

JHARKHAND RAI UNIVERSITY



Bachelor of Physiotherapy (BPT)

SECOND SEMESTER SYLLABUS

Raja Ulatu | Namkum | Ranchi | Jharkhand
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DEPARTMENT OF PHYSIOTHERAPY (BPT)

Duration: Four years Six months

Academic Year: 2021 – 2025

Syllabus

COURSE SCHEME											
BATCH 2021-2025											
BACHELOR OF PHYSIOTHERAPY											
CHOICE BASED CREDIT SYSTEM											
SEMESTER II											
S.No	CODE	COURSE TITLE	Periods			Evaluation Scheme				Subject Total	Credit
			L	T	P	Assignment	TA	Total	ESE		
1	23A201	ANATOMY – 2	5	0	0	20	10	30	70	100	5
2	23A202	PHYSIOLOGY-2 & BIOCHEMISTRY	5	0	0	20	10	30	70	100	5
3	23A203	SOCIOLOGY	4	0	0	20	10	30	70	100	4
4	23A204	FUNDAMENTALS OF BIOMECHANICS & EXERCISE THERAPY	4	0	0	20	10	30	70	100	4
5	23A205	PROFESSTIONAL SKILLS	1	0	0	20	10	30	70	100	1
PRACTICAL/SESSIONAL											
1	23AP201	ANATOMY -2 PRACTICAL	0	0	2			30	20	50	1
2	23AP202	PHYSIOLOGY-2 & BIOCHEMISTRY PRACTICAL	0	0	2			30	20	50	1
3	23AP204	FUNDAMENTALS OF BIOMECHANICS & EXERCISE THERAPY - PRACTICAL	0	0	2			30	20	50	1
4	23AP205	PROFESSTIONAL SKILLS- PRACTICAL	0	0	1			30	20	50	1
									TOTAL	700	23

Program: Bachelor of Physiotherapy (BPT)

Semester: Second

Course: Anatomy - 2

Course Code: 23A201

L	T	P	Credits
5	0	0	5

COURSE LEARNING OBJECTIVE

CLO1: To learn about basic anatomy of thorax and abdomen.

CLO2: To gain knowledge about Brain and Spinal Cord.

CLO3: To give impact knowledge, so that utilize same in future practice.

COURSE OUTCOME

At the end of course, candidate will able to

CO1: Describe the source & course of spinal nerve.

CO2: Identify and describe various parts of spine, thoracic and pelvic bony.

CO3: Identify and describe various organs of thoracic and abdominal content.

CO4: Describe parts of central nervous system (CNS) – Fore brain, Mid Brain and Hind

Brain. Brain stem, course of cranial nerve – special emphasis on V, VII, X, XI and XII.

CO5: An idea of embryology and neuromuscular development.

CO6: Have knowledge of Special senses like eye, skin, ear.

CO7: Have an idea of brain circulation and knowledge of tracts.

Unit 1: Spine: Back muscles - Superficial layer, Deep muscles of back, their origin, insertion, action and nerve supply, Vertebral column – Structure & Development, Structure & Joints of vertebra, Radiographic identification of bone and joints **Thorax:** Thoracic cage, Pleural cavities & pleura, Lungs and respiratory tree, Diaphragm.

Unit 2: Head and neck: Cranium, Facial Muscles, Central nervous system – disposition, parts and functions, Cerebrum, Cerebellum, Midbrain & brain stem, Blood supply & anatomy of strokes, Spinal cord- anatomy, blood supply, nerve pathways, Pyramidal, extra pyramidal system, Thalamus, hypothalamus.

Unit 3: Head and neck: Ventricles of brain, CSF Circulation Development of nervous system & defects (Brief Description), Cranial nerves – special emphasis on V, VII, X, XI, XII (course, distribution and palsies), Sympathetic nervous system, its parts and components (Brief Description), Parasympathetic nervous system (Brief Description).

Unit 4: Miscellaneous: Embryology in brief covering neuromuscular developmental aspects, **Endocrine system** – Pituitary, Thyroid, parathyroid (Brief Description).

Unit 5: Special senses (Brief Description): Nerve receptors, Eye, Ear, Labyrinth, **Abdomen and pelvis** (Brief descriptions only): Abdominal cavity – divisions, Muscles of abdominal wall, pelvic floor, innervations, Bony Pelvis.

Unit 6: Digestive system (Liver & pancreas, Alimentary canal), **Urinary system** – Kidney, Ureter, bladder, urethra. **Genital system** – male and female.

Suggested Readings:

Text Books:

1. B.D. Chaurasia, *Human Anatomy- Volume 1, 2, 3*, CBS Publishers & Distributors.
2. Inderbir Singh, *Textbook of Anatomy with colour Atlas – Vol. 1, 2, 3*. Jaypee Brothers.

Reference Books:

1. Snell, Richard S, *Clinical Anatomy By Regions-*, Wolters Kluwer, New Delhi.
2. Cunningham *Manual of Practical Anatomy Vol. I, II, III*, Churchill Livingstone.

Note: Latest editions of all the suggested books are recommended.

Program: Bachelor of Physiotherapy (BPT)
Semester: Second
Course: Physiology-2 & Biochemistry
Course Code: 23A202

L	T	P	Credits
5	0	0	5

Section A – Physiology

COURSE LEARNING OBJECTIVE

- CLO1:** To acquire the knowledge of special senses physiology.
CLO2: To learn about nervous system, Digestive system, Reproductive system, Excretory System, Endocrine physiology.
CLO3: To contribution of each organ system in maintenance of Homeostasis.

COURSE OUTCOME

At the end of the course, the candidate will-

- CO1: Acquire the knowledge of the relative contribution of each organ system in maintenance of themilieu interior [Homeostasis].
 CO2: Be able to describe physiological functions of various systems, with special reference to Neuro-motor, Female uro-genital function, and alterations in function with aging.
 CO3: Acquire the skill of basic clinical examination, with special emphasis to Peripheral and Central Nervous system.

Unit 1: Nerve - Muscle and Synaptic & Junction Transmission: Nerve – General Concept, Nervecell – structure , Genesis of resting membrane potential & Action potential, Their ionic basis, All orNone phenomenon, Ionic basis of nerve conduction, Classification & types of nerve fibre, Mixed nerves & compound action potential , Concept of nerve injury & Wallerian degeneration, Muscle properties and functions, Electric & Mechanical responses & their basis, Concept of isometric & isotonic muscle contraction, Electrical events in postsynaptic neurons, Inhibition & facilitation at synapses, Chemical transmission of synaptic activity, Principal neurotransmitter system, Neuromuscular junction, structure & events occurring during excitation. **Digestive System:** Digestion & absorption of nutrients, Gastrointestinal secretions & their regulation, Liver & Exocrine Pancreas **Renal System:** Glomerular filtration rate, clearance, Tubular function, Water excretion, concentration of urine-regulation of Na, Cl, K excretion, Physiology of urinary bladder.

Unit 2: Functions of Nervous system (descriptive) Reflexes, monosynaptic, polysynaptic, withdrawal reflex, Properties of reflexes , Sense organ, receptors, electrical & chemical events in receptors, Ionic basis of excitation, Sensory pathways for touch, temperature, pain, proprioception, others, Control of tone & posture: Integration at spinal, brain stem, cerebellar, basal ganglion levels, along with their functions & clinical aspects, Autonomic nervous system & Hypothalamus, Higher functions of nervous system : Learning & memory, neocortex, Limbic

functions, sexual behaviour, fear & range, motivation. **Miscellaneous:** Special senses, Endocrinology, Male & female reproductive system.

Suggested Readings:

Text Books:

1. Jain, A K, *Textbook of Physiology: Volume 1 & 2*, Avichal
2. Sembulingam, K, *Essentials of Medical Physiology*, Jaypee New Delhi

Reference Books:

1. Ghai, *Text book of Practical Physiology*, Jaypee, New Delhi.
2. Guyton Arthur, *Text book of Medical Physiology*, Mosby

Note: Latest editions of all the suggested books are recommended.

Section B - Biochemistry

COURSE LEARNING OBJECTIVE

- CLO1:** The primary purpose of this paper is to impart basic knowledge and understanding of the biochemical changes in human body.
- CLO2:** To learn about interpretation of common biochemistry investigations related to different organs of human body.
- CLO3:** To give knowledge about different enzyme, Carbohydrate, Protein, Fat, minerals and Vitamins.

COURSE OUTCOME

At the end of the course, the candidate will-

- CO1: Be able to describe structures & functions of cell in brief.
- CO2: Be able to describe normal functions of different components of food, enzymes.
- CO3: Define Basal Metabolic Rate & factors affecting the same [in brief], with special Reference to obesity.
- CO5: Be able to discuss nutritional aspects of carbohydrates, lipids, proteins & vitamins & their metabolism with special reference to obesity.
- CO6: Define enzymes; discuss in brief, factors affecting enzyme activity.
- CO7: Describe in details biochemical aspects of muscle contraction.
- CO8: Acquire knowledge in brief about the Clinical biochemistry, with special reference to Liver & renal function test, Blood study for Lipid profile, metabolism of fat, Carbohydrates, proteins, bone minerals, and electrolyte balance.

Unit 3: Basis of Biochemistry: Cell & Sub cellular organelles :Structure & function , Biochemical characteristics of living matter, Physiochemical Phenomena & their significance (Osmosis Diffusion, Donnan Membrane equilibrium), Structure organization of plasma membrane & transport systems. **Tissue Chemistry:** Chemistry of connective tissue, bone and

teeth. Composition function and chemical mediators of nerve structure of muscle tissue. General Biochemistry of muscle contraction and relaxation. **Nutrition:** Basic principles of nutrition; Carbohydrates, Proteins and Lipid caloric requirement and balance diet.

Unit 4: Biological Macromolecules-I: Carbohydrates: Definition, classification with examples and general functions. Metabolism – Glycolysis, T.C.A Glycogen metabolism, Blood Sugar regulation, Diabetes and diabetic keto-acidosis. **Lipids:** Definition, classifications and general functions. Essential fatty acids, cholesterol, Blood, Brief review of lipoproteins. Metabolism- Oxidation of fatty acids, cholesterol synthesis, and fatty liver. **Biological Macromolecules-II: Proteins:** Definition, classification, and Bio-medical Importance. **Nucleic acid** - Definition of DNA, structure of DNA, Watson & Crick model of DNA, Types of RNA. Synthesis & catabolism of purines & pyrimidines gout, Nucleosides, Nucleotides & Biologically important nucleotides, Replication, Transcription, Translation & inhibitors of protein synthesis.

Unit 5: Plasma Proteins: Functions, Metabolism, General reactions of amino acids. Formation and fate of ammonia - Urea cycle. Study of hemoglobin and immunoglobulins with functions. **Nutrition & Dietetics:** Proximate principles of food & their physiological importance, Caloric requirements & Computation of diet, Balance diet, BMR & factors affecting BMR, SDA & its significance, RQ, Nitrogen balance, Malnutrition (Kwashiorkor & Marasmus), Obesity, diet in health & disease, Role of dietary fiber, Metabolism in exercise. **Essentials of Biochemistry: Enzymes:** Definition, classification with examples. Factors affecting enzyme action. Brief study of enzyme inhibition. Clinical importance of enzymes.

Unit 6: Vitamins: Definition, classification and functions. Dietary source, Daily requirement and deficiency disorders. **Water and Electrolyte Balance:** Concepts of buffers, Ph & Body buffers, General outline of fluid compartments of the body with their water and electrolyte content and balance, Dehydration. **Biochemical Endocrinology & Interpretations:** General characteristics & Classification of hormones, Mechanism of action and metabolic effects of hormone of Pituitary, **Biochemical Endocrinology & Interpretations:** Thyroid, Parathyroid, Adrenal & Pancreas. Interpretation of common clinical biochemistry investigations: Sugar, Urea, Creatinine, Protein, Bilirubin, Uric acid, Cholesterol.

Suggested Readings:

Text Books:

1. VK Malhotra, *Biochemistry for Students*, Jaypee, New Delhi.

Reference Books:

1. Vasudeval D.M, *Textbook of Biochemistry for Medical Students*, Jaypee Brothers.
2. Chatterjee M.N, *Textbook of Biochemistry*, Jaypee Brothers.

Note: Latest editions of all the suggested books are recommended.

Program: Bachelor of Physiotherapy (BPT)
Semester: Second
Course: Sociology
Course Code: 23A203

L	T	P	Credits
4	0	0	4

COURSE LEARNING OBJECTIVE

- CLO1:** This course will enable the student to understand specific sociological factors and effects in physical illness
CLO2: Student will learn about Sociological factors and effects in physical illness.
CLO3: This will help them to have a holistic approach in their dealings with patients during admission, treatment, rehabilitation and discharge.

COURSE OUTCOME

At the end of course, candidate will able to

- CO1: Identify and apply sociological concepts and theories to understand social phenomena
 CO2: Critically evaluate explanations human behavior, social phenomena and social processes locally and globally.
 CO3: Apply social scientific principles to understand the social world.
 CO4: Evaluate the quality of social scientific data.
 CO5: Communicate in a clear and coherent manner in both written and oral communication.
 CO6: Use sociological knowledge to inform public understanding and policy database.

Unit 1: Introduction 1. Meaning-Definition and scope of Sociology 2. Its relation with Anthropology, Psychology, Social Psychology and Ethics. 3. Methods of Sociology-case study, Social Survey, Questionnaire, Interview and opinion poll methods. 4. Importance of its study with special reference to health care professionals. **Social Factors in Health and Disease:** 1.The meaning of Social Factors. 2. The role of Social factors and illness.

Unit 2: Socialization: 1. Meaning and nature of Socialization. 2. Primary, Secondary, and Anticipatory Socialization. 3. Agencies of Socialization. **Social Groups:** 1. Concepts of social groups. 2. Influence of formal and informal groups on health and sickness. 3. The roll of primary groups and secondary groups in the hospital and rehabilitation settings.

Unit 3: Family: 1. The family - Meaning and definition, Functions 2. Changing family Patterns 3. Influence of family on the individual health, family, and nutrition. 4. The effects of sickness on family and psychosomatic disease and their importance to Physiotherapy
Community: 1. Rural Community – Meaning and features – Health hazards of rural population 2. Urban community – Meaning and features – Health hazards of urban population

Unit 4: Culture and Health: 1. Concept of culture 2. Cultures and Behaviour 3. Cultural meaning of sickness. Culture and health disorders **Social change:** 1. Meaning of social changes & Factors of social change. 2. Human adaptation and social change. 3. Social change and stress. 4. Social and deviance. 5. Social change and health Program. 6. The role of social planning in the improvement of health and in rehabilitation.

Unit 5: Social problems of disabled: Consequences of the following social problems in relation to sickness and Disability, remedies to prevent these problems 1. Population explosion. 2. Poverty and unemployment. 3. Beggary. 4. Juvenile delinquency. 5. Prostitution. 6. Alcoholism. 7. Problems of women in employment.

Unit 6: Social security: Social security and social legislation in relation to the Disabled.
Social worker: Meaning of social work; the role of a medical social worker.

Suggested Readings:

Text Books:

1. Bhusan, Vidya and Sachdeva, D.R.; *Introduction to Sociology* Kitab Mahal, New Delhi

References Books:

1. Anand Kumar *Indian Society and Culture* Vivek, New Delhi.
2. Turner, J. H.; *Structure of Sociological Theory*, Jaipur Publication.

Note: Latest editions of all the suggested books are recommended.

Program: Bachelor of Physiotherapy (BPT)
Semester: Second
Course: Fundamentals of Biomechanics & Exercise Therapy
Course Code: 23A204

L	T	P	Credits
4	0	0	4

COURSE LEARNING OBJECTIVE

CLO1: The primary purpose of this paper is to describe basic biomechanics related to exercise therapy.

CLO2: To make student aware of different model and category of patients.

CLO3: Student will acquire the skill of use of various concepts & techniques related to the core of physiotherapy.

COURSE OUTCOME

At the end of course, candidate will able to

CO1: Define various terms used in biomechanics and exercise therapy.

CO2: Have knowledge of basic principles of Physics related to mechanics of movement/ motion & able to understand the application of such principles to the simple equipment designs and their efficacy in therapeutic gymnasium and various starting positions used in therapeutics.

CO3: To able to describe and also acquire the skill of use of various tools of the therapeutics gymnasium.

CO4: To demonstrate passive movements in terms of various anatomical planes.

CO5: To demonstrate various starting and derived positions.

CO6: Acquire the skill of application of various massage manipulation and able to describe the physiological effects, therapeutical use merits /demerits of the same.

CO7: Acquire the skill of assessment of sensations, superficial and deep reflexes.

CO8: To able describe different types of goniometer, merits and demerits of it. Acquire the skills measure of ROM of different joints.

CO9: Will have a knowledge of limb length measurement, girth measurement.

Unit 1: Introduction to exercise therapy: Mechanical principle applied in human body-gravity, center of gravity, line of gravity, base of support, equilibrium, axis and planes
Machines: Levers- Definition, function, classification and application of levers in Physiotherapy & order of levers with example of lever in human body.

Unit 2: Pulleys - System of pulleys, types and application. **Springs-** Properties of springs, springs in parallel and series, elastic materials in us. **Elasticity-** Definition, stress, strain, Hooke's law. **Biomechanical Modalities:** Aims and scope of various - shoulder wheel, shoulder ladder, shoulder pulleys, pronator supinator instrument, static cycle, ankle exerciser, balancing board, springs, weights.

Unit 3: Disability Models: ICIDH model of disability, Nagi model of disability, ICF model
Passive movements in exercise therapy: Definition, classification, indications, contra indications, advantages, limitations, techniques - emphasize PROM to upper, lower, neck and trunk muscles.

Unit 4: Active movements in exercise therapy: Definition, classification, indications, contra indications, advantages, limitations, techniques - emphasize active movements to upper, lower, and neck and trunk muscles.

Unit 5: Concepts in exercise therapy - I: Starting positions – Muscle work, effect and uses and derived positions, **Relaxation** – Definition, types of relaxation, relaxation techniques, **Suspension** – Definition, types, uses and therapeutic applications – **II: Balance** – Static and dynamic balance, mechanism of balance control, balancing exercises.

Unit 6: Concepts in exercise therapy - III: Joint range measurement – Goniometer, types and techniques of measuring joint ROM. **IV Limb length & Girth:** Measurement, its importance in physiotherapy **Soft tissue manipulation (Massage):** History, types, techniques, physiological effects, therapeutic uses, contraindications of therapeutic massage.

Suggested Readings:

Text Books:

1. Gardiner, M Dena, *The principles of exercise therapy*, CBS Publishers.
2. Norkin, Cynthia C & White, D Joyce *Measurement of joint motion: A Guide To Goniometry*, Jaypee, New Delhi.

Reference Books:

1. Narayanan, S Lakshmi, *Textbook of Therapeutic Exercises*, Jaypee New Delhi.
2. Kisner, Carolyn, Colby, Lynn Allen and borstad, John *Therapeutic exercise: Foundations and Techniques*, Jaypee New Delhi.

Note: Latest editions of all the suggested books are recommended.

Program: Bachelor of Physiotherapy (BPT)

Semester: Second

Course: Professional Skills

Course Code: 23A205

L	T	P	Credits
1	0	0	1

Course Learning Objective:

The Objectives of the course are to help students/candidates:

CLO1: Acquire career skills and fully pursue to partake in a successful career path.

CLO2: Prepare good resume, prepare for interviews and group discussions.

CLO3: Explore desired career opportunities in the employment market in consideration of an individual SWOT.

COURSE OUTCOME

At the end of this course the students will be able to:

CO1: Prepare their resume in an appropriate template without grammatical and other errors and using proper syntax.

CO2: Participate in a simulated interview.

CO3: Actively participate in group discussions towards gainful employment.

CO4: Capture a self - interview simulation video regarding the job role concerned.

CO5: Enlist the common errors generally made by candidates in an interview.

CO6: Perform appropriately and effectively in group discussions.

CO7: Explore sources (online/offline) of career opportunities.

CO8: Identify career opportunities in consideration of their own potential and aspirations.

CO9: Use the necessary components required to prepare for a career in an identified occupation (as a case study).

Module 1: Resume Skills

i. Resume Skills: Preparation and Presentation

- Introduction of resume and its importance
- Difference between a CV, Resume and Bio data
- Essential components of a good resume

ii. Resume skills: common errors

- Common errors people generally make in preparing their resume
- Prepare a good resume of her/his considering all essential components

Module 2: Interview Skills

i. Interview Skills: Preparation and Presentation

- Meaning and types of interview (F2F, telephonic, video, etc.)

- Dress Code, Background Research, Do's and Don'ts
- Situation, Task, Approach and Response (STAR Approach) for facing an interview
- Interview procedure (opening, listening skills, closure, etc.)
- Important questions generally asked in a job interview (open and closed ended questions)

ii. Interview Skills: Simulation

- Observation of exemplary interviews
- Comment critically on simulated interviews

iii. Interview Skills: Common Errors

- Discuss the common errors generally candidates make in interview
- Demonstrate an ideal interview

Module 3: Group Discussion Skills

- Meaning and methods of Group Discussion
- Procedure of Group Discussion
- Group Discussion- Simulation
- Group Discussion - Common Errors

Module 4: Exploring Career Opportunities

- Knowing yourself – personal characteristics
- Knowledge about the world of work, requirements of jobs including self-employment.
- Sources of career information
- Preparing for a career based on their potentials and availability of opportunities

Bibliography & Suggested Reading including audio video material:

Please check IT-ITeS Sector Skills Council readiness programs namely

- Foundation Skills In IT (FSIT) - Refer the websites like <https://www.sscnasscom.com/ssc-projects/capacity-building-and-development/training/fsit/> and

- Global Business Foundation Skills (GBFS) – Refer websites like <https://www.sscnasscom.com/ssc-projects/capacity-building-and-development/training/gbfs/>

B. Team Skills

Course Objective:

The objectives of the course is to make learners:

1. Understand the significance of Team Skills and help them in acquiring them
2. To help them design, develop and adapt to situations as an individual and as a team.

COURSE OUTCOME

By the end of this course the learners/candidates will be able to:

- CO1: Use common technology messaging tools that are used in enterprises for flow of information and transition from command and control to informal communication during an online/offline team session.
- CO2: Actively use and operate online team communication tools: Webinar, Skype, Zoom, Google hangout etc.
- CO3: Appreciate and demonstrate Team Skills.
- CO4: Participate in a digital lifestyle conversant with computers, applications, Internet and nuances of cyber security.
- CO5: Explore (online) and identify career opportunities in consideration of their own potential and aspirations.
- CO6: Discuss and articulate the key requirements of an entrepreneurial exercise.
- CO7: Empathise and trust colleagues for improving interpersonal relations.
- CO8: Engage in effective communication by respecting diversity and embracing good listening skills.
- CO9: Distinguish the guiding principles for communication in a diverse, smaller internal world.
- CO10: Practice interpersonal skills for better relations with seniors, juniors, peers and stakeholders.
- CO11: Project a good personal image and social etiquette so as to have a positive impact on building of one's chosen career.
- CO12: Generate, share and maximise new ideas with the concept of brainstorming and the documentation of key critical ideas/thoughts articulated and action points to be implemented with timelines in a team discussion (as MOM) in identified applicable templates.

Module 1: Presentation Skills

- Types of presentations
- Internal and external presentation
- Knowing the purpose
- Knowing the audience
- Opening and closing a presentation
- Using presentation tools
- Handling questions
- Presentation to heterogenic group
- Ways to improve presentation skills over time

Module 2: Trust and Collaboration

- Explain the importance of trust in creating a collaborative team.
- Agree to disagree and disagree to Agree – Spirit of Team work
- Understanding fear of being judged and strategies to overcome fear

Module 3: Listening as a Team Skill

- Advantages of Effective Listening
- Listening as a team member and team leader. Use of active listening strategies to encourage sharing of ideas (full and undivided attention, no interruptions, no prethink, use empathy, listen to tone and voice modulation, recapitulate points, etc).

Module 4: Brainstorming

- Use of group and individual brainstorming techniques to promote idea generation.
- Learning and showcasing the principles of documentation of team session outcomes

Module 5: Social and Cultural Etiquette

- Need for etiquette (impression, image, earn respect, appreciation, etc)
- Aspects of social and cultural/corporate etiquette in promoting teamwork
- Importance of time, place, propriety and adaptability to diverse cultures

Module 6: Internal Communication

- Use of various channels of transmitting information including digital and physical, to team members.

Bibliography & Suggested Reading including audio video material:

Please check IT-ITeS Sector Skills Council readiness program namely Global Business Foundation.

Skills (GBFS) in website (<https://www.sscnasscom.com/ssc-projects/capacity-building-anddevelopment/training/gbfs/>), and Generic and the entrepreneurial NOS at NSQF Level 4 - 7.

Program: Bachelor of Physiotherapy (BPT)
Semester: Second
Course: Anatomy -2 Practical
Course Code: 23AP201

L	T	P	Credits
0	0	2	1

COURSE LEARNING OBJECTIVE

CLO1: To gain Knowledge about surface anatomy.

CLO2: To learn palpation of different anatomical structure.

CLO3: To makes student ready for future to practice as a qualified Physiotherapist.

COURSE OUTCOME

At the end of course, candidate will able to

CO1: Localize various surface land-marks in spine, pelvis, skull and thorax and abdomen.

CO2: Identify bone like pelvis, face, skull, spine, ribs and sternum.

CO3: Identify various organs of abdomen, chest and brain.

Describe the circulation of brain, spine and circulatory system

- Surface anatomy:-surface land mark-bony, muscular and ligamentous.-surface anatomy of major nerves, arteries of the limbs.
- Points of palpation of nerves and arteries.
- Demonstration of dissected parts (spine, thoracic & abdominal viscera, face and brain).

Program: Bachelor of Physiotherapy (BPT)
Semester: Second
Course: Physiology-2 & Biochemistry Practical
Course Code: 23AP202

L	T	P	C
0	0	2	1

Section A – Physiology

COURSE LEARNING OBJECTIVE

CLO1: To learn cranial nerve examination process.

CLO2: To learn process of auscultation and blood pressure measurement.

CLO3: To learn about palpation and observation and study heart rate, respiratory rate etc.

COURSE OUTCOME

At the end of the course, the candidate will-

CO1: Be able to describe physiological functions of various systems, with special reference to Neuro-motor, Female uro-genital function, and alterations in function with aging.

CO2: Acquire the skill of basic clinical examination, with special emphasis to Peripheral and Central Nervous system.

- Estimation of hemoglobin
- Calculation of blood indices.
- Determination of blood groups.
- Determination of bleeding time.
- Determination of clotting timing.
- Determination of ESR.
- Clinical Examination

CO3: Examination of Radial pulse.

CO4: Recording of Blood Pressure.

CO5: Examination of Respiratory rate.

CO6: Reflexes.

CO7: Spirometry to measure various lung capacities & volumes.

Section B - Biochemistry

Objective: *The primary purpose of this paper is to impart basic knowledge and understanding of the biochemical changes in human body & interpretation of common biochemistry investigations related to different organs of human body.*

COURSE OUTCOME

At the end of the course, the candidate will-

CO1: Define Basal Metabolic Rate & factors affecting the same [in brief], with special reference to obesity.

CO2: Be able to discuss nutritional aspects of carbohydrates, lipids, proteins & vitamins & their metabolism with special reference to obesity.

CO3: Describe in details biochemical aspects of muscle contraction.

CO4: 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.

- Preparation of laboratory reagents and standard solutions, storage of chemicals.
- Units of measurements. S.I. Units, measurement of volume, volumetric apparatus. (pipettes, flasks, Cylinders)
- Calibration of volumetric apparatus.
- Introduction and usage of Glassware and Instruments LIKE Balance, Hot plate Magnetic stirrer and Centrifuges.
- Preparation of buffer solution and measurement of pH
- Qualitative analysis of carbohydrates (Glucose, Fructose, Lactose, Maltose, Sucrose and starch)
- Identification tests for Proteins.
- Quantitative analysis of reducing sugars (DNSA method) and Proteins (Biuret method)
- Determination of blood sugar.
- Determination of serum total cholesterol.
- Study of enzymatic hydrolysis of starch.
- Determination of Salivary amylase activity.
- Demonstration of Bioelectrical principles

Program: Bachelor of Physiotherapy (BPT)

Semester: Second

Course: Fundamentals of Biomechanics Exercise Therapy - Practical

Course Code: 23AP204

L	T	P	Credits
0	0	2	1

Objective - *To acquire skills & techniques used for exercise prescription in physiotherapy setting.*

COURSE OUTCOME

At the end of the course candidate will able to

CO1: Demonstrate Starting positions and derived positions.

CO2: Measure Range of motion (PROM, AROM, AAROM) exercises to all joints using goniometer.

CO3: Demonstrate Relaxation techniques of different muscles.

CO4: Apply Suspension therapy to all major joints.

CO5: Apply skillful technique of Massage (Soft Tissue Manipulation) – upper limb, lower limb, back, face.

- Starting positions and derived positions.
- Range of motion (PROM, AROM, AAROM) exercises to all joints.
- Measurement of joint range using goniometer.
- General and local Relaxation techniques.
- Suspension exercise to all major joints.
- Massage – upper limb, lower limb, back, face.

Program: Bachelor of Physiotherapy (BPT)
Semester: Second
Course: Professional Skills - Practical
Course Code: 23AP205

L	T	P	C
0	0	1	1

Course Learning Objective:

CLO1: Identify common communication problems that may be holding learners back.

CLO2: Identify what their non-verbal messages are communicating to others.

CLO3: Understand role of communication in teaching-learning process.

CLO4: Learning to communicate through the digital media.

CLO5: Understand the importance of empathetic listening.

CLO6: Explore communication beyond language.

COURSE OUTCOME

By the end of this program participants should have a clear understanding of what good Communication skills are and what they can do to improve their abilities.

- **Listening**
- **Speaking**
- **Reading**
- **Writing and different modes of writing**
- **Digital Literacy**
- **Effective use of Social Media**
- **Non-verbal communication**