COs)

After the successful completion of this course, the student will be able to:

CO-1. Describe structures & functions of cell in brief.

CO-2. Discuss nutritional aspects of carbohydrates, lipids, proteins & vitamins & their metabolism.

CO-3. Describe in details biochemical aspects of muscle contraction.

CO-4. Acquire knowledge in brief about the Clinical biochemistry, with special reference to Liver & renal function test, Blood study for Lipid profile, metabolism of fat, Carbo-hydrates, proteins, bone minerals, and electrolyte balance.

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4. Course Contents

1. Nutrition (5 Hours)

Introduction, Importance of nutrition

Calorific values, Respiratory quotient –Definition and its significance

Basal metabolic rate: Definition, Normal values, factors affecting BMR Specific dynamic action of food,

Physical activities - Energy expenditure for various activities. Calculation of energy requirement of a person, Balanced diet, Recommended dietary allowances

Role of carbohydrates in diet: Digestible carbohydrates and dietary fibers

Role of lipids in diet, Nutritional aspects of proteins- essential and non-essential amino acids.

Nutritional disorders

Desirable to know- Role of proteins in diet: Quality of proteins - Biological value, net protein utilization, Nitrogen balance

2. Carbohydrate Chemistry (3 Hours)

Definition, general classification with examples, Glycosidic bond

Structures, composition, sources, properties and functions of Monosaccharides,

Disaccharides, Oligosaccharides and Polysaccharides. Glycosaminoglycans

(mucopolysaccharides)

3. Lipid Chemistry (3 Hours)

Definition, general classification, properties and functions of Fattyacids, Triacylglycerol,

Phospholipids, Cholesterol.

Essential fatty acids and their importance

Lipoproteins: Definition, classification, properties, Sources and function

Ketonebodies

4. Amino-acid Chemistry (3 Hours)

Amino acid chemistry: Definition, Classification, Peptide bonds

Peptides: Definition, biologically important peptides

Protein chemistry: Definition, Classification, Functions of proteins

5. Enzymes (3 Hours)

Definition, Active site, Cofactor (Coenzyme, Activator), Proenzyme. Classification with examples,

Factors affecting enzyme activity, Enzyme inhibition and significance, Isoenzymes, Diagnostic enzymology (clinical significance of enzymes)

6. Nucleotide and Nucleic acid Chemistry (2 Hours)

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.

7. Digestion and Absorption (3 Hours)

General characteristics of digestion and absorption, Digestion and absorption of carbohydrates, proteins and lipids. Disorders of digestion and absorption–Lactose intolerance, Steatorrhoea.

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8. Carbohydrate Metabolism (5 Hours)

Introduction, Glycolysis–Aerobic, Anaerobic Citric acid cycle, Substrate level phosphorylation
 Glycogen metabolism–Glycogenesis, Glycogenolysis, Metabolic disorders glycogen, Gluconeogenesis, Cori cycle
 Hormonal regulation of glucose, Glycosuria, Diabetes mellitus,

9. Lipid Metabolism (5 Hours)

Introduction to lipid metabolism, Lipolysis, Oxidation of fatty acids -oxidation of fatty acids,
 Ketone body metabolism: Ketone body formation (ketogenesis), utilization (ketolysis), ketosis, Rothera's test.
 Cholesterol metabolism: synthesis, degradation, cholesterol transport.
 Fat metabolism in adipose tissues. Hypercholesterolemia and its effects (atherosclerosis and coronary heart diseases) Hypocholesterolemic agents, Common hyperlipoproteinemia, Fatty liver.
 Desirable to know- Lipogenesis- Denovo synthesis of fatty acids, triacylglycerol synthesis.

10. Amino acid and Protein Metabolism (3 Hours)

Catabolism of amino acids - Introduction, transamination, deamination, Fate of ammonia, transport of ammonia, Urea cycle
 Specialized products formed from amino acids - from glycine, arginine, methionine, phenylalanine and tyrosine.

11. Vitamins (7 Hours)

Definition, classification according to solubility,
 Individual vitamins - Sources, Coenzyme forms, functions, RDA, digestion, absorption and transport, deficiency and toxicity

12. Mineral Metabolism (3 Hours)

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

13. Cell Biology (2 Hours)

Introduction, Cell structure, Cell membrane structure and function, various types of absorption
 Intracellular organelles and their functions, briefly on cytoskeleton

14. Muscle Contraction (2 Hours)

Contractile elements in muscle, briefly on the process of muscle contraction, Energy for muscle contraction.

15. Biochemistry of Connective tissue (2 Hours)

Introduction, various connective tissue proteins: Collagen, elastin - Structure and associated disorders. Glycoproteins, Proteoglycans

16. Hormone Action (1 Hour)

Definition, classification, Mechanism of hormone action. Receptors, signal transduction, second messengers and cell function

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17. Acid-Base balance (4 Hours)

Acids, bases and buffers, pH. Buffer systems of the body, bicarbonate buffer system. Role of lungs and kidneys in acid base balance, Acid base imbalance

18. Water and Electrolyte balance (2 Hours)

Water distribution in the body, Body water, water turn over, Regulation of water balance, role of ADH and thirst centre. Osmolarity. Distribution of electrolytes, Electrolyte balance: Role of aldosterone, rennin
angiotensin system and ANF.

19. Clinical Biochemistry (3 Hours)

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

5. Course Map (CO-PO Map)

Course Outcome	Program Outcomes						
	BPT O1	BPT O2	BPT O3	BPT O4	BPT O5	BPT O6	BPT O7
CO 1		1					1
CO 2		1				2	
CO 3		2	1				
CO 4		3	3				1

3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution

6. Course Teaching and Learning Methods

Sl. No.	Teaching and Learning Methods	
1	Lectures	✓
2	Seminars	✓
3	Group discussions	✓
4	Self-directed Learning	✓
5	Assignments	✓
6	Demonstrations and Skill Labs	✓
7	Pre Clinical Laboratories	✓
8	Bed side teaching	
9	Field visits	
10	Evidence Based Projects	
11	Role Play	
12	Simulation Based Learning	

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7. Course Assessment and Reassessment

The details of the components and subcomponents of course assessment are presented in the Academic Regulation document pertaining to the Bachelor of Physiotherapy (BPT) Programme. The procedure to determine the final course marks is also presented in the Academic Regulation document.

8. Course Resources

Recommended Textbooks

1. U. Satyanarayana, U. Chakrapani. Biochemistry ;6th edition.
2. Pankaja Naik. Biochemistry; 5th edition
3. DM Vasudevan. Textbook of Biochemistry; 9th edition for Medical Students.

References

1. Harpers Illustrated Biochemistry; 31st edition.
2. Lippincotts Illustrated reviews- Biochemistry 7th Edition.
3. Lehninger, Principles of Biochemistry, Eighth edition.
4. Stryer Biochemistry 9th edition.
5. Devlin, Textbook of Biochemistry with clinical correlations, 7th edition.

9. Course Organization

Course Code	PTC103A		
Course Title	Biochemistry		
Course Leader's Name	Dr. Navikala		
Course Leader's Contact Details	Phone:	88614 69943	
	E-mail:		
Course Specifications Approval Date	26.09.2022		
Next Course Specifications Review Date	01.07.2026		
Subsequent Course Specifications Review Date			

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Course Specifications: Biomechanics of Human Motion

Course Title	Biomechanics of Human Motion
Course Code	PTC104A
College	Physiotherapy

1. Course Summary

Biomechanics involves the study of basic concepts of human movement, and application of various biomechanical principles in the evaluation and treatment of disorders of Musculoskeletal system. Students are taught to understand the various quantitative methods of movement. Mechanical principles of various treatment methods are studied. Study of posture and gait are also included.

2. Course Size and Credits:

Number of Credits	Annual
Credit Structure (Lecture: Tutorial: Practical)	Annual
Total Hours of Interaction	200
Number of Weeks annually	35
Department Responsible	Physiotherapy
Total Course Marks	200 marks Component: Theory Written: 100 Marks Continuous evaluation: 20 marks Component: Practical Practical: 40 Marks Continuous Evaluation: 10 Marks Viva- Voce: 30 Marks
Pass Criterion	As per the Academic Regulations
Attendance Requirement	As per the Academic Regulations

3. Course Outcomes (COs)

After the successful completion of this course, the student will be able to:

CO- 1. Apply the knowledge of kinetics and kinematics of the skeletal system to exercise, and analysis of movement.

CO-2. Analyze the kinetics of the muscular system during exercises and apply the knowledge of forces to functional activities.

CO -3. Understand the biomechanical contribution of kinetics and kinematics of the musculoskeletal system in maintaining posture and normal gait.

CO-4. Demonstrate competence in the assessment of gait and ADL.

CO-5. Demonstrate the competence of measures of anthropometry and gait.

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4. Course Contents**THEORY****1. Basic Concepts in Biomechanics: Kinematics and Kinetics (3 Hours)**

- a) Types of Motion, Location of Motion, Direction of Motion, Magnitude of Motion, Objects in Motion
- b) Definition of Forces, Force of Gravity, Reaction forces, Concurrent force systems, Parallel force systems, Force components, Moment arm of force, force of friction
- c) Equilibrium
- d) Levers
- e) Pulleys f) Work

2. Joint structure and Function (3 Hours)

- a) Joint design
- b) Materials used in human joints
- c) General properties of connective tissues
- d) Joint function
- e) Joint motion

3. Muscle structure and function (3 Hours)

- a) Mobility and stability functions of muscles
- b) Elements of muscle structure
- c) Muscle function

4. Biomechanics of the Thorax and Chest wall (3 Hours)

- a) General structure and function
- b) Rib cage movements and
- c) the muscles associated with the rib cage

5. The Temporomandibular Joint (2 Hours)

- a) General features, structure and function

6. Biomechanics of the vertebral column (10 Hours)

- a) General structure and function
- b) Regional structure and function – Cervical region, thoracic region, lumbar region, sacral region
- c) Muscles of the vertebral column
- d) ligaments of Vertebral Column

7. Biomechanics of the peripheral joints (to include kinetics and kinematics) (52 Hours)

- a) The shoulder complex: Structure and components of the shoulder complex and their integrated function
- b) The elbow complex: Structure and function of the elbow – humeroulnar and humeroradial articulations, superior and inferior radioulnar joints; mobility and stability of the elbow complex.

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- c) The wrist and hand complex: Structural components and functions of the wrist complex; structure of the hand complex; prehension; functional position of the wrist and hand.
- d) The hip complex: structure and function of the hip joint.
- e) The knee complex: structure and function of the knee joint – tibiofemoral joint and patellofemoral joint.
- f) The ankle and foot complex: structure and function of the ankle joint, subtalar joint, talocalcaneonavicular joint, transverse tarsal joint, tarsometatarsal joints, metatarsophalangeal joints, interphalangeal joints, structure and function of the plantar arches, muscles of the ankle and foot.
- g) Applied Biomechanics - effects of disease, injury, immobilization, Aging

8. Posture and Gait (9 Hours)

- a) Static and dynamic posture, postural control, kinetics and kinematics of posture, ideal posture, analysis of posture,
- b) General features of gait, gait initiation, kinematics and kinetics of gait, energy requirements, kinematics and kinetics of the trunk and upper extremities in relation to gait, stair case climbing and running.
- c) Effects of posture on age, pregnancy, occupation and recreation

9. Movement Analysis (2 Hours)

- a) ADL activities like sitting – to standing, lifting, various grips , pinches.

10. Goniometry (2 Hours)

- a) Parts, types, principles and uses of a goniometry. Techniques for measurement of ROM of all peripheral joints.

11. Walking Aids (1 Hour)

- a) Parallel bars, crutches, canes, walkers – types, parts and uses

PRACTICAL:

- a) Various joint movements and analysis of the same. Analyse posture and gait.
- b) Demonstration of analysis for activities of daily living – ADL – (like sitting to standing, throwing, lifting etc.) The student should be able to explain and demonstrate the movements occurring at the joints, the muscles involved, the movements or muscle action produced, and mention the axis and planes through which the movements occur.
- c) Measurement of Joint ROM using goniometer.
- d) Identification of walking aids

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5. Course Map (CO-PO Map)

Course Outcome	Program Outcomes						
	BPT O1	BPT O2	BPT O3	BPT O4	BPT O5	BPT O6	BPT O7
CO 1	3	3					2
CO 2	2		3				2
CO 3	2	3					2
CO 4		2	3		1		1
CO 5		2	3		1		1

3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution

6. Course Teaching and Learning Methods

Sl. No.	Teaching and Learning Methods	
1	Lectures	✓
2	Seminars	✓
3	Group discussions	✓
4	Self-directed Learning	✓
5	Assignments	✓
6	Demonstrations and Skill Labs	✓
7	Pre Clinical Laboratories	✓
8	Bed side teaching	
9	Field visits	
10	Evidence Based Projects	
11	Role Play	
12	Simulation Based Learning	

7. Course Assessment and Reassessment

The details of the components and subcomponents of course assessment are presented in the Academic Regulation document pertaining to the Bachelor of Physiotherapy (BPT) Programme. The procedure to determine the final course marks is also presented in the Academic Regulation document.

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8. Course Resources

Recommended Textbooks

1. Joint Structure and Function – A comprehensive Analysis, JP Bros Medical Publishers, New Delhi. 6th edition, 2019
2. Brunnstrom, Clinical Kinesiology, JP Bros Medical Publishers, Bangalore, 6th Ed 2012.
3. Clinical Kinesiology for Physical Therapist Assistants, JP Bros Medical Publishers, Bangalore, 3rd Indian Ed 2000
4. Measurement of Joint Motion: A Guide to Goniometry, Cynthia Norkin, 5th edition, 2017.

9. Course Organization

Course Code	PTC104A		
Course Title	Biomechanics of Human Motion		
Course Leader's Name	Shaswat Verma		
Course Leader's Contact Details	Phone:	9886591748	
	E-mail:	Shaswatverma.rcp@msruas.ac.in	
Course Specifications Approval Date	26.09.2022		
Next Course Specifications Review Date	01.07.2026		
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Course Specifications: Psychology and Sociology

Course Title	Psychology and Sociology
Course Code	PTC105A and PTC106A
College	Physiotherapy

1. Course Summary

Human Psychology involves the study of various behavioural patterns of individuals, theories of development, normal and abnormal aspects of motor, social, emotional and language development, communication, and interaction skills appropriate to various age groups. Sociology will introduce student to the basic sociology concepts, principles and social process, social institutions [in relation to the individual, family, and community] and the various social factors affecting the family in rural and urban communities in India will be studied. The study of these subjects will help the student to understand their clients while assessment and while planning appropriate treatment methods.

2. Course Size and Credits:

Number of Credits	Annual
Credit Structure (Lecture: Tutorial: Practical)	Annual
Total Hours of Interaction	120 (60 & 60)
Number of Weeks annually	35
Department Responsible	Psychology and Sociology
Total Course Marks	100 marks Component: Theory Section A – Psychology Written: 40 Marks Continuous Assessment: 10 Marks Section B – Sociology Written: 40 Marks Continuous Assessment: 10 Marks
Pass Criterion	As per the Academic Regulations
Attendance Requirement	As per the Academic Regulations

3. Course Outcomes (COs)

After the successful completion of this course, the student will be able to:

CO-1. Define the term Psychology & its importance in the health delivery System & will gain knowledge of psychological maturation during human development & growth & alterations during aging process

CO-2. Understand the importance of psychological status of the person in Health disease, environmental and emotional influence on the mind and personality.

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CO-3. Acquire the Knowledge as to how to deal with the patients

CO-4. Socio economic and cultural differences.

CO-5. Socioeconomic and cultural issues related to morbidity owing to the physical disability and handicaps.

4. Course Contents

Psychology (PT C 1 05 A)

1. Introduction to Psychology

- a. Schools: Structuralism, functionalism, behaviorism, Psychoanalysis.
- b. Methods: Introspection, observation, inventory and experimental method. c.
- Branches: pure psychology and applied psychology
- d. Psychology and physiotherapy

2. Growth and Development

- a. Life span: different stages of development (Infancy, childhood, adolescence, adulthood, middle age, old age).
- b. Heredity and environment: role of heredity and environment in physical and psychological development, "Nature v/s Nurture controversy"

3. Sensation, attention and perception

- a. Sensation: Vision, Hearing, Olfactory, Gustatory and Cutaneous sensation, movement, equilibrium and visceral sense.
- b. Attention: Types of attention, Determinants of attention (subjective determinants and objective determinants)
- c. Perception: Gestalt principles of organization of perception (principle of figure ground and principles of grouping), factors influencing perception (past experience and context) d.
- Illusion and hallucination: different types

4. Motivation

- a. Motivation cycle (need, drive, incentive, reward). b.
- Classification of motives.
- c. Abraham Maslow's theory of need hierarchy

5. Frustration and conflict

- a. Frustration: sources of frustration. b.
- Conflict: types of conflict.
- c. Management of frustration and conflict

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6. Emotions

- a. Three levels of analysis of emotion (physiological level, subjective state, and overt behaviour.
- b. Emotional Intelligence
- c. Stress and management of stress

7. Intelligence

- a. Cognitive Development Theories.
- b. Distribution of intelligence.
- c. Assessment of intelligence

8. Thinking

- a. Reasoning: deductive and inductive reasoning
- b. Problem solving: rules in problem solving (algorithm and heuristic)
- c. Creative thinking: steps in creative thinking, traits of creative people

9. Learning

- a. Factors effecting learning.
- b. Theories of learning: trial and error learning, classical conditioning, Operant conditioning, insight learning, social learning theory.
- c. The effective ways to learn: Massed/Spaced, Whole/Part, Recitation/Reading, Serial/Free recall, Incidental/Intentional learning, Knowledge of results, association, organization, and mnemonic methods.

10. Personality

- a. Approaches to personality: type & behavioristic, psychoanalytic and humanistic approach.
- b. Personality assessment: observation, situational test, questionnaire, rating scale, interview, and projective techniques.
- c. Defense Mechanisms: denial of reality, rationalization, projection, reaction formation, identification, repression, regression, intellectualization, undoing, introjection, acting-out.

11. Social psychology

- a. Interpersonal relationship and communication
- b. Attitude: development of attitude. Change of attitude
- c. Clinical Psychology – Depression, Bipolar Disorder, Schizophrenia, Substance Abuse, Therapies and Rehabilitation.

Sociology (PT C 1 06 A)**1. Introduction:**

- a. Meaning- Definition and scope of sociology
- b. Its relation to Anthropology, Psychology, Social Psychology.
- c. Methods of Sociological investigations- Case study, social survey, questionnaire, Interview and opinion poll methods.
- d. Importance of its study with special reference to Health Care Professionals.

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2. Social Factors in Health and disease situations:

- a. Meaning of social factors
- b. Role of social factors in health and illness

3. Socialization:

- a. Meaning and nature of socialization
- b. Primary, Secondary and Anticipatory socialization
- c. Agencies of socialization

4. Social Groups:

- a. 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.

5. Family:

- a. The family, meaning and definitions.
- b. Functions of types of family
- c. Changing family patterns
- d. Influence of family on the individual's health, family and nutrition, the effects of sickness in the family and psychosomatic disease and their importance to physiotherapy.

6. Community:

- a. Rural community: Meaning and features –Health hazards of ruralities, health hazards to tribal community.
- b. Urban community: Meaning and features- Health hazards of urbanities.

7. Culture and Health:

- a. Concept of Health b.
- Concept of Culture c.
- Culture and Health
- d. Culture and health disorders.

8. Social change:

- a. Meaning of social changes. b.
- Factors of social changes.
- c. Human adaptation and social change d.
- Social change and stress
- e. Social change and deviance.
- f. Social change and health programme
- g. The role of social planning in the improvement of health and rehabilitation.



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9. Social Problems of disabled:

Consequences of the following social problems in relation to sickness and disability, remedies to prevent these problems.

- a. Population explosion
- b. Poverty and unemployment
- c. Beggary
- d. Juvenile delinquency
- e. Prostitution f. Alcoholism
- g. Problems of women in employment
- h. geriatric problems
- i. Problems of underprivileged.

10. Social Security:

Social security and social legislation in relation to the disabled.

11. Social worker:

- a. Meaning of Social Work
- b. The role of a Medical Social Worker

5. Course Map (CO-PO Map)

Course Outcome	Program Outcomes						
	BPT O1	BPT O2	BPT O3	BPT O4	BPT O5	BPT O6	BPT O7
CO 1	2	2				2	
CO 2			2		2	3	1
CO 3	2	2	2		2		3
CO 4			1	2	1		
CO 5					1	2	2
3: Very Strong Contribution, 2: Strong Contribution, 1: Moderate Contribution							

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6. Course Teaching and Learning Methods

Sl. No.	Teaching and Learning Methods	
1	Lectures	✓
2	Seminars	✓
3	Group discussions	✓
4	Self-directed Learning	✓
5	Assignments	✓
6	Demonstrations and Skill Labs	
7	Pre Clinical Laboratories	
8	Bed side teaching	
9	Field visits	
10	Evidence Based Projects	
11	Role Play	
12	Simulation Based Learning	

7. Course Assessment and Reassessment

The details of the components and subcomponents of course assessment are presented in the Academic Regulation document pertaining to the Bachelor of Physiotherapy (BPT) Programme. The procedure to determine the final course marks is also presented in the Academic Regulation document.

8. Course Resources

References

1. Feldman.R.H(1996). Understanding Psychology. New Delhi: Tata McGraw hill.
2. Morgan et al(2003). Introduction to Psychology. New Delhi: Tata McGraw hill.
3. Lefton Psychology. Boston: Alwin & Bacot Company.
4. Mangal, S.K (2002). Advanced Educational Psychology. New Delhi: prentice hall.
5. Atkinson(1996). Dictionary of Psychology.
6. Sachdeva and Vidyabushan, Introduction to the study of sociology
7. INDRANI T K, Text Books of Sociology for Graduates Nurses and Physiotherapy Students, JP Brothers, New Delhi, 10e and Health Disorders

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9. Course Organization

Course Code	PTC105A and PTC106 A	
Course Title	Psychology and Sociology	
Course Leader's Name	Betty Thomas	
Course Leader's Contact Details	Phone:	99308 77696
	E-mail:	bettypannapara@gmail.com
Course Specifications Approval Date	26.09.2022	
Next Course Specifications Review Date	01.07.2026	
Subsequent Course Specifications Review Date		

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1.6. English (PTE101A)**Course Objective:**

The student at the end of training is able to

1. Read and comprehend English language
2. Speak and write grammatically correct English
3. Appreciates the value of English literature in personal and professional life

Course Content:

1. Introduction: Study Techniques
Organisation of effective note taking and logical processes of analysis and synthesis
The use of the dictionary Enlargement of vocabulary Effective diction
2. Applied Grammar: Correct usage
The structure of sentences
The structure of paragraphs Enlargements of Vocabulary
3. Written Composition:
Precise writing and summarising Writing of bibliography Enlargement of Vocabulary
4. Reading and comprehension
Review of selected materials and express oneself in one's words. Enlargement of Vocabulary.
5. The Study of Various Forms of Composition Paragraph, Essay, Letter, Summary, Practice in writing
6. Verbal Communication:
Discussions and Summarization, Debates, Oral reports, use in teaching

Reference

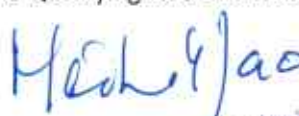
1. English Grammar Collins, Birmingham University, International Language Data Base, Rupa & Co. 1993
2. Wren and Martin - Grammar and Composition, 1989, Chanda & Co, Delhi
3. Letters for all Occassions A S Myers. Pub - Harper Perennial
4. Spoken English V Shasikumar and P V Dhanija_ Pub. By: Tata Mcgraw Hill, New Delhi
5. Journalism Made Simple , D Wainwright
6. Writers Basic Bookshelf Series, Writers Digest series
7. Interviewing by Joan Clayton Platkon
8. Penguin Book of Interviews.

The outcome would be assessed based on Communication skill and the Qualifying students would be given a Certificate of Completion



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1.7. Kannada (PTE102A)

**ಕನ್ನಡ : ಒಂದು
ಪಠ್ಯಕ್ರಮದ ರೂಪರೇಖೆ**

- ಸ್ಥಾನ** : ಬೇಸಿಕ್ ಬಿ.ಎಸ್ಸಿ. (ನ್ಯೂಂಗ್) ಮೊದಲ ವರ್ಷ
- ಸಮಯ** : 15 ಪಾಠಗಳು (ಪದಿನೈದು ಪಾಠಗಳು)
- ಪಠ್ಯಕ್ರಮದ** : ವಿದ್ಯಾರ್ಥಿ/ವಿದ್ಯಾರ್ಥಿನಿಯರು ದಿನನಿತ್ಯ ಸಂಪರ್ಕಿಸಬಹುದಾದ
ಜನಸಾಮಾನ್ಯರೊಡನೆ ಶುಶ್ರುಷೆಗೆ ಸಂಬಂಧಿಸಿದಂತೆ ಕನ್ನಡದಲ್ಲಿ
ಸಂಭಾಷಣೆ ಮಾಡಲು ಹಾಗೂ ತಿಳುವಳಿಕೆ ನೀಡಲು ಸಹಕಾರ
ವಾಗುವಂತೆ ಪಠ್ಯಕ್ರಮದ ಮಾದರಿಯನ್ನು ಅಳವಡಿಸುವುದು.
- ಉದ್ದೇಶ** : 1. ದಿನ ಬಳಕೆಯ ವ್ಯವಹಾರದಲ್ಲಿ ಶುಶ್ರುಷೆಗೆ ಸಂಬಂಧಪಟ್ಟಂತೆ ಕನ್ನಡ ಭಾಷೆಗೆ
ಅಳವಡಿಕೆ
2. ಕನ್ನಡೇತರರಿಗೆ ಕನ್ನಡ ಭಾಷೆಯ ಪರಿಚಯ ಮಾಡಿಕೊಡುವುದು.

ಪಠ್ಯಕ್ರಮದ ವಿವರ

- ಫಲಿತ** ಒಂದು : (ಅ) ಅಕ್ಷರವಾಚಿ, ಸ್ವರಗಳು, ವ್ಯಂಜನಗಳು
(ಆ) ಪದ, ಪದಮಂಜ, ವಾಕ್ಯ ರಚನೆ, ಪತ್ರಲೇಖನ ಪ್ರಬಂಧರಚನೆ
- ಎರಡು** : ಶುಶ್ರುಷಾ ಪದಗಳು (ಇಂಗ್ಲೀಷಿನಿಂದ ಕನ್ನಡಕ್ಕೆ
ಶುಶ್ರುಷೆಯಲ್ಲಿ ಸಾಮಾನ್ಯ ಬಳಕೆಗೆ ಸಂಬಂಧಪಟ್ಟಂತೆ)
- ಮೂರು** : ರೋಗಿ ಹಾಗೂ ಶುಶ್ರುಷಕರ ಮಧ್ಯೆ ಸಾಮಾನ್ಯವಾಗಿ ನಡೆಯುವ ಸಂಭಾಷಣೆ
(ಅ) ಪ್ರಶ್ನಾರ್ಥಕ ಸಲಹೆ ಕೊಡುವ ವಾಕ್ಯಗಳು
(ಆ) ವೈದ್ಯರೊಂದಿಗೆ ಹಾಗೂ ಇತರೆ ಸಹಚರರೊಂದಿಗೆ ವ್ಯವಹಾರಿಸಲು,
ಸಂಭಾಷಣೆ ನಡೆಸಲು ಬೇಕಾದ ವಾಕ್ಯಗಳು.

ಅಧ್ಯಯನಕ್ಕೆ ಶಿಫಾರಸ್ಸು ಮಾಡಲಾಗಿರುವ ಗ್ರಂಥಗಳು

1. ಕನ್ನಡ ವ್ಯಾಕರಣ (8, 9 ಮತ್ತು 10ನೇ ತರಗತಿಗಳಿಗೆ ಕರ್ನಾಟಕ ಸರ್ಕಾರ, ಪಠ್ಯಪುಸ್ತಕಗಳ ಇಲಾಖೆ)
2. ವ್ಯವಹಾರಿಕ ಕನ್ನಡ : ಎಚ್.ಜೈ
3. ಪತ್ರ ಲೇಖನ : ಕನ್ನಡ ಸಾಹಿತ್ಯ ಪರಿಷತ್ತು
4. ಲೇಖನ ಕಲೆ : ಎನ್. ಪ್ರಭುದೇವ್
5. ಆರೋಗ್ಯ ಮತ್ತು ಇತರೆ ಪ್ರಬಂಧಗಳು : ಡಾ|| ಪಿ. ಎನ್. ಶಂಕರ್
6. ವೈದ್ಯ ಪದಗಳ ಪುಟ್ಟ ರಚನೆ : ಡಾ|| ಡಿ.ಎನ್. ಶಿವಪ್ಪ

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**ಕನ್ನಡ : ಎರಡು
ಪಠ್ಯಕ್ರಮದ ರೂಪರೇಖೆ**

ಸ್ಥಾನ : ಬಿಸಿಕ್ ಬಿ.ಎಸ್ಸಿ. (ನರ್ಸಿಂಗ್) ಮೊದಲ ವರ್ಷ
ಸಮಯ : 15 ಪಾಠಗಳು (ಪರಿಣೈದು ಪಾಠಗಳು)
ಉದ್ದೇಶ : ಜನಾರೋಗ್ಯದ ಬಗ್ಗೆ ಜನಸಾಮಾನ್ಯಕ್ಕೆ ತಿಳುವಳಿಕೆ ಕೊಡುವುದು.

ಪಠ್ಯಕ್ರಮದ ವಿವರ

ಭೌತಿಕ ಒಂದು : ಜನಾರೋಗ್ಯದ ಪರಿಚಯದಲ್ಲಿ ಸಂದೇಶಗಳು ವ್ಯವಸ್ಥೆ ಸಂದರ್ಶನ ಮಹತ್ವ, ಸಂದರ್ಶನದ ಗುಣಗಳು.
ಅನುಸರಿಸಬೇಕಾದ ನಿಯಮಗಳು
ಆರೋಗ್ಯ ಮಾಹಿತಿಗಳ ಸಂಗ್ರಹ, ಸಂದೇಶಗಳು (ಶಂಕೆಗಳು)
ಕುಟುಂಬ ಸಂಪರ್ಕ, ಸಂದರ್ಶಕ ಭಾವೇಮಾಗಿ ಕನ್ನಡ ಬಳಕೆ

ಎರಡು : ವೈಯಕ್ತಿಕ ಆರೋಗ್ಯ
ಮೂರು : ನೈಸರ್ಗಿಕ ನೈರ್ಮಲ್ಯ
ನಾಲ್ಕು : ಸಾಂಕ್ರಮಿಕ ರೋಗಗಳು ಮತ್ತು ಅವುಗಳ ತಡೆಗಟ್ಟುವಿಕೆ
ಐದು : ಆಹಾರ ಮತ್ತು ಆರೋಗ್ಯ
ಆರು : ಶಾಯಿ ಮತ್ತು ಮಗುವಿನ ಆರೋಗ್ಯ
ಏಳು : ಕುಟುಂಬ ಕಲ್ಯಾಣ ಯೋಜನೆ

ಅಧ್ಯಯನಕ್ಕೆ ಶಿಫಾರಸ್ಸು ಮಾಡಲಾಗಿರುವ ಗ್ರಂಥಗಳು

1. ಸಮಾಜ ಆರೋಗ್ಯ : ಡಾ|| ಎಸ್. ಎ. ನಾರಾಯಣ್
2. ಶಾಯಿ ಮಗು : ಡಾ|| ಅನುಪಮ ನಿರಂಜನ್
3. ರೋಗೋಪಚಾರ : ಡಾ|| ಎಸ್. ಆರ್. ಕಾವಳಿ
(ಸೆಂಟ್‌ಜಾನ್ ಆರೋಗ್ಯಾಲಯ ಅಸೋಸಿಯೇಷನ್)
4. ಪರಿಸರ ಸಂದರ್ಶನ
5. ಪರಿಸರ ಮಲಿನತೆ : ಕರ್ನಾಟಕ ರಾಜ್ಯ ವಿಜ್ಞಾನ ಪರಿಷತ್ತಿನ ಪ್ರಕಟಣೆಗಳು
6. ಆರೋಗ್ಯ ಶಿಕ್ಷಣ ಮತ್ತು ಶಾಲಾ ಮಕ್ಕಳ ಆರೋಗ್ಯ (ಆರೋಗ್ಯ ಮತ್ತು ಕುಟುಂಬ ಯೋಜನೆ ಇಲಾಖೆ, ಬೆಂಗಳೂರು ಪ್ರಕಟಗೊಳಿಸಿರುವ ಪ್ರಸ್ತುತ ಪುಸ್ತಕಗಳು)



The outcome would be assessed based on Communication skill and the Qualifying students would be given a Certificate of Completion

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1.8. Scope of Physiotherapy Practice (PTE103A)**THEORY****1. Patterns of Health Care Delivery:**

- a. National Trends and resources
- b. Local trends and resources
- c. Overview of Health Science Professions

2. Components of Physiotherapy Profession:

- a. History of Medical Therapeutics
- b. History of Physiotherapy
- c. Overview of Health Science Professions

3. Role of Physiotherapy in meeting Health Care Needs in India. a.

- Needs versus Demands
- b. Physiotherapist as 'Educator'
- c. Typical Job settings
- d. Common problems and solutions

The outcome would be assessed based on MCQ Examinations and the Qualifying students would be given a Certificate of Completion



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1.9. Digital Fluency (PTO101A)

Course Objective

PT O 1 01 A 1: Familiarize students with common digital tools and applications, including word processing, spreadsheets, and presentation software.

PT O 1 01 A 2: Introduce students to cloud storage and collaborative tools, emphasizing the importance of data backup and version control.

PT O 1 01 A 3: Discuss the potential risks and challenges associated with social media, online communities, and digital footprints.

PT O 1 01 A 4: Develop students' ability to express themselves effectively through digital media, including writing for online platforms, creating engaging presentations, and delivering impactful messages.

PT O 1 01 A 5: Introduce students to emerging digital trends, such as artificial intelligence, data analytics, and virtual reality, to broaden their horizons and inspire future exploration.

PT O 1 01 A 6: Provide opportunities for students to present their portfolios to peers, professionals, or potential employers, promoting networking and career advancement.

Course Content

1. **Emerging Technologies:** Artificial Intelligence, Machine Learning, Deep Learning, Database Management for Data Science, Cyber Security, Internet of Things (IoT) and Industrial Internet of Things (IIoT), Cloud Computing and its service models.
2. **Applications of Emerging Technologies:** Artificial Intelligence, Internet of Things (IoT), Cloud Computing
3. **Building Essential Skills Beyond Technologies:** Effective Communication Skills, Creative Problem Solving and Critical Thinking, Collaboration and Teamwork Skills, Innovation and Design Thinking, Use of tools in enhancing skills.

References:

1. "Digital Literacy for Dummies" by Faithe Wempen
2. "The Digital Transformation Playbook: Rethink Your Business for the Digital Age" by David L. Rogers
3. "Digital Citizenship in Schools" by Mike Ribble
4. "Net Smart: How to Thrive Online" by Howard Rheingold
5. "The Elements of User Experience: User-Centered Design for the Web and Beyond" by Jesse James Garrett

Outcome

The outcome would be assessed based on Multiple Choice Questions and Practical Demonstration and the Qualifying students would be given a Certificate of Completion.


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1.10. Environmental Studies (PTO102A)**Course Objectives:**

After undergoing this course students will be able to:

- PT O 1 02 A 1:** Illustrate the multidisciplinary nature of environmental studies and recognize the need for public awareness
- PT O 1 02 A 2:** Explain the various natural resources and their associated problems, ecosystem, and environmental pollution
- PT O 1 03 A 3:** Analyse the concept of ecosystem and classify various types
- PT O 1 04 A 4:** Compare biodiversity at local, national and global levels
- PT O 1 05 A 5:** Discuss various social issues pertaining to environment including sustainable development and energy issues

Course Content

Unit 1 Natural resources: Forest resources: Use and over-exploitation, deforestation, **Water resources:** Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems, Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies. **Food resources:** World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity. **Energy resources:** Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. **Land resources:** Land as a resource, land degradation, man induced landslides, soil erosion and desertification.

Unit 2 Ecosystems: Concept of an ecosystem, Structure and function of an ecosystem, Producers, consumers and decomposers, Energy flow in the ecosystem, Ecological succession, Food chains, food webs and ecological pyramids. Introduction, types, characteristic features, structure and function of the following ecosystem: Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems (ponds, streams, lakes, rivers, ocean estuaries).

Unit 3 Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity, Biogeographical classification of India, Value of biodiversity: consumptive use, productive use, social, ethical aesthetic and option values Biodiversity at global, national and local levels, India as a mega-diversity nation, Hot-spots of biodiversity, Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife conflicts, Endangered and endemic species of India, Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

Unit 5 Environmental Pollution: Definition, causes, effects and control measures of: Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Nuclear pollution, Solid waste management: Causes, effects and control measures of urban and industrial wastes, Role of an individual in prevention of pollution.



Principal and Dean

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Unit 6 Disaster management: floods, earthquake, cyclone and landslides

Unit 7 Social Issues and the Environment: From unsustainable to sustainable development, Urban problems and related to energy, Water conservation, rain water harvesting, watershed management, Resettlement and rehabilitation of people; its problems and concerns.

Unit 8 Environmental ethics: Issues and possible solutions, climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, Case studies, Wasteland reclamation, Consumerism and waste products, Environmental Protection Act, Air (Prevention and Control of Pollution) Act, Water (Prevention and control of Pollution) Act, Wildlife Protection Act, Forest Conservation Act, Issues involved in enforcement of environmental legislation, Public awareness, Human Population and the Environment: Population growth, variation among nations, Population explosion

Resourceses

a. Essential Reading

1. Class Notes
2. Bharucha, E., 2004, *Environmental Studies*, New Delhi: University Grants.
3. Ahluwalia, V.K., 2013, *Environmental Studies: Basic concepts*, The Energy and Resources Institute (TERI).

b. Recommended Reading

1. Jadhav, H., Bhosale, V.M., 1995, *Environmental Protection and Laws*, Delhi: Himalaya Publishing House.

c. Magazines and Journals

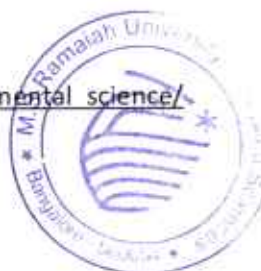
<https://www.omicsonline.org/environmental-sciences-journals-impact-factor-ranking.php>

d. Websites

https://www.sciencedaily.com/news/earth_climate/environmental_science/

e. Other Electronic Resources

<http://www.globalissues.org/issue/168/environmental-issues>



Outcome

The outcome would be assessed based on Multiple Choice Questions and the Qualifying students would be given a Certificate of Completion


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Annexure 1

English/Kannada: This course aims to develop a student's ability to read, write and comprehend English language so as to communicate effectively in the health care settings using various teaching – learning methods. Student will be able to develop ability to communicate effectively with patients through spoken Kannada.

Scope of Physiotherapy Practice: This course aims to sensitize the students towards the opportunities and challenges they are likely to encounter in the various spheres of physiotherapy practice.

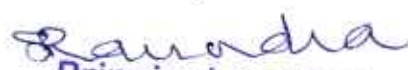
Yoga : This course aims to provide basic understanding of principles of Yoga. The course also enables the students to apply knowledge of asanas and pranayama on various health conditions.

Constitution of India: This course aims to familiarize the students to constitutional law of India and help them understand the constitutional principles as applied and understood in everyday life.

Foundation to clinical Practice: This course aims to prepare the students for clinical practice. This course will provide base for professional and ethical practice and in addition the student will develop an understanding of hospital and department functions.

Ethics in Physical Therapy: Physiotherapists are committed to the health and well-being of individual patients, themselves and society through ethical practice, high personal standards of behaviour, accountability to the profession and society and maintenance of professional wellness. This course is designed to help the student to recognize and safely navigate everyday ethical and professional challenges, identify and prevent conflicts and potential adverse events.

Leadership: This course of Leadership will help the student to understand the history and current theories of leadership. In addition, students will also gain an understanding on how leadership models are put into practice personally and at all levels and gain knowledge of diverse cultures and cross-cultural communication


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