

GURU KASHI UNIVERSITY



Bachelor of Physiotherapy

Session: 2025-26

Faculty of Health and Allied Sciences

Graduate Attributes of the Programme: -

Type of learning outcomes	The Learning Outcomes Descriptors
Graduates should be able to demonstrate the acquisition of:	
Learning outcomes that are specific to disciplinary/interdisciplinary areas of learning	The graduates will be capable of strengthening their abilities for widening knowledge and skills through meaningful learning experiences using advanced techniques and critical thinking to develop expertise in their area and offer exclusive services in clinical practice.
	They will be able to delineate the cognitive and psychomotor skills deemed essential for completing this program and to perform as competent Orthopaedic Physiotherapists who can evaluate, plan, and execute physiotherapy treatment independently, following Evidence-Based Practice.
Generic learning outcomes	Graduates will demonstrate effective communication, leadership, and interpersonal skills necessary for collaborative practice in multidisciplinary healthcare settings.
	They will exhibit professionalism, ethical behavior, and a commitment to lifelong learning. Graduates will also be able to analyze and solve problems systematically, adapt to new technologies, and apply critical thinking in diverse clinical and academic contexts.

Programme Learning outcomes: An Undergraduate degree is awarded to students who have demonstrated the achievement of the outcomes located at level 4.5:

Element of the Descriptor	Programme Learning Outcomes Relating to Undergraduate Degree
Knowledge and understanding	Demonstrate a foundational understanding of human anatomy, physiology, pathology, biomechanics, and kinesiology relevant to physiotherapy. Understand core concepts of rehabilitation, health promotion, and disease prevention. Recognize the scope and principles of physiotherapy practice in various clinical settings.
General, technical, and professional skills required to perform and accomplish tasks	Apply basic clinical techniques, therapeutic procedures, and use of equipment in physiotherapy practice. Demonstrate professional behavior, safety measures, and effective documentation skills.
Application of knowledge and skills	Translate theoretical knowledge into clinical practice by assisting in patient assessment and simple physiotherapy interventions under supervision. Exhibit problem-solving skills in familiar settings.
Generic learning outcomes	Communicate effectively with peers, faculty, and patients; demonstrate basic teamwork, interpersonal, and organizational skills. Show readiness to adapt and learn in a structured environment.
Constitutional, humanistic, ethical, and moral values	Uphold principles of integrity, respect, empathy, and compassion in interactions with patients and peers. Demonstrate awareness of patient rights, confidentiality, and ethical conduct in healthcare practice.
Employability and job-ready skills, and entrepreneurship skills and capabilities/qualities and mindset	Possess fundamental skills for entry-level support roles in physiotherapy or allied healthcare services. Demonstrate a responsible, service-oriented attitude with an openness to innovation and career development.

Programme Structure of Bachelor of Physiotherapy

Semester –I									
Course Code	Course Title	Type of Course							
			L	T	P	Credit	Int.	Ext.	Total Marks
BPT1100	Human Anatomy-I	Core course	3	0	0	3	30	70	100
BPT1101	Human Physiology-I	Core course	3	0	0	3	30	70	100
BPT1102	Biochemistry-I	Core course	4	0	0	4	30	70	100
BPT1103	Sociology and Community Health	Multidisciplinary	3	0	0	3	30	70	100
BPT1104	Human Anatomy-I Lab	Core course	0	0	2	1	30	70	100
BPT1105	Human Physiology-I Lab	Core course	0	0	2	1	30	70	100
BPT1106	Clinical Orientation-I	Core course	0	0	4	2	30	70	100
VAC0001	Environment Education	VAC	2	0	0	2	30	70	100
Elective-I (Any one of the following)									
BPT1107	Introduction to Healthcare Delivery System	Elective	4	0	0	4	30	70	100
BPT1108	English Communication and Skills								
Total			19	0	8	23	270	630	900

Semester- II									
Course Code	Course Title	Course Type							
			L	T	P	Credit	Int.	Ext.	Total Marks
BPT2150	Human Anatomy-II	Core Course	3	0	0	3	30	70	100
BPT2151	Human Physiology-II	Core Course	3	0	0	3	30	70	100
BPT2152	Pathology & Microbiology -I	Core Course	4	0	0	4	30	70	100
BPT2153	Biochemistry-II	Core Course	4	0	0	4	30	70	100
BPT2154	Anthropology	Multidisciplinary	3	0	0	3	30	70	100
BPT2155	Human Anatomy-II Lab	Core Course	0	0	2	1	30	70	100
BPT2156	Human Physiology-II Lab	Core Course	0	0	2	1	30	70	100
BPT2157	Clinical Orientation-II	Skill Based	0	0	4	2	30	70	100
VAC0002	Human Values and Professional Ethics	VAC	2	0	0	2	30	70	100
Total			19	0	8	23	270	630	900

Semester-III

Course Code	Course Title	Course Type							
			L	T	P	Credit	Int.	Ext.	Total Marks
BPT3200	Exercise Therapy-I	Core Course	3	0	0	3	30	70	100
BPT3201	Electro Therapy-I	Core Course	3	0	0	3	30	70	100
BPT3202	Pathology & Microbiology-II	Core Course	4	0	0	4	30	70	100
BPT3203	Biomechanics-I	Core Course	3	0	0	3	30	70	100
BPT3204	Exercise Therapy-I Lab	Core Course	0	0	2	1	30	70	100
BPT3205	Electro Therapy-I Lab	Core Course	0	0	2	1	30	70	100
BPT3206	Biomechanics-I Lab	Core Course	0	0	2	1	30	70	100
BPT3207	Clinical Orientation-III	Skill Based	0	0	4	2	30	70	100
IKS0002	Indian Education	VAC	2	0	0	2	30	70	100
Discipline Elective-I (Any one of the following)									
BPT3208	Ergonomics and Human Factors	Discipline Elective	4	0	0	4	30	70	100
BPT3209	Basics of Emergency Management								
Total			19	0	10	24	300	700	1000

Semester-IV									
Course Code	Course Title	Course Type							
			L	T	P	Credit	Int.	Ext.	Total Marks
BPT4250	Exercise Therapy-II	Core Course	3	0	0	3	30	70	100
BPT4251	Electro Therapy – II	Core Course	3	0	0	3	30	70	100
BPT4252	Biomechanics-II	Core Course	3	0	0	3	30	70	100
BPT4253	Pharmacology	Core Course	4	0	0	4	30	70	100
BPT4254	Fundamentals of Yoga	AEC	2	0	0	2	30	70	100
BPT4255	Exercise Therapy-II Lab	Skill Based	0	0	2	1	30	70	100
BPT4256	Electro Therapy-II Lab	Skill Based	0	0	2	1	30	70	100
BPT4257	Biomechanics-II Lab	Skill Based	0	0	2	1	30	70	100
IKS0006	Indian Health Sciences	VAC	2	0	0	2	30	70	100
Discipline Elective-II (Any one of the following)									
BPT4258	Basics of Radiology	Discipline Elective	4	0	0	4	30	70	100
BPT4259	General Psychology								
Total			21	0	6	24	300	700	1000

Semester-V									
Course Code	Course Title	Course Type	L	T	P	Credit	Int.	Ext.	Total Marks
BPT5300	Orthopedics	Core Course	3	0	0	3	30	70	100
BPT5301	General Medicine	Core Course	3	0	0	3	30	70	100
BPT5302	Research Methodology & Biostatistics	Core Course	4	0	0	4	30	70	100
BPT5303	Orthopedics Lab	Skill Based	0	0	2	1	30	70	100
BPT5304	General Medicine Lab	Skill Based	0	0	2	1	30	70	100
BPT5305	Clinical Orientation-IV	Skill Based	0	0	4	2	30	70	100
Discipline Elective-III (Any one of the following with its practical)									
BPT5306	Vestibular Rehabilitation	Discipline Elective	3	0	0	3	30	70	100
BPT5307	Vestibular Rehabilitation Lab		0	0	2	1	30	70	100
BPT5308	Physical & functional diagnosis & Prescription (PFDP)		3	0	0	3	30	70	100
BPT5309	Physical & functional diagnosis & Prescription (PFDP) Lab		0	0	2	1	30	70	100
Total			16	0	12	22	240	560	800

Semester-VI									
Course Code	Course Title	Course Type	L	T	P	Credit	Int.	Ext.	Total Marks
BPT6350	Physiotherapy in Orthopedic Conditions	Core Course	3	0	0	3	25	50	75
BPT6351	Physiotherapy in Cardiopulmonary Conditions	Core Course	3	0	0	3	25	50	75
BPT6352	Physiotherapy in Medical Conditions	Core Course	3	0	0	3	25	50	75
BPT6353	Physiotherapy Ethics	AEC	2	0	0	2	15	35	50
BPT6354	Physiotherapy in Cardiopulmonary Conditions Lab	Skill Based	0	0	2	1	10	15	25
BPT6355	Physiotherapy in Orthopedic Conditions Lab	Skill Based	0	0	2	1	10	15	25
BPT6356	Physiotherapy in Medical Conditions Lab	Skill Based	0	0	2	1	10	15	25
IKS0012	The Outreach of Indian Knowledge System	VAC	2	0	0	2	15	35	50
Discipline Elective-IV (Any one of the following)									
BPT6357	Exercise Physiology	Discipline Elective	4	0	0	4	30	70	100
BPT6358	Clinical Reasoning and Evidence-Based Practice								
Discipline Elective-IV (Any one of the following)									
BPT6359	Community Based Rehabilitation	Discipline Elective	4	0	0	4	30	70	100
BPT6360	Oedema Management								
Total			21	0	6	24	300	700	1000

Semester-VII									
Course Code	Course Title	Course Type	L	T	P	Credit	Int.	Ext.	Total Marks
BPT7400	Neurology	Core Course	3	0	0	3	30	70	100
BPT7401	General Surgery	Core Course	3	0	0	3	30	70	100
BPT7402	Ethics, Rehabilitation and Medico-legal aspects-I	Core Course	3	0	0	3	30	70	100
BPT7403	Neurology Lab	Skill Based	0	0	2	1	30	70	100
BPT7404	General Surgery Lab	Skill Based	0	0	2	1	30	70	100
BPT7405	Ethics, Rehabilitation and Medico-legal aspects-I Lab	Skill Based	0	0	2	1	30	70	100
BPT7406	Clinical Orientation-V	Skill Based	0	0	4	2	30	70	100
Discipline Elective-V (Any one of the following)									
BPT7407	Drug Abuse	Discipline Elective	4	0	0	4	30	70	100
BPT7408	Diagnostic Imaging								
Discipline Elective-VI (Any one of the following)									
BPT7409	Obstetrics & Gynecology	Discipline Elective	4	0	0	4	30	70	100
BPT7410	Sports Physiotherapy on field management								
Total			17	0	10	22	270	630	900

Semester-VIII									
Course Code	Course Title	Course Type	L	T	P	Credit	Int.	Ext.	Total Marks
BPT8450	Physiotherapy in Neurological Conditions	Core Course	3	0	0	3	30	70	100
BPT8451	Physiotherapy in Surgical Conditions	Core Course	3	0	0	3	30	70	100
BPT8452	Ethics, Rehabilitation and Medico-legal aspects-II	Core Course	3	0	0	3	30	70	100
BPT8453	Physiotherapy in Neurological Conditions Lab	Skill Based	0	0	2	1	30	70	100
BPT8454	Physiotherapy in Surgical Conditions Lab	Skill Based	0	0	2	1	30	70	100
BPT8455	Ethics, Rehabilitation and Medico-legal aspects-II Lab	Skill Based	0	0	2	1	30	70	100
BPT8456	Clinical Orientation VI	Skill Based	0	0	4	2	30	70	100
Discipline Elective-VII (Any one of the following)									
BPT8457	Pediatrics	Discipline Elective	4	0	0	4	30	70	100
BPT8458	Geriatrics								
Discipline Elective-VIII (Any one of the following)									
BPT8459	Neuro-physiological Techniques	Discipline Elective	4	0	0	4	30	70	100
BPT8460	ICU Management								
Total			17	0	10	22	270	630	900

Semester-IX									
Course Code	Course Title	Course Type	L	T	P	Credit	Int.	Ext.	Total Marks
BPT9500	Internship Training (6 Months)	Skill Based	0	0	0	20	30	70	100
Total			0	0	0	20	30	70	100
Grand Total			170	0	66	228			

Internship Guidelines

After completion of BPT Semester 8, all the students will go for 6 months of compulsory rotatory internship in the following departments where they will maintain a log book of their tasks which will be signed by in charge at the hospital every week and the same will be submitted to the university on completion of internship. Students will also present a single detailed case presentation treated during internship.

The students will complete their compulsory rotatory internship in following areas:

Sr. No.	Department	Period	Hours
1	Physiotherapy Out-Patient Department	01 month	240
2	ICU & ICCU	15 days	120
3	General Medicine	15 days	120
4	General Surgery	15 days	120
5	Paediatrics	15 days	120
6	Cardiology	15 days	120
7	Neurology	15 days	120
8	Neurosurgery	15 days	120
9	Cardiothoracic Surgery	15 days	120
10	Orthopaedics	15 days	120
11	Physical Medicine & Rehabilitation	15 days	120

SEMESTER-I**Course Title: HUMAN ANATOMY- I****Course Code: BPT1100**

L	T	P	Credits
3	0	0	3

Total Hours: 45**Course Outcomes**

On the completion of the course the students will be able to

1. Identify and comprehend the structural organization of human body.
2. Evaluate the clinical significance of each bone, joint and muscle along with other anatomical structures.
3. Develop skills to examine anatomical and physiological disorders based on evidence.
4. Gain proficiency in palpating bony landmarks.

Course Content**UNIT I****12 Hours**

Musculoskeletal Anatomy - Definition-classification, structure of fibrous, cartilaginous joints, blood supply and nerve supply of joints. Anatomical positions of body, axes, planes, common anatomical terminologies (Groove, tuberosity, trochanter etc.), Upper Limb Anatomy- Arm, Forearm, Wrist, Hand (Joints, muscles, nerve supply)

UNIT II**11 Hours**

Lower Limb Anatomy- Pelvis, Hip, and Knee, Ankle (Joints, muscles, and nerve supply)

UNIT III**11Hours**

Regional Anatomy (Trunk, Thorax and Abdomen)

UNIT IV**11 Hours**

Systems of the human body (Respiratory System), Anatomy of vertebral column

Transaction Mode

Video based teaching, Case based teaching, Team teaching Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning.

Suggested Readings

- S.Singh Inderbir (2014). *Textbook of Anatomy with colour Atlas*. Vol. 1, 2, 3, Jaypee Brother
- Chaurasia B.D. (2017). *Human Anatomy*. Volume 1, 2, 3. CBS Publishers & Distributors.
- Singh V. (2012). *Anatomy of Head, Neck & Brain*. Elsevier
- Kinetics. Champaign; Illinois.
- Drake, R. L., Vogl, A. W., & Mitchell, A. W. M. (2020). *Gray's anatomy for students (4th ed.)*. Elsevier.
- Netter, F. H. (2019). *Atlas of human anatomy (7th ed.)*. Elsevier.

Web Sources

- <https://www.healthdirect.gov.au/bones-muscles-and-joints>
- <https://www.kenhub.com/en/library/anatomy/human-body-systems>

Course Title: HUMAN PHYSIOLOGY- I

Course Code: BPT1101

L	T	P	Credits
3	0	0	3

Total Hours: 45

Course Outcomes

On the completion of the course the students will be able to

1. Comprehend the inter-dependency between different body systems and their role in maintaining biological equilibrium.
2. Interpret and draw inference from the results of physiological function tests, ECG's and spirometer read outs.
3. Identify the course of physiological abnormalities which can lead to disease.
4. Draw conclusion on the basis of hematological parameters

Course Content

UNIT I

12 Hours

Cell – morphology, structure and function of organelles, Transport mechanism across cell membrane, Blood, Body fluids (composition and distribution), Composition and function of blood Plasma proteins – composition, formation and their function. Structure, count, formation, functions and variations of R.B.C., W.B.C.s and platelets. Hemoglobin – structure and function. E.S.R, Immunity Hemostatic mechanisms – blood Coagulation – factors and mechanism, Bleeding and Clotting time. Blood groups and their significance, determination, Rh factor, Blood transfusion – cross matching, indications, complications, Lymph – composition, formation circulation and functions.

UNIT II

11 Hours

Cardiovascular System, Introduction: Organization of CVS. Properties of Cardiac muscles, Ionic basis of action potential and pacemaker potential, conducting system, Components, Impulse conduction. Cardiac Cycle: Definition. Phases of cardiac cycle, 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, Arterial Blood Pressure: Definition Normal values and its variations, Determinants, Peripheral resistance, Regulation of BP Arterial pulse, Regional Circulation: Coronary, Cerebral and Cutaneous circulation, Cardiovascular changes during exercise.

UNIT III

11 Hours

Digestive System, Introduction: Physiological anatomy and nerve supply of alimentary canal, Enteric nervous system Salivary Secretion: Saliva: Composition, Functions, Regulation, Stomach: Functions, Gastric juice: Gland, composition, function, regulation, Gastrin: Production, function and regulation, Pancreatic Secretion: Composition, production, function, Regulation, Liver: Functions of liver, Bile secretion: Composition, functions and regulation, Gall bladder: Functions, Intestine: Succus entericus: Composition, function and regulation of secretion, Intestinal motility and its function and regulation, Movements of GIT – Mastication, Swallowing, Vomiting. Mechanism of Defecation.

UNIT IV

11 Hours

Endocrine System: Outline of various hormones, mechanism of action and function Excretory System, Nephrons – cortical and juxtamedullary, Juxta-glomerular apparatus, Glomerular membrane, Renal blood flow and its regulation, Mechanism of Urine Formation: Glomerular Filtration: Mechanism of glomerular filtration, GFR – normal value and factors affecting, Renal clearance. Inulin clearance, Creatinine clearance. Tubular Reabsorption: Reabsorption of Na⁺, glucose, HCO₃⁻, urea and water, Renal tubular transport maximum, Tubular Secretion: Secretion of H⁺ and K⁺,

Mechanism of concentrating and diluting the Urine: Counter-current mechanism, Regulation of water excretion, Diuresis, Diuretics, Micturition: Mechanism of micturition, Skin and temperature regulation, Respiratory System-Introduction: Functions of respiratory system. Respiratory muscles, Mechanics of breathing: Intra-pleural and Intrapulmonary pressure changes during respiration, Chest expansion, Lung compliance: Normal value, factors affecting compliance and its variations, Lung Volumes and capacities, Ventilation – Types, Ventilation-perfusion ratio and its importance, Dead Space: Types and their definition, Transport of respiratory gases: Diffusion across the respiratory membrane, Oxygen transport – Different forms, oxygen-hemoglobin dissociation curve, Factors affecting it, Carbon dioxide transport: Different forms, Regulation of Respiration: Neural Regulation, Chemical Regulation, Hypoxia: Effects of hypoxia. Types of hypoxia. Hyperbaric oxygen therapy, Acclimatization

Hypercapnia, Asphyxia, Cyanosis – types and features, Disorders of Respiration: Dyspnea, Orthopnea, Hyperpnea, hyperventilation, apnoea, tachypnea, Periodic breathing – types, Artificial respiration. Respiratory changes during exercise.

Transaction mode

Flipped teaching, Open learning, Group discussion, Video based teaching, Case based teaching, Team teaching Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning.

Suggested readings

- Ghai, C. L. (2012). *A textbook of practical physiology*. JP Medical Ltd.
- Sembulingam, K., & Sembulingam, P. (2012). *Essentials of medical physiology*. JP Medical Ltd.
- Hall, J. E., & Hall, M. E. (2020). *Guyton and Hall textbook of medical physiology*. Elsevier Health Sciences.
- Ganong, W. F. (2019). *Review of medical physiology (26th ed.)*. McGraw-Hill Education.
- Jain, A. K. (2019). *Textbook of physiology (7th ed.)*. Avichal Publishing Company.

Web Sources

- <https://www.sciencedirect.com/topics/engineering/cell-morphology>
- <https://utswmed.org/conditions-treatments/respiratory-disorders>

Course Title: BIOCHEMISTRY-I
Course Code: BPT1102

L	T	P	Cred its
4	0	0	4

Total Hours: 60

Course Outcomes

On successful completion of this course, the students will be able to:

1. Analyse the basic concepts of nutrition and its role in maintenance of good health.
2. Identify the source and metabolism of carbohydrates, lipids, proteins and vitamins in human body.
3. Identify structures of biomolecules and their chemical reactions essential to life.
4. Relate bio chemistry with clinical outcomes and conduct treatment accordingly.

Course Content

UNIT I

15 Hours

Carbohydrates: Concepts of pH and buffers, acid base equilibrium osmotic pressure and its physiological application. Definition, structure, functions, sources, monosaccharaides, Disaccharides, Polysaccharides, muco polysaccharide and its importance, Carbohydrate Metabolism: Glycolysis, citric acid cycle, glycogenesis, glycogenolysis, Glucogenesis, Cori cycle, Maintenance of Blood glucose.

UNIT II

15 Hours

Lipids: Definition, function, sources, classification and properties of fatty acids, triacylglycerol, phospholipids, cholesterol and lipoproteins. Essential fatty acids and their importance, Lipid Metabolism: Lipolysis, Fatty acid oxidation, lipogenesis, fatty acid synthesis, Metabolism of cholesterol, Ketone body metabolism, Atherosclerosis, fatty liver.

UNIT III

15 Hours

Proteins: Definition, sources, Classification and functions of proteins, Protein Metabolism: Transamination, Deamination, Fate of ammonia and urea cycle, Muscle Contraction: contractile elements, Biochemical events during contraction and Energy metabolism in skeleton & cardiac muscle.

UNIT IV**15 Hours**

Connective tissue & Nerve tissue: Mucopolysaccharide, connective tissue proteins, glycoprotein, chemistry & Metabolism of bone and tooth, metabolism of skin. Composition, metabolism, chemical mediators of Nerve activity.

Transaction Mode

Open learning, Seminars, Group discussions, Lecture, Seminar, e-Team teaching, e-Tutoring, Dialogue, Peer Group Discussion

Suggested Reading

- Satyanarayana, U., & Chakrapani, U. (2008). *Essentials of biochemistry. Book and Allied, Kolkata, India, Textbook of Biochemistry for Medical Students - Vasudeval D.M. (2019) - Jaypee Brothers.*
- Marshall, W. J., Lapsley, M., Day, A., & Ayling, R. (2014). *Clinical Biochemistry: Metabolic and Clinical Aspects. Elsevier Health Sciences.*
- Murray [Robert Kk], *Harper's Bio Chemistry Ed 24, Prentice Hall. 1996*
- Rodwell, V. W., Bender, D., Botham, K. M., Kennelly, P. J., & Weil, P. A. (2018). *Harper's illustrated biochemistry (31st ed.). McGraw-Hill Education.*
- Vasudevan, D. M., Sreekumari, S., & Vaidyanathan, K. (2019). *Textbook of biochemistry for medical students (8th ed.). Jaypee Brothers Medical Publishers.*

Web Sources

- <https://mi01000971.schoolwires.net/cms/lib/MI01000971/Centricity/Domain/442/Chapter%205%20lipid%20proteins%20carbohydrates>
- <https://www.kenhub.com/en/library/anatomy/introduction-to-tissues-epithelial-connective-muscle-and-nervous-tissue>

Course Title: SOCIOLOGY AND COMMUNITY HEALTH	L	T	P	Cr edi ts
Course Code: BPT1103	3	0	0	3

Total Hours: 45

Course Outcomes

On the completion of the course the students will be able to

1. Comprehend the meaning, definition, and scope of sociology.
2. Define socialization and identify its stages and agencies.
3. Understand the role of socialization in patient rehabilitation within hospital settings.
4. Examine the processes of human adaptation to social change and its implications for health.

Course Content

UNIT I

11 Hours

Introduction - Meaning, definition and scope of sociology, Its relation to social psychology, Socialization - Meaning, process and agencies, Primary, Secondary and Anticipatory socialization; Social Groups - In hospitals, socialization in the rehabilitation of patients, Meaning, definition, features and influence of formal and informal groups on health and sickness.

UNIT II

12 Hours

Family - Meaning, definition, types, features and functions, Social factors in health and disease situations: Meaning of social factors. Role of social factors; Social Problems - Meaning, definition and characteristics; Social Problems of disabled - Population explosion, Poverty, Beggary, Juvenile delinquency, Prostitution, Drugs, Crime, Alcoholism, Problems of working women.

UNIT III

11 Hours

Community - Rural community – meaning and features – health hazards to ruralities, Urban community - meaning and features – health hazards to urbanities; Caste system- Features of modern caste system and its trends. Social Worker - Meaning and Role of medical social worker,

UNIT IV

11 Hours

Social Change - Meaning, factors, human adaptation and social change, social change and stress, social change and health programmes- Social factors affecting health status, social consciousness and meaning of illness, decision making in taking treatment.

Transaction Mode

Open learning, Problem solving, Flipped teaching, Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- *Sociology: A Brief Introduction" by Richard T. Schaefer*
- *The Sociology of Health, Illness, and Health Care: A Critical Approach" by Rose Weitz*
- *Introduction to Sociology for Health Carers" by Mark Walsh, Paul Stephens, and Stephen Moore*
- *Sociology for Health Professionals" by Agnes Miles*
- *Health, Illness, and Society: An Introduction to Medical Sociology" by Steven E. Barkan*

Web Sources

- <https://www.britannica.com/topic/sociology>
- <https://www.asanet.org/wpcontent/uploads/savvy/introto sociology/Documents/Field%20of%20sociology033108.htm>

Course Title: HUMAN ANATOMY- I LAB

Course Code: BPT1104

L	T	P	Cred its
0	0	2	1

Total Hours: 15

Course Outcomes

On successful completion of this course, the students will be able to:

1. Identify and demonstrate parts of human body on a model.
2. Recognize the structure of human organs.
3. Acquire knowledge about structure and clinical relevance of each bone, joint and

muscle.

4. Develop competency to palpate major surface landmarks.

Course Content

Surface Anatomy: To study, identify and mark the surface landmarks on human body, To study the bones and muscles of face, cranium, thorax and abdomen on human body models, Embryology using models and charts, To study the gross anatomy of Respiratory, Digestive, Endocrine, Urinary and Genital system on models, charts.

Transaction Mode

Demonstration method, Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning.

Suggested Readings

- Singh, I. (2011). *Textbook of Anatomy: Volume 1: Upper Extremity, Lower Extremity (Vol. 1)*. Elsevier Health Sciences.
- Singh, I. (2011). *Textbook of Anatomy: Volume 3: Head and Neck, Central Nervous System (Vol. 3)*. Elsevier Health Sciences.
- Singh, V. (2014). *Textbook of Anatomy Abdomen and Lower Limb; Volume II (Vol. 2)*. Elsevier Health Sciences.
- Koshi, R. (2017). *Cunningham's manual of practical anatomy* (16th ed.). Oxford University Press.
- Rohen, J. W., Yokochi, C., & Lütjen-Drecoll, E. (2015). *Color atlas of anatomy: A photographic study of the human body* (8th ed.). Lippincott Williams & Wilkins.

Web Sources

- <https://mvmedu.org/education/what-is-surface-anatomy/>
- <https://www.visiblebody.com/learn/skeleton/types-of-bones>

Course Title: HUMAN PHYSIOLOGY - I LAB	L	T	P	Cr edi ts
Course Code: BPT1105	0	0	2	1

Total Hours: 15**Course Outcomes**

On the completion of the course the students will be able to

1. Examine human vital signs and draw inference on their basis.
2. Identify and differentiate between normal and abnormal heart sounds.
3. Identify and differentiate between normal and abnormal lung sounds.
4. Develop skills to examine various hematological parameters.

Course Content

To study the following Physiological Phenomenon-Identification of blood cells and different counts, W.B.C. Count, R.B.C. Count, To study the following Physiological Phenomenon: -Cardio - Respiratory efficiency tests, Spirometry, Lung volumes and Capacities assessment, Artificial respiration and C.P.R, Pulse rate, Heart rate and measurement of Blood Pressure.

Transaction Mode

Demonstration method, Case based teaching, Video based teaching, Group Discussion.

Suggested Readings

- Ghai, C. L. (2012). *A textbook of practical physiology*. JP Medical Ltd.
- Sembulingam, K., & Sembulingam, P. (2012). *Essentials of medical physiology*. JP Medical Ltd.
- Hall, J. E., & Hall, M. E. (2020). *Guyton and Hall textbook of medical physiology*. Elsevier Health Sciences.
- Jain, A. K. (2019). *Practical physiology (4th ed.)*. Avichal Publishing Company.
- Jaypee, A. K. (2016). *Manual of practical physiology for BDS and MBBS students (2nd ed.)*. Jaypee Brothers Medical Publishers.

Web Sources

- <https://www.slideserve.com/buzz/blood-pressure-measurement>
- <https://www.simplepharmanotes.com/2021/07/artificial-respiration-and.html>

Course Title: CLINICAL ORIENTATION- I

Course Code: BPT1106

L	T	P	Cred its
0	0	4	2

Total Hours: 30

Course Outcomes

On successful completion of this course, the students will be able to:

1. Gain firsthand experience in a professional lab setting, enhancing understanding of clinical procedures and protocols.
2. Learn about various laboratory equipment and tools used in physiotherapy and their specific functions.
3. Work collaboratively with peers, fostering teamwork and communication skills.
4. Gain skills in designing individualized exercise programs based on patient needs, conditions, and goals.

Course Content

Students visit the labs.

Introduction to Exercise Therapy

Introduction to Electrotherapy

Subjective Assessment of the patients

Interaction with patients

Transaction Mode

Lecture, Seminar, e-Team teaching, e-Tutoring, Dialogue, Case based studies Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- *Introduction to Physical Therapy and Patient Skills by Mark Dutton*
- *Physical Rehabilitation by Susan B. O'Sullivan and Thomas J. Schmitz*
- *"Principles of Rehabilitation Medicine" by Raj Mitra*
- *"Orthopedic Physical Assessment" by David J. Magee*
- *"The Physiotherapist's Pocketbook: Essential Facts at Your Fingertips" by Karen Kenyon and Jonathan Kenyon*

Web Sources

- <https://www.stcharleshealthcare.org/professionals/clinical-orientation>
- <http://www.centrahealth.com/caregiver-onboarding/clinical-orientation>

Course Title: Environment Education	L	T	P	Cr.
Course Code: VAC0001	2	0	0	2

Total Hours: 30

Course Learning Outcomes: After completing all the units, students will learn:

- 1) Grasp the concept of Environmental Science, its components, types of natural resources, their distribution, and usage, with a focus on India.
- 2) Discuss the factors impacting biodiversity loss and ecosystem degradation in India and the world.
- 3) An overview of Contemporary Environmental Issues i.e National and Global efforts to address climate change adaptation and mitigation.
- 4) To understand environmental laws for monitoring pollution.
- 5) Principles guiding human responsibility toward the environment.
- 6) Toxic chemicals and analytical methods for monitoring environmental pollutants.

Course Content

Unit-I.

6 Hours

Human – Environment Interaction, Natural Resources, and Sustainable Development
 The man-environment interaction: Humans as hunter-gatherers; Mastery of fire; Origin of agriculture; Emergence of city-states; Great ancient civilizations and the environment, Indic Knowledge and Culture of sustainability; Middle Ages and Renaissance; Industrial revolution and its impact on the environment; Population growth and natural resource exploitation; Global environmental change. Environmental Ethics and emergence of environmentalism: Anthropocentric and eco-centric perspectives (Major thinkers); The Club of Rome- Limits to Growth; UN Conference on Human Environment 1972; World Commission on Environment and Development and Rio Summit. Natural resources: Definition and Classification. Microbes as a resource; Status and challenges. Environmental impact of over-exploitation, issues and challenges; Water scarcity and Conflicts over water. Mineral resources and their exploitation; Environmental problems due to extraction of minerals and use; Soil as a resource and its degradation. Energy resources: Sources and their classification. Implications of energy use on the environment. Introduction to sustainable development: Sustainable Development Goals (SDGs)- targets and indicators, challenges and strategies for SDGs.

Unit-II: Biodiversity Conservation and Environmental Issues**6 Hours**

Biodiversity as a natural resource; Levels and types. Biodiversity in India and the world; Biodiversity hotspots; Species and ecosystem threat categories. Major ecosystem types in India, their services, classification, significance and characteristics of forests, wetlands, grasslands, agriculture, coastal and marine; Threats to biodiversity and ecosystems: Land use and land cover change; Commercial exploitation of species; Invasive species; Fire, disasters and climate change. Major conservation policies: in-situ and ex-situ approaches; National and International Instruments for biodiversity conservation; the role of traditional knowledge, community-based conservation; Gender and conservation. Environmental issues and scales: micro-, meso-, synoptic and planetary scales; Temporal and spatial extents of local, regional, and global phenomena. Pollution: Types of Pollution- air, noise, water, soil, thermal, radioactive ;municipal solid waste, hazardous waste; transboundary air pollution; acid rain; smog. Land use and Land cover change: land degradation, deforestation, desertification, urbanization. Biodiversity loss: past and current trends, impact. Global change: Ozone layer depletion; Natural Disasters – Natural and Man-made (Anthropogenic).

Unit-III:**8 Hours**

Environmental Pollution, Health, Climate Change: Impacts, Adaptation and Mitigation Definition of pollution; Point and non-point sources. Air pollution: sources, Impacts, Primary and Secondary pollutants; Criteria pollutants- carbon monoxide, lead, nitrogen oxides, ground-level ozone, particulate matter and sulphur dioxide; Other important air pollutants- Volatile Organic compounds (VOCs), Peroxyacetyl Nitrate (PAN), Polycyclic aromatic hydrocarbons (PAHs) and Persistent organic pollutants (POPs); Indoor air pollution; National Ambient Air Quality Standards. Water pollution: Sources; River, lake and marine pollution, groundwater pollution, impacts ; Water quality parameters and standards. Soil pollution: sources and pollutants. Solid and hazardous waste, its impacts. Noise pollution: Definition, Unit of measurement, sources, noise standards; adverse impacts. Thermal and Radioactive pollution: Sources and impacts. Climate change: natural variations in climate due to greenhouse gas emission- past, present & future. Structure of atmosphere. Projections of global climate change with special reference to temperature, rainfall, climate variability and extreme events; Importance of 1.5 °C and 2.0 °C limits to global warming; Climate change projections for the Indian sub-continent. Impacts, vulnerability and adaptation to climate change: Observed impacts of climate change on ocean and land systems; Sea level rise, changes in marine and coastal ecosystems; Impacts on forests, natural ecosystems, animal species, agriculture, health, urban

infrastructure; the concept of vulnerability and its assessment; Adaptation vs. resilience; Climate-resilient development; Indigenous knowledge for adaptation to climate change. Mitigation of climate change: Synergies between adaptation and mitigation measures; Green House Gas (GHG) reduction vs. sink enhancement; Concept of carbon intensity, energy intensity and carbon neutrality; National and international policy instruments for mitigation, decarbonizing pathways and net zero targets for the future; Energy efficiency measures; Carbon capture and storage, National climate action plan and Intended Nationally Determined Contributions (INDCs); Climate justice.

Unit-IV: Environment Management, Treaties and Legislation

10 Hours

Introduction to environmental laws and regulation: Article 48A, Article 51A (g) and other environmental rights; Introduction to environmental legislations on the forest, wildlife and pollution control. Environmental management system: ISO 14001 Concept of Circular Economy, Life cycle analysis; Cost-benefit analysis Environmental audit and impact assessment; Environmental risk assessment Pollution control and management; Waste Management- Concept of 3R (Reduce, Recycle and Reuse) and sustainability; Ecolabeling /Ecomark scheme. Bilateral and multilateral agreements on international co-operation of instruments; conventions and protocols; binding and nonbinding measures; Conference of the Parties (COP) Major International Environmental Agreements:- Convention on Biological Diversity (CBD); Cartagena Protocol on Biosafety; Nagoya Protocol on Access and Benefit-sharing; Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES); Ramsar Convention on Wetlands of International Importance; United Nations Convention to Combat Desertification (UNCCD); Vienna Convention for the Protection of the Ozone Layer; Montreal Protocol on Substances that Deplete the Ozone Layer and the Kigali Amendment; Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal; Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade; Stockholm Convention, Minamata Convention, United Nations Framework Convention on Climate Change (UNFCCC); Kyoto Protocol; Paris Agreement; India's status as a party to major conventions Major Indian Environmental Legislations: The Wild Life (Protection) Act, 1972; The Water (Prevention and Control of Pollution) Act, 1974; The Forest (Conservation) Act, 1980; The Air (Prevention and Control of Pollution) Act, 1981; The Environment (Protection) Act, 1986; The Biological Diversity Act, 2002; The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006; Noise Pollution (Regulation and Control) Rules, 2000; Industry-specific environmental standards; Waste management rules; Ramsar sites; Biosphere reserves; Protected Areas; Ecologically Sensitive Areas; Coastal Regulation

Zone; Production and consumption of Ozone Depleting substances, Green Tribunal; Some landmark Supreme Court judgements Major International organisations and initiatives: United Nations Environment Programme (UNEP), International Union for Conservation of Nature (IUCN), World Commission on Environment and Development (WCED), United Nations Educational, Scientific and Cultural Organization (UNESCO), Intergovernmental Panel on Climate Change (IPCC), and Man and the Biosphere (MAB) programme.

Suggested Readings: -

- 1) Chahal, M. K. (2024). Environmental Science and Hazards Management (Ecology and Risk Management), ISBN:978-93-6440-586-7.
- 2) Baskar, S. and Baskar, R. (2009). Natural Disasters (Earth's Processes & Geological Hazards), ISBN: 978-81-7806-168-9.
- 3) Tiefenbacher, J (ed.) (2022), Environmental Management - Pollution, Habitat, Ecology, and Sustainability, Intech Open, London. 10.5772/
- 4) Kanchi Kohli and Manju Menon (2021) Development of Environment Laws in India, Cambridge University Press.
- 5) Bhagwat, Shonil (Editor) (2018) Conservation and Development in India: Reimagining Wilderness, Earthscan Conservation and Development, Routledge.
- 6) Manahan, S.E. (2022). Environmental Chemistry (11th ed.). CRC Press. <https://doi.org/10.1201/9781003096238>.
- 7) William P. Cunningham and Mary A. (2015) Cunningham Environmental Science: A Global Concern, Publisher (Mc-Graw Hill, USA)
- 8) Central Pollution Control Board Web page for various pollution standards. <https://cpcb.nic.in/standards/>
- 9) Theodore, M. K. and Theodore, Louis (2021) Introduction to Environmental Management, 2nd Edition. CRC Press.
- Ministry of Environment, Forest and Climate Change (2019) A Handbook on International Environment Conventions & Programmes. <https://moef.gov.in/wp-content/uploads/2020/02/convention-V-16-CURVE-web.pdf>

Course Title: INTRODUCTION TO HEALTHCARE DELIVERY SYSTEM	L	T	P	Cr edi ts
Course Code: BPT1107	4	0	0	4

Total Hours: 60**Course Outcomes**

On the completion of the course the students will be able to

1. Identify the social, legal, and economic factors that affect the delivery of healthcare.
2. Explain the development of the health information profession from its beginnings until the present and into the future.
3. Describe the critical health policy issues in the U.S. and explain the future trend in health care.
4. Discuss documentation requirement for various hospitals and healthcare organizations.

Course Content**UNIT I****15 Hours**

Healthcare Providers, Historical Perspective of the Healthcare Delivery System, Health Promotion and Disease Prevention, Managed Care Organizations Regulations

UNIT II**15 Hours**

Introduction of Operating System: introduction, operating system concepts, types of operating system. Computer networks: introduction, types of network (LAN, MAN, WAN, Internet, Intranet), network topologies (star, ring, bus, mesh, tree, hybrid), components of network.

UNIT III**15 Hours**

Introduction to MS- Word: introduction, components of a word window, creating, opening and inserting files, editing a document file, page setting and formatting the text, saving the document, spell checking, printing the document file, creating and editing of table, mail merge; Introduction to Excel: introduction, about worksheet, entering information, saving work books and formatting, printing the worksheet,

creating graphs; Introduction to power-point: introduction, creating and manipulating presentation, views, formatting and enhancing text, slide with graphs.

UNIT IV

15 Hours

Computer networks : Introduction, Types of network (LAN, WAN, MAN, internet, intranet), Network topologies, Components of network; Internet and its applications: Definition, Basic services (www, e-mail, Surfing, Browsing; Application of computer in clinical settings.

Transaction Mode

Open learning, Problem solving, Flipped teaching, Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- *Computer Fundamentals - P.K. Sinha – 2004 – BPB Publications*
- *Computer fundamental and PC Softwares - Rachpal Singh & Gurinder Singh – 2015 – Kalyani Publishers.*
- *R.K. Texali - PC Softwares – 2017 – Mc Graw hill.*
- *Internet to Go - Alan Simpson – 1999 – Sybax Inc.*
- Miller, M. (2015). *Computer basics absolute beginner's guide, Windows 10 edition.* Que Publishing.

Web Sources

- https://www.researchgate.net/publication/46055947_Computers_in_Physical_Therapy_Education_Interactive_Multimedia_Learning_with_MuStreT
- https://nsuworks.nova.edu/gscis_etd/584/
- <https://www.hindawi.com/journals/bmri/2022/4552974/>

Course Title: English Communication and Skills
Course Code: BPT1108

L	T	P	Cred its
4	0	0	4

Total Hours: 60

Course Outcomes

On the completion of the course the students will be able to

1. To enhance the personality of students.
2. Understand about the grammatical and idiomatic usages.
3. Gain knowledge about various methods of patient education, barriers of communication and how to overcome them.
4. Become fluent in speaking and enhance the ability to communicate effectively with colleagues, doctors, patients etc. and writing various official letters, writing patients reports and summarize scientific sessions.

Course Content

UNIT I

15 Hours

Tense, Articles, Determiners, Conversations, discussions, dialogues, short presentations, pronunciation, Preposition, Voice, Narration

UNIT II

15 Hours

Paragraph writing; Letter writing; Resume writing, Email writing; Notice writing; Advertisement writing, Teaching the different methods of writing report, case study, collecting the patient data etc.

UNIT III

15 Hours

Basic concepts & principles of good communication, Special characteristics of health communication, Types & process of communication-verbal, non-verbal and written communication, Therapeutic communication: empathy versus sympathy, Communication methods for patient education.

UNIT IV

15 Hours

Doctor Patient Relationship, Privacy, History Taking, Informed Consent, Work Ethics and Medo-legal Aspects.

Transaction Mode

Open learning, Problem solving, Flipped teaching, Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- *English Grammar Composition & Usage by J.C. Nesfield, Macmillan Publishers.*
- *The Business letters by Madan Sood.*
- *Communication Skills by Sanjay Kumar & Pushp Lata.*

Web Sources

- https://www.physio-pedia.com/Effective_Communication_Techniques
- <https://www.collegept.org/rules-and-resources/communication-skills>
- https://www.physio-pedia.com/Communication_Skills

SEMESTER-II**Course Title: HUMAN ANATOMY- II****Course Code: BPT2150**

L	T	P	Cred its
3	0	0	3

Total Hours: 45**Course Outcomes**

On the completion of the course the students will be able to

1. Identify the bony structures and the soft tissues present in scalp, face and cranium.
2. Understand the anatomy and clinical significance of neuroanatomical structures.
3. Develop skills to examine anatomical and physiological disorders of brain based on evidence.
4. Identify physical deformities.

Course Content**UNIT I****11 Hours**

Regional Anatomy- Head & Scalp, Gross anatomy of eyeball, nose.

UNIT II**11 Hours**

Muscles of the face and neck and their nerve and blood supply-extra ocular muscles, triangles of the neck, Gross anatomy of ears and tongue, Temporomandibular joint

UNIT III**11 Hours**

Cranial nerves, Sensory End Organs, Internal Capsule, Pyramidal systems, Extra – pyramidal systems.

UNIT IV**12 Hours**

Neuro – Anatomy, Spinal Cord Segments & Areas. CNS & PNS, Brainstem, Cerebellum, Inferior colliculi, Superior Colliculi, Hypothalamus, Thalamus, Cerebral hemispheres, Functional areas of brain, Corpus striatum, Ventricles of the brain, and Meninges.

Transaction Mode

Lecture, Seminar, e-Team teaching, e-Tutoring, Dialogue, Case based studies Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- Singh Inderbir (2014). *Textbook of Anatomy with colour Atlas*. Vol. 1, 2, 3, Jaypee Brother
- Chaurasia B.D. (2017). *Human Anatomy*. Volume 1, 2, 3. CBS Publishers & Distributors.
- Singh V. (2012). *Anatomy of Head, Neck & Brain*. Elsevier
- Kinetics. Champaign; Illinois.
- Drake, R. L., Vogl, A. W., & Mitchell, A. W. M. (2020). *Gray's anatomy for students (4th ed.)*. Elsevier.
- Netter, F. H. (2019). *Atlas of human anatomy (7th ed.)*. Elsevier.

Web Sources

- <https://www.kenhub.com/en/library/anatomy/extrapyramidal-system>
- <https://my.clevelandclinic.org/health/body/21598-brainstem>

Course Title: HUMAN PHYSIOLOGY- II

Course Code: BPT2151

L	T	P	Credits
3	0	0	3

Total Hours: 45

Course Outcomes

On the completion of the course the students will be able to

1. Understand the functioning of human neurological system.
2. Analyse about the physiological effects of exercise on human body systems.
3. Identify sense organs of the human body and their associated abnormalities.
4. Interpret results of haematological tests.

Course Content

UNIT I

11 Hours

Neuromuscular Physiology, Nerve - structure and function 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, Introduction - Resting membrane potential, Action potential - ionic basis and properties.

UNIT II

12 Hours

Nerve Physiology: Introduction - organization of Nervous System - central and peripheral system, Functions of nervous system, Neuron and classification of nerve fibers, Motor units, Structure of synapse and synaptic transmission, Types and properties of sensory Receptors, types of sensations, Sensory Tracts of Spinal cord - Ascending tracts - posterior column tract, lateral spinothalamic tract and anterior spinothalamic tract - their origin, course, termination and function, Somatic sensations - crude touch, fine touch, tactile localization, tactile discrimination, vibration sense, kinesthetic sensations and stereo gnosis, Pain sensation - mechanism of pain, Cutaneous pain -slow and fast pain, hyperalgesia, Deep pain - visceral pain - referred pain, Gate control theory of pain, Motor Mechanism - Motor pathway, descending tracts - Pyramidal and Extrapyramidal Tracts -origin, course, termination and function. UMN and LMN, Reflex action - component, 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, UMN and LMN, Hemi section and complete section of spinal cord, upper and lower motor neuron lesions, Cerebral Cortex - lobes and Brodmann's area and their functions. Higher functions of cerebral cortex- learning, memory and speech, Blood supply of brain, EEG - Waves and features, Posture and equilibrium - postural reflexes - spinal, medullary, midbrain and cerebral reflexes, Functions of Cerebellum Thalamus and Hypothalamus- functions, Basal ganglia- structure and function, CSF - formation, composition, circulation and functions, Automatic Nervous System - Functions and actions of parasympathetic and sympathetic.

UNIT III

11 Hours

Special senses, Vision - Introduction, Functional anatomy of eyeball, Functions of cornea, iris, pupil, aqueous humor - glaucoma, lens - cataract, vitreous humor, rods and cones. Photopic vision, scotopic vision, visual pathway, 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, Audition- physiological anatomy of ear Functions of external ear, middle ear and inner ear, Structure of cochlea and organ of corti. Auditory pathway, Types of deafness, Test for hearing. Audiometry, Taste - taste buds, primary taste, gustatory pathway ,Smell - Olfactory membrane, olfactory pathway.

UNIT IV**11 Hours**

Physiology of exercise and work: Effects of acute and chronic exercise on - O₂ transport, Muscle strength/power/endurance, Cardiovascular system and Respiratory system, Body fluids and electrolyte, Effect of gravity/altitude/acceleration/pressure on physical parameters.

Transaction Mode

Lecture, Seminar, Case based teaching, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning, Flipped teaching

Suggested Readings

- Ghai, C. L. (2012). *A textbook of practical physiology*. JP Medical Ltd.
- Sembulingam, K., & Sembulingam, P. (2012). *Essentials of medical physiology*. JP Medical Ltd.
- Hall, J. E., & Hall, M. E. (2020). *Guyton and Hall textbook of medical physiology*. Elsevier Health Sciences.
- Ganong, W. F. (2019). *Review of medical physiology (26th ed.)*. McGraw-Hill Education.
- Jain, A. K. (2019). *Textbook of physiology (7th ed.)*. Avichal Publishing Company.

Web Sources

- <https://www.prepladder.com/neet-pg-study-material/physiology/nerve-muscle-physiology>
- <https://thebiotechnotes.com/2019/05/21/special-senses-taste/>

Course Title: PATHOLOGY & Microbiology**Course Code: BPT2152**

L	T	P	Credits
4	0	0	4

Total Hours: 60**Course Outcomes**

On successful completion of this course, the students will be able to:

1. Identify the causes of cell injury, including physical, chemical, and ionizing radiation.
2. Identify factors that promote or delay the healing process.

3. Describe the formation, fate, and effects of thrombosis.
4. Understand metastatic or direct spread of tumors and their effects on various systems, including bones and the spinal cord, leading to conditions such as paraplegia.

Course Content

Pathology

UNIT I

14 Hours

General Pathology-Cell injury-causes, mechanism & toxic injuries with special reference to Physical, Chemical, & ionizing radiation, Reversible injury (degeneration)-types-morphology- swelling, hyaline, fatty changes, Intra-cellular accumulation-hyaline mucin, Irreversible cell injury-types of necrosis- apoptosis – calcification dystrophic & metastasis,

UNIT II

16 Hours

Inflammation & Repair, Acute inflammation – features, causes, vascular & cellular events, Morphological variations, Inflammatory cells & mediators, Chronic inflammation: - causes, types, non-specific & granulomatous – with examples, Wound healing by primary & secondary union factors promoting & delaying healing process, Healing at various sites including-bones, nerve & muscle, Regeneration & repair, Immuno – pathology – (basic concepts)

Microbiology

UNIT I

11 Hours

General Microbiology, Definitions: infections, parasite, host, vector, fomite, contagious disease, infectious disease, epidemic, endemic, pandemic, Zoonosis, Epizootic, Attack rate, Normal flora of the human body, Routes of infection and spread; endogenous and exogenous infections; source at reservoir of infections, Bacterial cell. Morphology limited to recognizing bacteria in clinical samples Shape, motility and arrangement.

Unit II

11 Hours

Virulent Structures, Essentials of bacterial growth requirements, Sterilization, disinfection and universal precautions in relation to patient care and disease prevention, Definition of asepsis, sterilization, disinfection.

Hospital acquired infections, Basic methods of sterilization.
Waste Management.

Transaction Mode

Open learning, Seminars, Group discussions, Lecture, Seminar, e-Team teaching, e-Tutoring, Dialogue, Peer Group Discussion

Suggested Reading

- *Essential Pathology for Physiotherapy Students* by Harsh Mohan
- *Rapid Review Pathology* by Edward F. Goljan
- *Pathology: Implications for the Physical Therapist* by Catherine C. Goodman and Kenda S. Fuller
- *Pathology for the Health Professions* by Ivan Damjanov
- *Robbins and Cotran Pathologic Basis of Disease* by Vinay Kumar, Abul K. Abbas, and Jon C. Aster
- Murray, P. R., Rosenthal, K. S., & Pfaller, M. A. (2020). *Medical microbiology E-book*. Elsevier Health Sciences.
- *Microbiology: An Introduction for the Health Science* - Ackerman and Richards -W.B. Saunders Co.
- *Essential of Medical Microbiology*- Bhatia & Lal Japye Brothers.
- *Microbiology: An Introduction* by Gerard J. Tortora, Berdell R. Funke, and Christine L. Case
- *Microbiology: Principles and Explorations* by Jacquelyn G. Black and Laura J. Black

Web Sources

- [https://www.mcgill.ca/pathology/about/definition#:~:text=Pathology%20is%20a%20branch%20of,the%20whole%20body%20\(autopsy\).](https://www.mcgill.ca/pathology/about/definition#:~:text=Pathology%20is%20a%20branch%20of,the%20whole%20body%20(autopsy).)
- <https://www.rcpath.org/discover-pathology/what-is-pathology.html>
- <https://thrombosis.org/patients/what-is-thrombosis/>
- <https://www.oregon.gov/oha/ph/diseasesconditions/communicabledisease/pages/transmission.aspx>
- <https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections->
- <https://www.sciencedirect.com/topics/medicine-and-dentistry/central-nervous-system-infection>

Course Title: BIOCHEMISTRY-II**Course Code: BPT2153**

L	T	P	Credits
4	0	0	4

Total Hours: 60**Course Outcomes**

On successful completion of this course, the students will be able to:

1. Identify the source of vitamins and their role in maintenance of good health.
2. Analyze the structure and metabolism of basic nucleic acids and enzymes of human body.
3. Identify structures of biomolecules and their chemical reactions essential to life.
4. Apply knowledge of bio chemistry and conduct treatment accordingly.

Course Content**UNIT I****15 Hours**

Vitamins: Classification, fat soluble vitamins, A, D.E & K water soluble vitamin B complex & C, Daily Requirements Physiological functions and diseases of Vitamin deficiency.

UNIT II**15 Hours**

Nucleic acid: Structure and function of DNA and RNA, Nucleoside, nucleotide, Genetic code, biologically important nucleotide, Enzymes: Definitions, mode of action, factor affecting enzyme action, clinical importance of enzyme.

UNIT III**15 Hours**

Water and Electrolyte: Fluid compartment, daily intake and output sodium and potassium metabolism, Nutrition - Balanced diet, Diet for obese, chronically ill and terminally ill patients, BMR – normal values, metabolism in exercise and injury, Nutritional disorders.

UNIT IV**15 Hours**

Isotopes: Isotopes and their role in treatment and diagnosis of diseases, Liver & Renal Function Tests, Biological oxidation: oxidative phosphorylation & ETC in brief.

Transaction Mode

Open learning, Seminars, Group discussions, Lecture, Seminar, e-Team teaching, e-Tutoring, Dialogue, Peer Group Discussion

Suggested Reading

- Satyanarayana, U., & Chakrapani, U. (2008). *Essentials of biochemistry. Book and Allied, Kolkata, India, Textbook of Biochemistry for Medical Students - Vasudeval D.M. (2019) - Jaypee Brothers.*
- Marshall, W. J., Lapsley, M., Day, A., & Ayling, R. (2014). *Clinical Biochemistry: Metabolic and Clinical Aspects. Elsevier Health Sciences.*
- Murray [Robert Kk], *Harper's Bio Chemistry Ed 24, Prentice Hall. 1996*
- Rodwell, V. W., Bender, D., Botham, K. M., Kennelly, P. J., & Weil, P. A. (2018). *Harper's illustrated biochemistry (31st ed.). McGraw-Hill Education.*
- Vasudevan, D. M., Sreekumari, S., & Vaidyanathan, K. (2019). *Textbook of biochemistry for medical students (8th ed.). Jaypee Brothers Medical Publishers.*

Web Sources

- <https://www.technologynetworks.com/genomics/articles/what-are-the-key-differences-between-dna-and-rna-296719>
- <https://www.healthline.com/health/what-is-basal-metabolic-rate>

Course Title: ANTHROPOLOGY

Course Code: BPT2154

L	T	P	Credits
2	0	0	2

Total Hours: 30

Unit-1 : Physical Anthropology:

6 Hours

Preliminary knowledge of Human genetics. Mendel's Laws of heredity Monohybrid and Dihybrid ratio. Definition of Race and Racial criteria, significance of skin colour, Eye form and colour, Head form, and ABa blood groups as racial criteria. Racial classification, distinctive physical features and geographical distribution of the major racial groups of man: Caucasoid, Mongoloid, Negroid and Australoid.

Unit-2 : Prehistoric Archaeology:**6 Hours**

Tool Making: Techniques of manufacturing core and flake tools, primary and secondary flaking, pressure flaking, grinding and polishing. Materials used in making prehistoric tools. Tool families: Pebble tools, Hand axe, Cleaver, Scrapers, Microliths, Points, Blades, Awl, Graver, Celts, Sickles, Spear-head, Arrow-head and Bone tools. **Prehistoric Cultures:** A brief outline of the following prehistoric cultures of the Paleolithic, Mesolithic and Neolithic periods- A comparative study of the salient features of Paleolithic and Neolithic cultures.

Unit-3 : Material culture and economic Anthropology :**8 Hours**

Economic life: meaning and aspects, characteristic features of primitive or simple economic system. **Subsistence economy:** domestication of animals-pastoralism, agriculture-shifting cultivation, horticulture, terrace cultivation and plough cultivation. Brief outline of the methods of hunting, fishing and agriculture with reference to Various communities of North East India as far as practicable.

Unit-4 : Social Anthropology and Ethnography :**10 Hours**

Social Anthropology : Family: Definition, forms and types: nuclear family, joint family, family of orientation, family of procreation, monogamous and polygamous (polygynous and polyandrous). Clustered relationship in a nuclear family. Rules of residence: Patrilocal, matrilocal, neolocal, avunculocal, bi-local, matrilocal. Rules of descent: Patrilineal and matrilineal descent. Functions of family, social nature of family.

Ecology : Meaning and definition of ecology and environment. Elements of the environment: Solid, liquid, and gas. Physical or abiotic environment, biological or biotic environment and sociocultural environment. Man as the main agent to disturb the ecological balance.

Course Title: HUMAN ANATOMY- II LAB**Course Code: BPT2155**

L	T	P	Credits
0	0	2	1

Total Hours: 15**Course Outcomes**

On the completion of the course the students will be able to

1. Identify and demonstrate parts of human nervous system on a model.
2. Recognize the structure of human organs.
3. Analyse the structure and clinical relevance of each bone, joint and muscle.
4. Develop competency to palpate major surface landmarks.

Course Content

Surface Anatomy: To study, identify and mark the surface landmarks on human body, To study the muscles of face, upper and lower extremities on a dissected human body, To study the bones of human body including cranium, Temporomandibular joint with special emphasis on origin on a dissected human muscles and ligaments, To study the anatomy of joints of upper and lower extremities, face and cranium on models, charts and CDs, To study motor areas of brain, To study the anatomy of C.N.S. and P.N.S. on models, charts and CDs.

Transaction Mode

Demonstration method, Team teaching, Video based teaching

Suggested Readings

- Singh, I. (2011). *Textbook of Anatomy: Volume 1: Upper Extremity, Lower Extremity (Vol. 1). Elsevier Health Sciences.*
- Singh, I. (2011). *Textbook of Anatomy: Volume 3: Head and Neck, Central Nervous System (Vol. 3). Elsevier Health Sciences.*
- Singh, V. (2014). *Textbook of Anatomy Abdomen and Lower Limb; Volume II (Vol. 2). Elsevier Health Sciences.*
- Chaurasia, B. D. (1996). *BD Chaurasia's Handbook of General Anatomy. CBS.*
- Koshi, R. (2017). *Cunningham's manual of practical anatomy (16th ed.). Oxford University Press.*
- Rohen, J. W., Yokochi, C., & Lütjen-Drecoll, E. (2015). *Color atlas of anatomy: A photographic study of the human body (8th ed.). Lippincott Williams & Wilkins.*

Web Sources

- <https://courses.lumenlearning.com/wm-biology2/chapter/the-central-and-peripheral-nervous-systems/>
- <https://www.kenhub.com/en/library/anatomy/upper-extremity-anatomy>

Course Title: HUMAN PHYSIOLOGY - II LAB

Course Code: BPT2156

			Cred
L	T	P	its
0	0	2	1

Total Hours: 15

Course Outcomes

On the completion of the course the students will be able to

1. Examine hemoglobin percentage draw inference on their basis.
2. Identify bleeding and clotting time.
3. Identify values of ESR and to study different types of blood group.
4. Develop skills to examine auscultation and ECG.

Course Content

Hemoglobin percentage and color index, Bleeding time and clotting time, E.S.R. and Blood groups, To study the following Physiological Phenomenon: -Respiratory rate and Auscultation. Normal E.C.G.

Transaction Mode

Demonstration method, Case based teaching, Video based teaching, Group Discussion.

Suggested Readings

- Ghai, C. L. (2012). *A textbook of practical physiology*. JP Medical Ltd.
- Sembulingam, K., & Sembulingam, P. (2012). *Essentials of medical physiology*. JP Medical Ltd.
- Hall, J. E., & Hall, M. E. (2020). *Guyton and Hall textbook of medical physiology*. Elsevier Health Sciences.
- Jain, A. K. (2019). *Practical physiology (4th ed.)*. Avichal Publishing Company.
- Jaypee, A. K. (2016). *Manual of practical physiology for BDS and MBBS students (2nd ed.)*. Jaypee Brothers Medical Publishers.

Web Sources

- https://www.medicine.mcgill.ca/physio/vlab/bloodlab/hemostasis_n.htm
- <https://www.testing.com/tests/erythrocyte-sedimentation-rate-esr/>

Total Hours- 30

L	T	P	Credits
0	0	4	2

Total Hours: 30

Course Title: CLINICAL ORIENTATION

Course Code: BPT1107

Course Outcomes

On successful completion of this course, the students will be able to:

1. Gain firsthand experience in a professional lab setting, enhancing understanding of clinical procedures and protocols.

2. Learn about various laboratory equipment and tools used in physiotherapy and their specific functions.
3. Work collaboratively with peers, fostering teamwork and communication skills.
4. Gain skills in designing individualized exercise programs based on patient needs, conditions, and goals.

Course Content

Students visit the labs.

Introduction to Exercise Therapy Protocols

Introduction to Electrotherapy Protocols

Subjective Assessment of the patients

Interaction with patients

Transaction Mode

Lecture, Seminar, e-Team teaching, e-Tutoring, Dialogue, Case based studies Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- *Introduction to Physical Therapy and Patient Skills by Mark Dutton*
- *Physical Rehabilitation by Susan B. O'Sullivan and Thomas J. Schmitz*
- *Principles of Rehabilitation Medicine" by Raj Mitra*
- *Orthopedic Physical Assessment" by David J. Magee*
- *The Physiotherapist's Pocketbook: Essential Facts at Your Fingertips" by Karen Kenyon and Jonathan Kenyon*

Web Sources

- <https://www.stcharleshealthcare.org/professionals/clinical-orientation>
- <http://www.centrahealth.com/caregiver-onboarding/clinical-orientation>

Course Title: Human Values and Professional Ethics	L	T	P	Cr.
Course Code: VAC0002	2	0	0	2

Total Hours: 30

Course Learning Outcomes: After completion of this course, the learner will be able to:

1. Understand the essence of Indian ethos, cultural values and ethical principles derived from scriptures, integrating self-exploration with scientific inquiry.
2. Analyze human values, self-awareness and ethical decision-making by distinguishing between perspectives, ideologies and universal moral principles.
3. Evaluate constitutional values, global responsibilities and the role of ethics in citizenship while promoting inclusivity and social welfare.
4. Develop essential life skills, stress management techniques and holistic well-being through mindfulness, self-discipline and personality development.

Course Content

Unit-I Introduction to Indian Ethos

7 Hours

Meaning of ethos and cultural essence of India, Scriptures as the base of the Indian Knowledge System (IKS), Integrating the two methodologies: interiorization process for self-exploration and exterior scientific pursuit for the prosperity of world, The Law of Karma and Nishkama Karma (The Law of action and selfless action), Practical: Five hours of Yoga practice per week, Ethics through Music and Indian Poetry, Community Engagement

Unit-II Human Values and Ethics

8 Hours

Knowing the Self and the universal values that we stand for. This is self-enquiry & self-discovery, Background conversations and deep listening, recognizing the assumptions that we make, the biases we have and the implications for ethical action. Self-identity: distinguishing and embracing oneself (and others) four profiles (inner potential, social, professional, personality), Distinguish ideology, perspectives beliefs from embodying values. Practical: Self discovery, self enquiry and Mindfulness, Yama & Niyama of Ashthang Yoga

Unit-III Constitutional Values, Global Responsibility & Skills for Youth

7 Hours

Values embedded in the Preamble of the Indian Constitution, Integration of Human Rights and duties. Principles and responsibilities: as citizens of India, towards global environment, Loksangraha and Vasudhaiva Kutumbakam, Conscious Full Spectrum Response model. Distinguishing judgement from discernment, Practical: Development of concentration among students through music, fine arts, mathematics, sports, yoga and mindfulness

Unit-IV Integrated Personality and Well-being

8 Hours

The three gunas (qualities of sattva—purity and harmony, rajas —activity and passion, tamas —darkness and chaos), the four antah-karanas (inner instruments) and panch kosha (five sheaths), Stress management, Oneness, non-duality and

equanimity, Physical, mental, social and spiritual well-being. Practical: Talks on importance of the Ayurvedic concept of well-being and nutrition, sports activities.

Reference Books:

- Mahadevan, B., Bhat, V.R. and Nagendra, P.R.N. 2022. Introduction to Indian Knowledge System. Delhi: PHI.
- Human Values and Professional Ethics by R R Gaur, R Sangal, G P Bagaria, Excel Books, New Delhi, 2010.
- Kashyap, Subhash C. 2019. Constitution of India. A handbook for students. New Delhi: National Book Trust.
- Dr. Awadesh Pradhan, Mahamana ke Vichara“. (B.H.U., Vanarasi 2007)
- Harold Koontz & Heinz Weihrich, Essentials of Management, Tata McGraw Hill.
- Lama, D. 2012. Beyond Religion: Ethics for a Whole World. India: Harper Collins.
- Shrimad Bhagavad-Gita (Part of the Mahabharata). 1994. Gorakhpur: Gita Press. Swami Harshananda. 2000. The Birds' Eye View of the Vedas. Bangalore: Ramakrishna Math.
- Fontaine, D. K., Rushton, C. H. and Sharma, M. 2013. Cultivating Compassion and Empathy. In: M. Plews-Ogan and G. Beyt (Eds.), Wisdom Leadership in academic Health Science Centers- Leading Positive Change. London: Radcliffe Publishing.
- Blanchard, Kenneth and Peale, Norman Vincent. 1988. The Power of Ethical Management. New York: William Morrow and Company, Inc.
- Gandhi, Mohandas Karamchand. 1971. Pathway to God compiled by MS Deshpande. Ahmedabad: Navajivan Mudranalaya, Navjivan Trust.
- Gardner, H. 2006. Five Minds for the Future. Boston: Harvard Business School Press.
- Rodriguez, S. and Juvva, S. 2018. Embodying Universal Values and Ethical Leadership in Higher Education: Creating Change Agents for Social Transformation. In B. Chatterjee, A. Banerji and P. Arya (Eds.). Resolution to Resolve: Sustainability Practices in Industry and Education. New Delhi: Bloomsbury
- [ISBN: 978-938-74-7168-9]
- Sharma, M. 2017. Radical Transformational Leadership: Strategic Action for Change Agents. Berkeley, US: North Atlantic Books.

Web Sources:

- <https://www.holy-bhagavad-gita.org/>

- <https://iksindia.org/>
- NPTEL Course: Exploring Human Values: Visions of Happiness and Perfect Society
- <https://ebooks.inflibnet.ac.in/hrmp01/>

SEMESTER-III**Course Title: EXERCISE THERAPY- I****Course Code: BPT3200**

L	T	P	Credits
3	0	0	3

Total Hours: 45**Course Outcomes**

On the completion of the course the students will be able to

1. Describe the basic concepts of therapeutic exercises.
2. Design a protocol including therapeutic exercises for different conditions.
3. Plan an exercise protocol specific to a particular condition.
4. Modify and improve exercise therapy outcomes according to the needs and abilities of the patient.

Course Content**UNIT I****11 Hours**

Introduction to exercise therapy and Muscle Work, Aims, techniques of exercise therapy and general areas of its application, Group action of muscles, Angle of pull, Mechanical efficiency of muscles, Muscle fibre type, motor unit, Causes of decreased muscle performance, Causes of immobility.

UNIT II**11 Hours**

Starting Positions: Describe the following fundamental starting positions and their derived positions including joint position, their muscle work, effects and uses, Standing, Kneeling, Sitting, Lying, and Hanging, Derived Positions, Introduction to Movements Analysis of joint motion, Muscle work, Neuro – muscular coordination.

UNIT III**11 Hours**

Free exercise, and: Classification, principles, techniques, indications, contraindications, effects and uses. Principles, techniques, indications, contraindications, effects and uses; Active Movements: Classification, principles, techniques, indications, contraindications, effects and uses. Principles, techniques, indications, contraindications, effects and uses; Active assisted exercises- Definition,

principles, techniques, indications, contraindications, precautions, effects and uses; Classification of Passive movements: Principles of giving passive movements, Indications, contraindications, effects and uses, Techniques of giving passive movements.

UNIT IV

12 Hours

Definition of strength, power & work, endurance, muscle actions, Physiology of muscle performance: structure of skeletal muscle, chemical & mechanical events during contraction & relaxation, Physiologic adaptation to training: Strength & Power, Endurance, Resisted exercises- Types of resisted exercises: Manual and Mechanical resistance exercise, Isometric exercise, Dynamic exercise: Concentric and Eccentric, Dynamic exercise: Constant versus variable resistance, Isokinetic exercise, Open-Chain and Closed-Chain exercise.

Transaction Mode

Lecture, Demonstration method, flipped teaching, Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning, Video based teaching, Demonstration method, Flipped teaching

Suggested Readings

- *Kisner, C., Colby, L. A., & Borstad, J. (2017). Therapeutic exercise: foundations and techniques. Fa Davis. The Principle of Exercise Therapy -Gardiner (2005) - C.B.S.Delhi.*
- *Norkin, C. C., & White, D. J. (2016). Measurement of joint motion: a guide to goniometry. FA Davis.*
- *Gardiner, M. D. (1973). Principles of Exercise Therapy: M Dena Gardiner.*
- *Powers, S. K., & Howley, E. T. (2020). Exercise physiology: Theory and application to fitness and performance (11th ed.). McGraw-Hill Education.*
- *Ehrman, J. K., Gordon, P. M., Visich, P. S., & Keteyian, S. J. (2019). Clinical exercise physiology (5th ed.). Human Kinetics.*

Web Sources

- <https://www.vedantu.com/evs/muscle-fibre>
- https://mgumst.org/pdf/naac/Final_Nsg.PPT_PDF/Medical/Physiotherapy/DR%20CHANDAN/Resisted%20exercises.pdf

Course Title: ELECTRO THERAPY- I**Course Code: BPT3201**

L	T	P	Credits
3	0	0	3

Total Hours: 45**Course Outcomes**

On the completion of the course the students will be able to

1. Understand the clinical relevance of various electrotherapy modalities.
2. Choose appropriate modality for treatment based on patient assessment.
3. Apply therapeutic modalities clinically.
4. Become proficient in conducting electro-diagnostic tests.

Course Content**UNIT I****11 Hours**

Superficial Heating modalities, Moist heat - Hydro collator packs – in brief, Methods of applications, Therapeutic uses, Indications & Contraindications, Paraffin wax bath - Principle of Wax Therapy application – latent Heat, Composition of Wax Bath Therapy unit, Methods of application of Wax, Physiological & Therapeutic effects, Indications & Contraindication, Dangers, Electrical heating pads.

UNIT II**11 Hours**

Low Frequency Currents: Basic types of current – Direct Current: types, physiological & therapeutic effects, Alternating Current, Types of Current used in Therapeutics. Modified D.C - Faradic Current and Galvanic Current Modified A.C - Sinusoidal Current, Faradic Current: Definition, Modifications, Techniques of Application of Individual, Muscle and Group Muscle stimulation, Physiological & Therapeutic effects of Faradic Current, Precautions, Indications & Contra-Indications, and Dangers, Faradic foot bath, Faradism under pressure.

UNIT III**11 Hours**

Galvanic Current: Definition, Modifications, Physiological & Therapeutic effects of Galvanic Current, Indications & Contra-Indications, Dangers, Effect of interrupted galvanic current on normally innervated and denervated muscles and partially Denervated muscles, Iontophoresis: Techniques of Application of Iontophoresis, Indications, Selection of Current, commonly used Ions (Drugs) for pain, hyperhidrosis, wound healing, Principles of Application: Electrode tissue interface, Tissue Impedance, Types of Electrode, Size of Electrode – Water bath, Unipolar, Bi-polar, Electrode coupling, Current flow in tissues, Lowering of Skin Resistance.

UNIT IV**12 Hours**

Transcutaneous Electrical Nerve Stimulation (TENS): Theories of Pain, Define TENS. Types of TENS - Conventional TENS, Acupuncture TENS, Burst TENS, Brief & Intense TENS, Modulated TENS, Theories of pain relief by TENS, Principles of clinical application, Dosage parameters, Physiological & Therapeutic effects, Indications & Contraindications, Ultrasound: Piezoelectric Effect, Definitions, Methods of application Principles of clinical application, Dosage parameters, Physiological & Therapeutic effects, Indications & Contraindications.

Transaction Mode

Lecture, Demonstration method, flipped teaching, Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning, Video based teaching, Demonstration method, Flipped teaching

Suggested Readings

- *Electrotherapy Explained: Principles & Practice* Low & Reed, Butterworth Heinemann.
- *Claytons Electro therapy*, Forster & Palastange (2005), CBS publishers
- *Therapeutic Heat & Cold*, Lehmann, Williams & Wilkins.
- *Textbook of Electrotherapy*, Jagmohan Singh (2012), Jay pee publishers.
- *Principles & Practice of Electrotherapy*, Joseph Kahn (2000) Churchill Livingstone.

Web Sources

- <https://mobilephysiotherapyclinic.in/strength-duration-curvesdc/>
- <https://uihc.org/health-topics/transcutaneous-electrical-nerve-stimulator-tens>
- <https://recover.centre.uq.edu.au/treatment/galvanic-current>

Course Title: Pathology & MICROBIOLOGY**Course Code: BPT3202**

L	T	P	Cred its
4	0	0	4

Total Hours: 60**Course Outcomes**

On the completion of the course the students will be able to

- Understand various mechanisms causing injury.
- Apply the knowledge of functioning of immune system while dealing with patients.
- To learn about various disorders affecting human body.
- Understanding and differentiating infections caused by variety of microbes.

Course Content**Pathology****UNIT III****15 Hours**

Circulatory disturbances, Edema - pathogenesis - types - transudates / exudates, Chronic venous congestion- lung, liver, spleen, Thrombosis – formation – fate – effects, Embolism – types- clinical effects, Infarction – types – common sites, Gangrenes – types – action, pathogenesis, Shock - Pathogenesis, types, morphologic changes, Growth Disturbance, Atrophy-malformation, agenesis, dysplasia,

UNIT IV**15 Hours**

Neoplasia classification, histogenesis, biologic behaviors, difference between benign & malignant tumor , Tumor & host interactions – systemic effects-metastatic or direct spread of tumors affecting bones, spinal cord, leading to paraplegia, etc.

Microbiology**UNIT III****15 Hours**

Basic principles of immunity immunobiology: lymphoid organs and tissues, Antigen, Antibodies, antigen and antibody reactions with relevance to pathogenesis and serological diagnosis, Humoral immunity and its role in immunity Cell mediated immunity and its role in immunity. Immunology of hypersensitivity, measuring immune functions,

Unit IV**15 Hours**

Streptococcal infections: Rheumatic fever and Rheumatic heart disease, Meningitis, Tuberculosis, Pyrexia of unknown origin, leprosy, Poliomyelitis, Hepatitis, Acute respiratory infections, Central nervous System infections, Urinary tract infections, Pelvic inflammatory disease, Wound infection Opportunistic infections, HIV infection, Malaria, Filariasis, Zoonotic diseases.

Transaction Mode

Lecture, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- *Essential Pathology for Physiotherapy Students* by Harsh Mohan
- *Rapid Review Pathology* by Edward F. Goljan
- *Pathology: Implications for the Physical Therapist* by Catherine C. Goodman and Kenda S. Fuller
- *Pathology for the Health Professions* by Ivan Damjanov
- *Robbins and Cotran Pathologic Basis of Disease* by Vinay Kumar, Abul K. Abbas, and Jon C. Aster
- Murray, P. R., Rosenthal, K. S., & Pfaller, M. A. (2020). *Medical microbiology E-book*. Elsevier Health Sciences.
- *Microbiology: An Introduction for the Health Science* - Ackerman and Richards -W.B. Saunders Co.
- *Essential of Medical Microbiology*- Bhatia & Lal Japye Brothers.
- *Microbiology: An Introduction*" by Gerard J. Tortora, Berdell R. Funke, and Christine L. Case
- *Microbiology: Principles and Explorations*" by Jacquelyn G. Black and Laura J. Black

Web Sources

- <https://thrombosis.org/patients/what-is-thrombosis/>
- <https://www.oregon.gov/oha/ph/diseasesconditions/communicabledisease/pages/transmission.aspx>
- <https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections->
- <https://www.sciencedirect.com/topics/medicine-and-dentistry/central-nervous-system-infection>

Course Title: BIOMECHANICS-I**Course Code: BPT3203**

L	T	P	Credits
3	0	0	3

Total Hours: 45**Course Outcomes**

On successful completion of this course, the students will be able to:

1. Identify and comprehend the components of biomechanics.
2. Classify human joints based on structure, design and function.
3. Describe the structure, kinetics and kinematics of the human vertebral column.
4. Apply the concepts of biomechanics while rehabilitation.

Course Content**UNIT I****11 Hours**

Basic Concepts of Biomechanics

Motion – Type, location, direction, duration, action and magnitude of motion

Force – definition, reaction force, equilibrium, objects in motion, force of friction, parallel force system, concurrent force system, work, moment arm of force, force components;

UNIT II**11 Hours**

Levers – types of levers and equilibrium of levers; Centre of gravity, line of gravity, stability and equilibrium; Joint Structure and Function; Basic principles of Joint design and material used in human joint; General properties of connective tissues; Joint motion - Kinematics chains and range of motion; Mobility and stability functions of muscle; Elements of muscle structure and its properties; Types of muscle contractions and muscle work; Muscle functions.

UNIT III**11 Hours**

The Biomechanics of peripheral joints of upper limb

Shoulder complex – structure and components of shoulder complex and their integrated functions.

UNIT IV**12 Hours**

Elbow complex– structure and functions of elbow joint – humeroulnar and humeroradial articulations, superior and inferior radioulnar joints; mobility and stability of elbow complex, Wrist & Hand complex – structural components and functions of wrist complex, structure of hand complex, functional position of wrist and hand.

Course Title: EXERCISE THERAPY - I LAB**Course Code: BPT3204**

L	T	P	Credits
0	0	2	1

Total Hours: 15**Course Outcomes**

On the completion of the course the students will be able to

1. Classify various types of exercises.
2. Identify the fundamental positions of various joints of the body.
3. Analyse different types of muscle work and muscle contraction.
4. Identify group action of muscles.

Course Content

To practice the relaxed passive movement, assisted movements and resisted movements region wise, To study the position of joints, muscle work, and stability of various fundamental and derived positions, To study the different types of muscle contraction, muscle work, To study group action of muscles and co-ordinated movements.

Transaction Mode

Demonstration method, Team teaching, Video based teaching

Suggested Readings

- Kisner, C., Colby, L. A., & Borstad, J. (2017). *Therapeutic exercise: foundations and techniques*. Fa Davis.
- The Principle of Exercise Therapy -Gardiner (2005) - C.B.S.Delhi.
- Norkin, C. C., & White, D. J. (2016). *Measurement of joint motion: a guide to goniometry*. FA Davis.
- Gardiner, M. D. (1973). *Principles of Exercise Therapy*: M Dena Gardiner.
- Powers, S. K., & Howley, E. T. (2020). *Exercise physiology: Theory and application to fitness and performance (11th ed.)*. McGraw-Hill Education.
- Ehrman, J. K., Gordon, P. M., Visich, P. S., & Keteyian, S. J. (2019). *Clinical exercise physiology (5th ed.)*. Human Kinetics.

Web Sources

- <https://www.webmd.com/fitness-exercise/difference-between-passive-range-of-motion-and-active-range-of-motion>
- https://link.springer.com/referenceworkentry/10.1007/978-0-387-30440-3_341

Course Title: ELECTRO THERAPY-I LAB	L	T	P	Credits
Course Code: BPT3205	0	0	2	1

Total Hours- 15**Course Outcomes**

On successful completion of this course, the students will be able to

1. Differentiate between the types of therapeutic currents based on their frequency
2. Choose appropriate modality for treatment based on patient assessment
3. Apply therapeutic modalities clinically
4. Conduct electro-diagnostic tests with proficiency

Course Content

To experience sensory and motor stimulation of nerves and muscles by various types of low frequency currents oneself, To locate and stimulate different motor points region wise including the upper & lower limb, trunk and face, To study a Biofeedback unit its operation and different methods of application region wise, Therapeutic application of different low frequency current, Faradic foot bath, faradism under pressure, Iontophoresis, To plot strength duration curve, To study a TENS simulator, its operator and application region wise.

Transaction mode

Open learning, Case based teaching, Video based teaching

Suggested readings

- Robertson, V., Ward, A., Low, J., Reed, A., & MCSP, D. (2006). *Electrotherapy explained: principles and practice*. Elsevier Health Sciences. Claytons Electro therapy, Forster & Palastange (2005), CBS publishers.
- Watson, T. (Ed.). (2008). *Electrotherapy: evidence-based practice*. Elsevier Health Sciences.
- Singh, J. (2012). *Textbook of electrotherapy*. Jaypee Brothers Publishers.
- Nelson, R. M., & Gesch, D. H. (1998). *Clinical electrotherapy* (2nd ed.). Prentice Hall.
- Kitchen, S., & Watson, T. (2011). *Electrotherapy in rehabilitation* (3rd ed.). Churchill Livingstone.
- **Web Sources**
- <https://www.yourphysio.in/blogs/how-faradic-foot-bath-helps-people-with-flat-foot>
- <https://www.verywellhealth.com/iontophoresis-in-physical-therapy-2696534>

Course Title: Biomechanics-I Lab	L	T	P	Credits
Course Code: BPT3206	0	0	2	1

Total Hours- 15**Course Outcomes**

On the completion of the course the students will be able to:

1. Analyze the planes and axis for various joint movements.
2. Describe individual and group action of different human muscles.
3. Gain competence to identify muscle action and movements.
4. Proficiently undertake postural and gait analysis.

Course Content

To study the effects of forces on objects. To find out the C.G. of an object. To study anatomical levers.

To name and sketch the anatomical movements of vertebral column in various planes, as observed.

To study different types of muscle contraction, muscle work, group action of muscles, resolution of muscular forces at different joints, coordinated movements.

Postural and gait analysis

Transaction Mode

Lecture, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- *Joint Structure and Function – A Comprehensive Analysis* - Norkins & Levangie (2011) - F.A. Davis.
- *Measurement of Joint Motion – A Guide to Goniometry* - Norkins & White (2009) - F.A. Davis
- Hall, S. J. (2019). *Basic biomechanics* (8th ed.). McGraw-Hill Education.
- White III, A. A., & Panjabi, M. M. (1990). *Clinical biomechanics of the spine* (2nd ed.). Lippincott Williams & Wilkins.
- Hamill, J., Knutzen, K. M., & Derrick, T. R. (2014). *Biomechanical basis of human movement* (4th ed.). Wolters Kluwer Health/Lippincott Williams & Wilkins.

Web Sources

- <http://physioknowledgebd.blogspot.com/2016/03/group-action-of-muscles.html>
- https://www.physio-pedia.com/Centre_of_Gravity

Course Title: CLINICAL ORIENTATION	L	T	P	Credits
Course Code: BPT3207	0	0	4	2

Total Hours: 30**Course Outcomes**

On successful completion of this course, the students will be able to:

1. Gain firsthand experience in a professional lab setting, enhancing understanding of clinical procedures and protocols.
2. Learn about various laboratory equipment and tools used in physiotherapy and their specific functions.
3. Work collaboratively with peers, fostering teamwork and communication skills.
4. Gain skills in designing individualized exercise programs based on patient needs, conditions, and goals.

Course Content

Students visit the labs.

Exercise Therapy

Electrotherapy Modalities

Subjective Assessment of the patients

Interaction with patients

Transaction Mode

Lecture, Seminar, e-Team teaching, e-Tutoring, Dialogue, Case based studies Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- *Introduction to Physical Therapy and Patient Skills* by Mark Dutton
- *Physical Rehabilitation* by Susan B. O'Sullivan and Thomas J. Schmitz
- *Principles of Rehabilitation Medicine* by Raj Mitra
- *Orthopedic Physical Assessment* by David J. Magee
- *The Physiotherapist's Pocketbook: Essential Facts at Your Fingertips* by Karen Kenyon and Jonathan Kenyon

Web Sources

- <https://www.stcharleshealthcare.org/professionals/clinical-orientation>
- <http://www.centrahealth.com/caregiver-onboarding/clinical-orientation>

Course Title: Indian Education	L	T	P	Cr.
Course Code: IKS0002	2	0	0	2

Total Hours: 30**Course Learning Outcomes:**

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

1. Understand the Indian Education Pre-Vedic and Post Vedic Period
2. Critically analyse the Paravidhya and Apravidhya in Indian education
3. Examine the methods of Vedas, Jainism and Bhodhsim Education
4. Development the curriculum according to Vedas, Jainism and Bhodhsim

Course Content**Unit-I****7 Hours**

Religion and Philosophy in India: Ancient Period: Pre-Vedic and Vedic Religion, Buddhism and Jainism, Indian philosophy – Vedanta and Mimansa school of Philosophy

Unit-II**7 Hours**

Paravidya: Relation between God and Self and Aparavidya: Vedas, Vedangas, Rituals, Astronomy, Ithihasas, Puranas, Ethics and Military sciences etc.

Unit-III**8 Hours**

Methods of teaching: Vedic Education: - Saravana, Manana, Nididhyasana and Intuition/revelation Jainism – Matigyan, saruti Gyan, Avvidhiya gyan, Man: Paryav, Kaveleye

Bhodhsim- Direct and application Method, Lecture Method, Practice Method, Knowledge through conversation, Questioner answer Method

Unit-IV**8 Hours**

Vedas- Mantel Development, Physical Development and Seprulity development, Jainism- Dravye, Astikay and Anistakay

Bhodhisim- four Arya Truth (Shabad Vidhya, Chikitsya Vidhya and Shilpasana Vidhya, Hetu Vidhya and Adhyatma Vidhya)

Transactional Mode

Seminars, Group discussion, Team teaching, Focused group discussion, Assignments, Project-based learning, Simulations, reflection and Self-assessment

Suggested Readings

- Chaudhuri, Kirti N.: Trade and Civilisation in the Indian Ocean, CUP, Cambridge, 1985.
- Malekandathil, Pius: Maritime India: Trade, Religion and Polity in the Indian Ocean, Primus Books, Delhi, 2010.
- McPherson, Kenneth: The early Maritime Trade of the Indian Ocean, in: ib.: The Indian Ocean: A History of People and The Sea, OUP, 1993, pp. 16-75.
- Christie, J.W., 1995, State formation In early Maritime Southeast Asia, BTLV
- Christie, J.W., 1999, The Banigrama in the Indian Ocean and the Java sea during the early Asian trade boom, Communauté's maritimes de l'océan indien, Brepols
- De Casparis, J.G., 1983, India and Maritime Southeast Asia: A lasting Relationship, Third
- Sri Lanka Endowment Fund Lecture.
- Hall, K.R., 1985, Maritime Trade and State development in early Southeast Asia, Honolulu.
- Walters, O.W., 1967, Early Indonesian Commerce, Ithaca.
- Baladev Upadhyaya, *Sanskṛta Śāstram ka Itihās*, Chowkhambha, Varanasi, 2010.
- D. M. Bose, S. N. Sen and B. V. Subbarayappa, Eds., *A Concise History of Science in India*, 2nd Ed., Universities Press, Hyderabad, 2010.

Chakravarti, Ranabir: Merchants, Merchandise & Merchantmen, in: Prakash, Om (ed.): The Trading World of the Indian Ocean, 1500-1800 (History of Science, Philosophy and Culture in Indian Civilization, ed. by D.P. Chattopadhyaya, vol. III, 7), Pearson, Delhi, 2012

Course Title: ERGONOMICS AND HUMAN FACTORS

Course Code: BPT3208

L	T	P	Credits
4	0	0	4

Total Hours: 60

Course Outcomes

On successful completion of this course, the students will be able to

1. Explain the idea of safety culture and its importance in work place.
2. Identify hazards and assess risk techniques at work place.
3. Critically analyse work place demands and modify dysfunctional body postures.
4. Prescribe ergonomic management at work place.

Course Content

UNIT I

15 Hours

Introduction to Ergonomics and Health promotion
Biopsychosocial factors related to ergonomic practices

UNIT II

15 Hours

Health Care systems (Primary, secondary, tertiary)
Identify and evaluate task specific Musculoskeletal impairments among different professionals using surface EMG/ 2D analysis

UNIT III

15 Hours

Functional Capacity assessment
Work Hazards assessment (Vibration as risk factor, temperature, light, environment)

UNIT IV

15 Hours

Management of impairments- Work conditioning, Work simulation & work hardening as per demands of occupation

Transaction mode

Open learning, Problem solving, Task based teaching

Suggested readings

- *Introduction to Human Factors and Ergonomics*, Robert Bridger, 2017
- *Human Factors and Ergonomics Design Handbook*, Third Edition, Barry Tillman, 2016
- *Handbook of Human Factors and Ergonomics*, by Gavriel Salvendy, 2021.
- *Work Measurement and Ergonomics*, by Robert Wayne Atkins P.E., 2019.
- Srivastava, K. K. (2019). *Occupational ergonomics: Principles and applications* (2nd ed.). CRC Press.
- Bridger, R. S. (2008). *Introduction to ergonomics* (3rd ed.). CRC Press.

Web Sources

- <https://www.ergonomicshelp.com/blog/functional>
- <https://functionalergonomics.com/ergonomic-solutions>
- <https://www.ergotron.com/en-us/ergonomics>

Course Title: Basics of Emergency Management

Course Code: BPT3209

L	T	P	Credits
4	0	0	4

Total Hours: 60

Course Outcomes

On successful completion of this course, the students will be able to

1. Identify the organization and functioning of an emergency unit
2. Accomplish patient transfers efficiently
3. Provide resuscitation in case of emergencies
4. Examine the vital signs to establish the condition of the patient

Course Content**UNIT I**

15 Hours

Functioning of an ideal emergency medicine department, Concept of triage a. Components of triage b. Triage officer c. Triage procedure, Multiple and mass casualties: Difference between multiple and mass casualties, Disaster preparedness,

Basic principle, description, types, usage, calibration and maintenance of: Electrocardiograph, Multi-parameter monitors, Defibrillator, AED, ventilator.

UNIT II

15 Hours

Ambulance services, Responding to a call, Emergency vehicle operations, Position and Transport of patient, Patient position, prone, lateral, dorsal, dorsal recumbent, Fowler's positions, comfort measures, bed making, rest and sleep, Lifting and transporting patients: lifting patients up in the bed, transferring from bed to wheel chair, transferring from bed to stretcher.

UNIT III

15 Hours

Principles of resuscitation, Sudden cardiac death, Cardiac, respiratory arrest, Basic cardiopulmonary resuscitation in adults, Advanced cardiac life support, Resuscitation in neonates, pediatrics and resuscitation in pregnancy, Hand washing and hygiene, Injuries and Personal protection, Insulation and safety procedures, Aseptic techniques, sterilization and disinfection.

UNIT IV

15 Hours

Specific resuscitation procedures, Airway management, Breathing and ventilation management, Venous and intraosseous access, Defibrillation and cardio version, Fluid and blood resuscitation, Vasoactive agents in resuscitation, Arrhythmias.

Transaction mode

Open learning, Problem solving, Task based teaching

Suggested readings

- Behara, R., Wears, R. L., Perry, S. J., Eisenberg, E., Murphy, L., Vanderhoef, M., ... & Cosby, K. (2005). *A conceptual framework for studying the safety of transitions in emergency care.*
- Caroline, N. L. (2007). *Emergency care in the streets.* Jones & Bartlett Learning.
- Watkinson, D., & Neal, V. (1998). *First aid for finds. Rescue.*
- Limmer, D., O'Keefe, M. F., & Grant, H. T. (2020). *Emergency care (14th ed.).* Pearson.
- American Academy of Orthopaedic Surgeons (AAOS). (2018). *Emergency medical responder: Your first response in emergency care (7th ed.).* Jones & Bartlett Learning.

Web Sources

- <https://www.medicalnewstoday.com/articles/153849>
- <https://www.verywellhealth.com/basic-first-aid-procedures-1298578>
- <https://www.healthline.com/health/first-aid>

SEMESTER-IV**Course Title: EXERCISE THERAPY- II****Course Code: BPT4250**

L	T	P	Cred its
3	0	0	3

Total Hours: 45**Course Outcomes**

On the completion of the course the students will be able to

1. Proficiency in performing complete assessment and evaluation of a patient.
2. Develop skills for providing manual therapy interventions to the patients.
3. Treating patients with loss of function.
4. Train the patients regarding optimal posture and balance control.

Course Content**UNIT I****12 Hours**

Therapeutic Exercises: Principle, classification and techniques. Physiological & therapeutic effects. Indications & contraindications of therapeutic exercises. Assessment & evaluation of a patient (region wise) to plan a therapeutic exercise program, Joint Mobility: Etiogenesis of Joint stiffness. General techniques of mobilization, Effects, indications, contraindications & precautions, Stretching: Definition of terms related to stretching; tissue response towards immobilization and elongation. Determinants of stretching exercises. Effects of stretching. Inhibition and relaxation procedures, Precautions and contraindications of stretching. Techniques of stretching. Continuous Passive Motion (CPM)

UNIT II**11 Hours**

Muscle Insufficiency: Etiogenesis of muscle insufficiency (strength, tone, power, endurance & volume) General techniques of strengthening. Effects, indication, contraindications & precautions, Suspension Therapy: Definition, principles, equipment's & accessories, Indications & contraindications. Benefits of suspension therapy, Types of suspension therapy – axial, vertical, pendulum. Techniques of suspension therapy for upper limb & lower limb, Functional re-education: General therapeutics techniques to re-educate ADLs functions, Lying to sitting - Mat activities. Sitting activities and gait, Lower limb and upper limb activities.

UNIT III**11 Hours**

Breathing Mechanism: Review normal breathing; types, techniques, indications, contraindications, therapeutic effects and precautions of breathing exercises, Chest expansion measurement and evaluation, Postural drainage, Neuromuscular In co-ordination: Definition of co-ordination and in-coordination, Review of normal neuromuscular coordination, Etiogenesis of neuromuscular in co-ordination. Test for co-ordination – equilibrium and non-equilibrium test, Frenkel exercise – principles, uses, technique, progression and home exercise, Advantages and Disadvantages, Group Exercises: Organization of Group exercises, Recreational Activities and Sports, Hydrotherapy –Definition, types, indication, contraindications, Methods of application, Whirl Pool Bath: Construction, Method of Application, Therapeutic Uses, Indications & Contraindications, Contrast Bath - Method of Application, Therapeutic Uses, Indications & Contraindications.

UNIT IV**11 Hours**

Posture: Normal Posture – active and inactive postures, postural mechanism. Abnormal Posture – Assessment, Types, etiogenesis, principles of re-education – corrective methods and techniques, patient re-education, Balance: Definition and physiology of balance. Components of balance (sensory, musculoskeletal, biomechanical). Causes of impaired balance, examination of impaired balance. Static and Dynamic Balance – Assessment & management including therapeutic exercises. Activities to treat impaired balance – mode, posture, movement, precautions and contraindications, types of balance retraining.

Transaction Mode

Lecture, Seminar, e-Tutoring, Dialogue, Peer Group Discussion, Self-Learning and Cooperative Learning

Suggested Readings

- *Kisner, C., Colby, L. A., & Borstad, J. (2017). Therapeutic exercise: foundations and techniques. Fa Davis.*
- *The Principle of Exercise Therapy -Gardiner (2005) - C.B.S.Delhi.*
- *Norkin, C. C., & White, D. J. (2016). Measurement of joint motion: a guide to goniometry. FA Davis.*
- *Gardiner, M. D. (1973). Principles Of Exercise Therapy: M Dena Gardiner.*
- *Powers, S. K., & Howley, E. T. (2020). Exercise physiology: Theory and*

application to fitness and performance (11th ed.). McGraw-Hill Education.

- Ehrman, J. K., Gordon, P. M., Visich, P. S., & Keteyian, S. J. (2019). *Clinical exercise physiology (5th ed.). Human Kinetics.*

Web Sources

- https://www.physio-pedia.com/Balance_Training
- <https://www.physiotherapy-treatment.com/physiotherapy-links.html>

Course Title: ELECTRO THERAPY- II

Course Code: BPT4251

L	T	P	Cred its
3	0	0	3

Total Hours: 45

Course Outcomes

On the completion of the course the students will be able to

1. To gain operational skills of EMG and NCV studies.
2. To gain knowledge about high frequency currents.
3. To gain knowledge about medium frequency currents.
4. To identify the clinical relevance of Cryotherapy and Radiation therapy.

Course Content

UNIT I

11 Hours

Electrical Reactions and Electro-Diagnostic Tests: Nerve conduction velocity studies, S.D. Curve - Methods of Plotting SD Curve, Apparatus selection, Characters of Normally innervated Muscle, Characters of Partially Denervated Muscle, and Characters of Completely Denervated Muscle, Chronaxie and Rheobase, EMG: Construction of EMG equipment, Biofeedback: instrumentation, principles, therapeutic effects, indications, precautions, operational skills and patient preparation

UNIT II

11 Hours

LASER-Definition, physical principles of production, types, physiological and therapeutic effects, techniques of applications, dosage, indications, contraindications, safety precautions, operational skills and patient preparation; MWD -Definition, physical principles of production, types, physiological and therapeutic effects,

techniques of applications, dosage, indications, contraindications , safety precautions, operational skills and patient preparation; SWD- Definition, physical principles of production, types, physiological and therapeutic effects, techniques of applications, dosage, indications, contraindications , safety precautions, operational skills and patient preparation

UNIT III

11 Hours

Interferential therapy – Definition, Principles of production, Static Interference System, Dynamic Interference system, Dosage Parameters for IFT, patient preparation and Electrode placement in IFT, Physiological & Therapeutic effects, Indications & Contraindications; Russian current; Rebox Currents; Didynamic; Traction: Cervical and Lumbar: Definition, types, physiological and therapeutic effects, techniques of applications, dosage, indications, contraindications, safety precautions, operational skills and patient preparation.

UNIT IV

12 Hours

Cryotherapy - Definition, Principle- Latent heat of fusion, Physiological & Therapeutic effects, Techniques of Applications, Indications & Contraindications, Dangers, Methods of application with dosages; IRR- Definition, physical principles of production, types, physiological and therapeutic effects, techniques of applications, dosage, indications, contraindications , safety precautions, operational skills and patient preparation; UVR -Definition, physical principles of production, types, physiological and therapeutic effects, techniques of applications, dosage, indications, contraindications , safety precautions, operational skills and patient preparation; ICT- Definition, physical principles of production, types, physiological and therapeutic effects, techniques of applications, dosage, indications, contraindications , safety precautions, operational skills and patient preparation.

Transaction Mode

Lecture, Seminar, e-Tutoring, Dialogue, Peer Group Discussion, Self-Learning and Cooperative Learning

Suggested Readings

- *Electrotherapy Explained: Principles & Practice* Low& Reed, Butterworth Heinemann.

- *Claytons Electro therapy, Forster & Palastange (2005), CBS publishers*
- *Therapeutic Heat & Cold, Lehmann, Willians & Wilkins.*
- *Textbook of Electrotherapy, Jagmohan Singh (2012), Jay pee publishers.*
- *Principles & Practice of Electrotherapy, Joseph Kahn(2000) Churchill Livingstone.*

Web Sources

- <https://www.physio-pedia.com>
- <http://www.physiotherapynotes.com>

Course Title: BIOMECHANICS II

Course Code: BPT4252

L	T	P	Cred its
3	0	0	3

Total Hours: 45

Course Outcomes

On successful completion of this course, the students will be able to:

5. Identify and comprehend the components of biomechanics.
6. Classify human joints based on structure, design and function.
7. Describe the structure, kinetics and kinematics of the human vertebral column.
8. Apply the concepts of biomechanics while rehabilitation.

Course Content

UNIT I

11 Hours

Musculoskeletal biomechanics- Tissue Mechanics, Connective Tissue, Ligaments, Bone, Articular Joints, Diarthrodial Joints, Fibrocartilage, IV Disc; Hip complex - structure and functions of hip joint

Unit II

11 Hours

Knee complex - structure and functions of knee joint – tibiofemoral and patellofemoral joint; Ankle and foot complex- structure and functions of ankle joint, subtalar joint, talonavicular joint, transverse tarsal joint, tarsometatarsal joint, metatarsophalangeal joint, interphalangeal joint, structure and function of plantar arches, muscles of ankle and foot.

UNIT III

11 Hours

Biomechanics of vertebral column (Spine), General structure and function, Regional structure and function – cervical, thoracic, lumbar and sacral regions

Muscles of vertebral column

UNIT IV

12 Hours

General features of Normal gait, gait initiation, kinetics and kinematics of gait and abnormal gait. Equipments and tools to analyse gait. Definition, kinetics and kinematics of posture, postural control. Static and dynamic posture, ideal posture analysis.

Transaction Mode

Lecture, Seminar, e-Team Teaching, Peer Group Discussion, Self-Learning and Collaborative Learning.

Suggested Readings

- ② *Joint Structure and Function – A Comprehensive Analysis - Norkins & Levangie(2011) - F.A. Davis.*
- ② *Measurement of Joint Motion – A Guide to Goniometry - Norkins & White (2009) - F.A. Davis.*
- ② *Hall, S. J. (2019). Basic biomechanics (8th ed.). McGraw-Hill Education.*
- ② *White III, A. A., & Panjabi, M. M. (1990). Clinical biomechanics of the spine (2nd ed.). Lippincott Williams & Wilkins.*
- ② *Hamill, J., Knutzen, K. M., & Derrick, T. R. (2014). Biomechanical basis of human movement (4th ed.). Wolters Kluwer Health/Lippincott Williams & Wilkins.*

Web Sources

1. <https://www.sciencedirect.com/science/article/pii/S0720048X1200455X>
2. <https://www.bbc.co.uk/bitesize/guides/zxkr82p/revision/>

Course Title: PHARMACOLOGY

Course Code: BPT4253

L	T	P	Credits
4	0	0	4

Total Hours:**60****Course Outcomes**

On successful completion of this course, the students will be able to:

1. To identify the pharmacological actions of different categories of drugs.
2. The application of basic drugs in the prevention and treatment of various diseases.
3. To gain knowledge about the positive and negative effects of different medicinal drugs on human body.
4. Analyse the ill effects of over dosage

Course Content**UNIT I****15 Hours**

General Pharmacology: Definitions, classification of drugs; Sources of drugs; Routes of drug administration; Distribution, metabolism and excretion of drugs; Pharmacokinetics and Pharmacodynamics; Factors modifying drug response. Adverse effects.

UNIT II**15 Hours**

Autonomic nervous system: Cholinergic and anticholinergic drugs. Adrenergic and Adrenergic blocking drugs. Peripheral muscle relaxants. Disorders of Movement: Drugs used in Treatment of Parkinson's disease. Antiepileptic Drugs. Spasticity and Skeletal Muscle Relaxants, Geriatrics: Pharmacology and the geriatric Population: Adverse effects of special concern in the Elderly, Dementia, And Postural hypotension.

UNIT III**15 Hours**

Cardio-vascular Pharmacology: Drug used for treatment of heart failure – digitalis, diuretics, vasodilators, ACE inhibitors. Antihypertensive drugs – diuretics, beta blockers, calcium channel blockers, ACE inhibitors, Central acting alpha agonists, peripheral alpha agonists, direct acting vasodilators. Antiarrhythmic drugs; Drugs used for treatment of vascular disease – lipid lowering agents, anti-thrombotics, Anti-coagulants and thrombolytic; Drugs used for treatment of ischemic heart disease – nitrates, beta blockers, calcium channel blockers

UNIT IV**15 Hours**

Neuropharmacology: Sedative – hypnotic drugs: barbiturates, benzodiazepines; Anti-Anxiety drugs – benzodiazepines, anxiolytics; Drugs used for treatment of mood disorders – monoamine oxidase inhibitors, tricyclic antidepressants, A typical antidepressant.; Antipsychotic drugs; NSAIDS- Non Steroidal Anti Inflammatory Drugs

Transaction mode

Lecture, Seminar, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning, Video based teaching, Flipped learning, Team teaching

Suggested readings

- Tripathi, K. D. (2013). *Essentials of medical pharmacology*. JP Medical Ltd, Delhi.
- Satoskar, R. S. (1973). *Pharmacology and pharmacotherapeutics* (Vol. 1). Popular Prakashan, Bombay
- Brunton, Laurence, et al., editors. *Goodman & Gilman's: The Pharmacological Basis of Therapeutics*. 13th ed., McGraw-Hill Education, 2018.
- Knights, K. (2019). *Pharmacology for physiotherapy practice* (2nd ed.). Elsevier.
- Ritter, J. M., Flower, R. J., Henderson, G., & Loke, Y. K. (2021). *Rang & Dale's pharmacology* (9th ed.). Elsevier

Web Sources

- <https://www.drugs.com/drug-class/central-nervous-system-agents.html>
- https://nmu.ua/wp-content/uploads/2016/06/Pharmacology_

Course Title: FUNDAMENTALS OF YOGA**Course Code: BPT4254**

L	T	P	Credits
2	0	0	2

Total Hours: 30**Course Outcomes**

On the completion of the course the students will be able to

1. Articulate various concepts of yogic practice in their own words.
2. Demonstrate yoga asanas and elucidate their benefits.
3. Engage in teaching practice and conduct research in the field of yoga.
4. Explain the fundamentals and advantages of Yoga using their own words

Course Content

UNIT I

11 Hours

Introduction to Yoga: Meaning, Definition, types, aims and objectives of yoga
Importance of yoga in education & other fields of life, Historical development of yoga from ancient to modern times; Meaning and definition of astanga yoga: Yama, niyama, asana, pranayama, prathyahara, dharana, dhyana, Samadhi

UNIT II

11 Hours

Nadis, Asanas and Pranayam; Loosen in exercise: Techniques and benefits
Asanas & Pranayam: Types, techniques and benefits, suryanamaskar, Methods and benefits
Nadis: Meaning, methods and benefits; Asana: types of asana, preparation & technique of different asana and their effects on the body

UNIT III

11 Hours

Kriyas; Shat Kriyas: Meaning, techniques and benefits of neti, dharti, kapalapathi, trataka, nauli, basti; Bandhas: Meaning, techniques and benefits of jalendrabandha, jihvabandha, uddiyanabandha, mulabandha; Mudras: Meaning, techniques and benefits of hasta mudras, asamyuktahastam, samyuktahastam, mana mudra, kaya mudra, banda mudra, adhara mudra
Meditation: Meaning, Techniques and benefits of meditation, Passive and active meditation, saguna meditation and nirguna meditation

UNIT IV

12 Hours

Yoga and Sports Yoga; Supplemental exercise: Yoga compensation exercise, yoga regeneration exercise, Power Yoga, role of Yoga in Psychological Preparation of athlete: Mental wellbeing, anxiety, depression concentration, self-actualization; Effect of yoga

on physiological system: Circulatory, skeletal, digestive, nervous, respiratory, excretory System

Transaction Mode

Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- Feuerstein, G. (1975). *Suggested Readings of Yoga*. Motilal Bansaridass Publishers(P)Ltd., London.
- Gore (1990). *Anatomy and Physiology of Yogic Practices*. Kanchan Prakashan, Lonavata.
- Purperhart, H. (2004). *The Yoga Adventure for Children*. A Hunter House book, Netherlands.
- Iyengar, B.K.S. (2000). *Light on Yoga*. Harper Collins Publishers, New Delhi.
- Karbelkar, N.V. (1993). *Patanjal Yogasutra Bhashya (Marathi Edition)*. Hanuman Vyayam Prasarak Mandal.

Web Sources

- <https://www.physio-pedia.com/Yoga>
- <https://belfastphysioandmassage.co.uk/the-benefits-of-yoga-in-physiotherapy/>

Course Title: EXERCISE THERAPY-II LAB

Course Code: BPT4255

L	T	P	Cred its
0	0	2	1

Total Hours: 15

Course Outcomes

On successful completion of this course, the students will be able to:

1. Perform physical tests and measurements on patients.
2. Execute complete assessment and evaluation of a patient.
3. Become proficient in providing therapeutic exercises and soft tissue mobilization.
4. Develop capability of teaching yoga asanas.

Course Content

To practice the entire soft tissue manipulative techniques region wise : Upper limb, Lower limb, Neck, Back, Face

To practice assessment & evaluative procedures for: Motor, Sensory, Neuromotor coordination, Vital capacity, Limb length, Higher functions.

To practice the measurement of: ROM using goniometer for joints of upper limb, lower limb & trunk, Grading of muscle strength region wise – upper limb, lower limb and trunk.

To practice & experience effects of basic yoga “asanas”

To study & practice local & general relaxation techniques.

Transaction mode

Demonstration method, Case analysis, Video based learning

Suggested readings

- Kisner, C., Colby, L. A., & Borstad, J. (2017). *Therapeutic exercise: foundations and techniques*. Fa Davis. *The Principle of Exercise Therapy* -Gardiner (2005) - C.B.S.Delhi.
- Norkin, C. C., & White, D. J. (2016). *Measurement of joint motion: a guide to goniometry*. FA Davis.
- Gardiner, M. D. (1973). *Principles of Exercise Therapy*: M Dena Gardiner.
- Powers, S. K., & Howley, E. T. (2020). *Exercise physiology: Theory and application to fitness and performance* (11th ed.). McGraw-Hill Education.
- Ehrman, J. K., Gordon, P. M., Visich, P. S., & Keteyian, S. J. (2019). *Clinical exercise physiology* (5th ed.). Human Kinetics.

Web Sources

- <https://www.thephysiotherapyplace.com/resources/treatment-techniques/manual-therapy-and-manipulation#:~:text=Manipulation%20is%20a%20highly%20skilled,a%20manipulation%20is%20performed%20well>.
- https://www.researchgate.net/publication/283376239_Neuromotor_coordination_of_multisegmental_muscle_during_a_change_in_movement_direction

Course Title: ELECTRO THERAPY-II LAB**Course Code: BPT4256**

L	T	P	Credits
0	0	2	1

Total Hours: 15**Course Outcomes**

On successful completion of this course, the students will be able to:

1. To give orientation about various electrotherapy modalities.
2. To gain skill of application of these modalities in various conditions.
3. To gain knowledge for indications and contraindications for using different modalities which helps in employability.
4. To memorise precautions before applying any modality to the patient.

Course Content

To study a short wave diathermy unit, its operation unit, its operation and different methods of application region wise.

To study a microwave diathermy unit its operation and different methods of application region wise.

To study ultrasound unit, its operation and different methods of application region wise.

To study the various types of IR lamps and their application to body region wise.

To study the different types of UV unit, their operation assessment of test does and application of UVR region wise.

Transaction mode

Open learning, Case based teaching, Video based teaching

Suggested Readings:

- *Electrotherapy Explained: Principles & Practice* Low & Reed, Butterworth Heinemann.
- *Claytons Electro therapy*, Forster & Palastange (2005), CBS publishers
- *Therapeutic Heat & Cold*, Lehmann, Williams & Wilkins.
- *Textbook of Electrotherapy*, Jagmohan Singh (2012), Jay pee publishers.
- *Principles & Practice of Electrotherapy*, Joseph Kahn (2000) Churchill Livingstone.

Web Sources

- <https://www.yourphysio.in/blogs/how-faradic-foot-bath-helps-people-with-flat-foot>
- <https://www.verywellhealth.com/iontophoresis-in-physical-therapy-2696534>
- <https://www.physio-pedia.com>
- <http://www.physiotherapynotes.com>

Course Title: Biomechanics-II Lab

Course Code: BPT4257

L	T	P	Credits
0	0	2	1

Total Hours- 15

Course Outcomes

On the completion of the course the students will be able to:

- Anthropometric measurements: Height, weight, limb lengths.
- Measure joint angles, muscle strength
- Use laboratory equipment to assess physical function and movement abnormalities.
- Interpret data for clinical application in physiotherapy.

Course Content

Measurement of joint range of motion using goniometer, Anthropometric measurements: Height, weight, limb lengths, Manual muscle testing (MMT) techniques, Static and dynamic balance assessment, Biomechanical analysis of functional tasks (e.g., sit-to-stand, lifting).

Transaction Mode

Lecture, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- *Joint Structure and Function – A Comprehensive Analysis* - Norkins & Levangie (2011) - F.A. Davis.
- *Measurement of Joint Motion – A Guide to Goniometry* - Norkins & White (2009) - F.A. Davis
- Hall, S. J. (2019). *Basic biomechanics* (8th ed.). McGraw-Hill Education.
- White III, A. A., & Panjabi, M. M. (1990). *Clinical biomechanics of the spine* (2nd ed.). Lippincott Williams & Wilkins.

- Hamill, J., Knutzen, K. M., & Derrick, T. R. (2014). *Biomechanical basis of human movement (4th ed.)*. Wolters Kluwer Health/Lippincott Williams & Wilkins.

Web Sources

- <http://physioknowledgebd.blogspot.com/2016/03/group-action-of-muscles.html>
- https://www.physio-pedia.com/Centre_of_Gravity

Course Title: Indian Health Sciences	L	T	P	Cr.
Course Code: IKS0006	2	0	0	2

Total Hours: 30

Course Learning Outcomes : On the completion of the course, the students will be able to

1. Understand knowledge of India's traditional health systems
2. Critically analyse India's healthcare policies
3. Understand the patterns, causes, and effects of diseases in India and strategies for prevention and control.
4. Learn about nutrition, sanitation, mental health, and lifestyle diseases like diabetes and cardiovascular disorders, along with preventive healthcare measures.

Course Content

Unit – I:

7 Hours

Introduction, Vedic foundations of Ayurveda. Ayurveda is concerned both with maintenance of good health and treatment of diseases.

Unit – II:

8 Hours

Basic concepts of Ayurveda. The three Gunas and Three Doshas, Pancha-mahabhuta and Sapta-dhatu.

The importance of Agni (digestion). Six Rasas and their relation to Doshas. Ayurvedic view of the cause of diseases.

Unit – III:

8 Hours

Dinacharya or daily regimen for the maintenance of good health. Ritucharya or seasonal regimen. Important Texts of Ayurveda. Selected extracts from *Astāngahrdaya* (selections from *Sūtrasthāna*)

and *Suśruta-Samhitā* (sections on plastic surgery, cataract surgery and anal fistula). The large pharmacopeia of Ayurveda.

Unit – IV:**7 Hours**

Charaka and Sushruta on the qualities of a Vaidya. The whole world is a teacher of the good Vaidya.

Charaka's description of a hospital. Hospitals in ancient and medieval India.

Transactional Mode

Seminars, Group discussion, Team teaching, Focused group discussion, Assignments, Project-based learning, Simulations, reflection and Self-assessment

Suggested Readings

- Park's Textbook of Preventive and Social Medicine – K. Park
- Ayurveda: The Science of Self-Healing – Dr. Vasant Lad
- Health Sector in India: A Policy Perspective – P. K. Pandey
- Essential Readings in Health Policy and Law – Joel B. Teitelbaum & Sara E. Wilensky

Course Title: Basics of Radiology**Course Code: BPT4258**

L	T	P	Cred its
4	0	0	4

Total Hours: 60**Course Outcomes**

On the completion of the course the students will be able to:

1. Gain comprehensive theoretical and practical knowledge about diagnostic imaging.
2. Independently interpret all, routine and special radiological and imaging investigations.
3. Provide radiological services in acute emergency and trauma.
4. Gain comprehensive theoretical and practical knowledge to work in collaboration with rehabilitation team.

Course Content**UNIT I****15 Hours**

Image interpretation: Radiography (x-rays), Fluoroscopy, Ultrasound, Endoscopy

UNIT II**15 Hours**

Radiography: Equipment components, Procedures for Radiography; Benefits versus Risks and Cost, Indications and contraindications; Fluoroscopy: Equipment used for fluoroscopy, Indications and Contra indications, How it helps in diagnosis, The Findings in Fluoroscopy, Benefits versus Risks and Costs.

UNIT III

15 Hours

Computed tomography (CT): Equipment used for Computed Tomography, Indications and Contra indications, How it helps in diagnosis, The Findings in Computed Tomography, Benefits versus Risks and Costs; Magnetic resonance imaging (MRI), Equipment used for MRI, Indications and Contra indications, How it helps in diagnosis, The Findings in MRI, Benefits versus Risks and Costs, Functional MRI.

UNIT IV

15 Hours

Ultrasound; Equipment used for Ultrasound, Indications and Contra indications, How it helps in diagnosis, The Findings in Ultrasound, Benefits versus Risks and Costs; Endoscopy: Equipment used for Endoscopy, Indications and Contra indications, How it helps in diagnosis, The Findings in Endoscopy, Benefits versus Risks and Costs.

Transaction Mode

Lecture, Seminar, e-Team Teaching, e-Tutoring, Mobile Teaching, Self-Learning and Cooperative Learning

Suggested Readings

- *Sutton, D. (1987). A textbook of radiology and imaging.*
- *Donner, M. W. (1976). Textbook of Radiology: David Sutton and Ronald G. Grainger, eds. New York, Churchill Livingstone*
- *Smith, W. L. (2009). Radiology 101: The basics and fundamentals of imaging. Lippincott Williams & Wilkins.*
- *Adler, A. M., & Carlton, R. R. (2017). Introduction to radiologic sciences and patient care (6th ed.). Saunders.*
- *Radiology Fundamentals - Introduction to imaging and technology- Harjit Singh, Janet Neutze.*

Web Sources

- <https://radiologykey.com/x-ray-imaging-mammography/>
- <https://radiology.ucsf.edu/patient-care/prepare/mri>

Course Title: GENERAL PSYCHOLOGY**Course Code: BPT4259**

L	T	P	Cred its
4	0	0	4

Total Hours: 60**Course Outcomes**

On the completion of the course the students will be able to

1. Develop Scientist-Practitioner approach and identify the economic, cultural and political factors affecting structure of society.
2. Comprehend the importance of gender inequality and inculcate advanced clinical skills in the field of mental health.
3. Recognize the social norms, values and become proficient in-patient counseling and support.
4. Describe the major approaches to understanding behavioural processes involved in learning and memory

Course Content**UNIT I****15 Hours**

Definition of psychology, basic information in relation to schools, methods and branches of psychology; Schools: Structuralism, functionalism, behaviourism psychoanalysis; Methods: Introspection, observation, inventory and experimental method; Branches: General, child, social, industrial, orientations, counseling, educational; Psychology and physiotherapy; Development and Growth Behaviour; Life span - Infancy, childhood, adolescence, adulthood, middle age, old age; Heredity and environment – its importance and role in physical and psychological development; Emotions: Definition and differentiate from feelings, Three levels of analysis of emotions, (physiological level, subjective state, and overt behavior), Theories of emotion, Stress and management of stress.

UNIT II**15 Hours**

Motivation: Motivation cycle (need, drive, incentive, reward), Classification of motives, Abraham Maslow's theory of need hierarchy; Learning: Factors effecting learning, Theories of learning: trial and error learning, classical conditioning, Operant conditioning, insight learning, social learning theory, 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; Personality: Definitions: List of components, Physical

characteristics, character, abilities, temperament, interest and attitudes, Discuss briefly the role of heredity, nervous system, physical characteristics, abilities, family and culture of personality development, Basic concepts of Freud: unconscious, conscious, Id, ego and superego, List and define the oral, anal and phallic stages of personality development list and define the 8 stages as proposed by Erickson, 4 concepts of learning as proposed by Dollard and Miller; drive, cue, response and reinforcement.

UNIT III

15 Hours

Intelligence: Theories of intelligence, Distribution of intelligence, Assessment of intelligence; Sensation, Perception and Attention: Attention: Types of attention, Determinants of attention (subjective determinants and objective determinants), Sensation: Vision, Hearing, Olfactory, Gustatory and Cutaneous sensation, movement, equilibrium and visceral sense, Illusion and hallucination: different types.

UNIT IV

15 Hours

Frustration: sources of frustration, Conflict: types of conflict, Management of frustration and conflict; Stress: Anxiety, Tension, Physiological symptoms, psychosomatic problems, coping strategies, professional stress burnout, Behavior modification: Application of various conditioning and learning principles to modify patient behavior, Clinical Psychology: psychological reactions of a patient during admission and treatment. Anxiety, shock denial, suspicion. loneliness, shame, guilt, rejection, fear, withdrawal, depression, egocentric, justify and loss of hope.

Transaction Mode

Open learning, Problem solving, Flipped teaching, Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- Carson, R.C., Butcher, J.N., & Mineka, S. (2001). *Abnormal psychology in modern life* (11th ed). New York. Allyn and Bacon.
- Kaplan, H.I., Saddock, B.J. & Gribb, J.A. (1994). *Synopsis of Psychiatry*. New Delhi. B.I Waruly.

- Barlow, D.H. & Durand, V.M. (1999). *Abnormal psychology: An integrative approach* (2nd ed.). Pacific Grove: Brooks/Cole.
- Davison, G.C. & Neals J.M. (1996). *Abnormal psychology* (Revised ed.). New York: John Wiley.
- Baron, Robert A *Psychology*, Printer Hall of India Pvt Ltd. New Delhi.

Web Sources

- <https://www.webmd.com/anxiety-panic/guide/anxiety-disorders>
- <https://www.sciencedirect.com/topics/medicine-and-dentistry/child-psychopathology>
- <https://www.merriam-webster.com/dictionary/family>

SEMESTER-V

Course Title: ORTHOPEDICS

Course Code: BPT5300

L	T	P	Credits
3	0	0	3

Total Hours:

45

Course Outcomes

On the completion of the course the students will be able to:

1. To gain knowledge about basic principles of various orthopaedic surgeries.
2. To gain knowledge about clinical symptoms of various bone injuries.
3. Formulate the diagnosis by correlating clinical signs and symptoms with chief complaints of patients.
4. Identify various deformities in human body and their cause.

Course Content-

UNIT I

11 Hours

Introduction: Introduction to Orthopaedics; Clinical examination in an Orthopaedic patient (Stability and Special Tests), Common investigative procedures, Radiological and Imaging techniques in Orthopaedics, Orthopedic Surgeries Indications, Classification, Types, Principles of management of the following Surgeries: Arthrodesis, Arthroplasty (partial and total replacement), Osteotomy, Bone Grafting, Spinal stabilization surgeries, Arthroscopy; Amputation: Principles, Types and management, Stump Care.

UNIT II

11 Hours

Traumatology; Fracture: definition, types, signs and symptoms. Fracture healing. Complications of fractures, conservative and surgical approaches, Principles of management – reduction (open, closed, immobilization etc)., Subluxation/dislocations – definition, signs and symptoms, principles of management (conservative and operative); Upper Limb Fractures and Dislocations: Causes, clinical features, mechanism of injury, complications, conservative and surgical management of the major long bone fractures and joint injuries; Lower Limb Fractures and Dislocations: Causes, clinical features, mechanism of injury, complications, conservative and surgical management of the major long bone fractures and joint injuries.

UNIT III

12 Hours

Deformities - clinical features, complications, medical and surgical management of the following: Congenital Deformities: CTEV, CDH, Torticollis, Scoliosis, Flatfoot, Vertical talus, Ankylosing spondylitis; Hand anomalies: syndactyly, polydactyly and ectrodactyly, Arthrogryposis multiplex congenital (amyoplasia congenita), Cervical rib. Limb deficiencies: Amelia and Phocomelia, Klippel feil syndrome, Osteogenesis imperfecta; Acquired Deformities: Acquired Torticollis, Scoliosis, Kyphosis, Lordosis, Genu varum, Genu valgum, Genu recurvatum, Coxa vara, Pes cavus, Hallux rigidus, Hallux valgus, Hammer toe; Neuromuscular disorders – Definition, causes, clinical features, patho-physiology, investigations and management for the following: Cerebral palsy, Poliomyelitis, Leprosy

UNIT IV

11 Hours

Spinal Fractures and Dislocations: Mechanism of injury, clinical features, complications (quadriplegia) and management of Spinal injuries and rib cage fractures (collar, cast, brace, traction), management of complication (bladder and bowel, quadriplegia); Hand Injuries: Mechanism of injury, clinical features, and management of the following: Crush injuries, Flexor and extensor injuries, Burn Injuries of hand, Integrated Pain Management: Assessment of pain, Pain perception, Different scales for pain and treatment strategies for managing pain and pain-related disability.

Transaction Mode

Open learning, Group discussions, Lecture, Seminar, e-Tutoring, Dialogue, Peer Group Discussion, Self-Learning and Cooperative Learning

Suggested Readings

- *Outline of Fracture-Adams – 2007 - Churchill Livingstone.*
- *Outline of Orthopaedics - Adams -2009 - Churchill Livingstone.*

- *Watson – Zones, Fractures and Joint Injuries – Wilson – 2009- Churchill Livingstone.*
- *Clinical Orthopaedic Examination – Mcrae – 2016 - Churchill Livingstone.*
- *Physical Examination in Orthopaedics – Apley – 1997- Butterworth Heinmann.*
- *Cambells Operative Orthopaedics - Frederick M Azar MD – 2017 - Mosby*
- *Textbook of orthopaedics- Maheshwari – 2015 – JPB Publications.*

Web Sources

- <https://www.hopkinsmedicine.org/health/treatment-tests-and-therapies/arthroplasty>
- <https://emedicine.medscape.com/article/1265365-overview>

Course Title: GENERAL MEDICINE

Course Code: BPT5301

L	T	P	Cred its
3	0	0	3

Total Hours: 45

Course Outcomes

On the completion of the course the students will be able to:

1. To be aware of various metabolic, viral and bacterial diseases, their clinical appearance and their treatment.
2. To be aware of diseases of children and old age people.
3. Examine the significance of balanced diet and consequences of its deficiencies.
4. To be aware of human endocrine system and hormone imbalances.

Course Content

UNIT I

11 Hours

Introduction to modes of transfer of communicable diseases & general preventive measures; Infection: Effect of infection on human body, pathology, source and spread of infection, vaccinations; Generalized infections - Tuberculosis, Leprosy, Tetanus, Typhoid fever, Diphtheria, Pneumonia, and Bacillary Dysentery. Herpes – simplex and zoster, Varicella, Measles, Mumps, Hepatitis B & C, AIDS & influenza.

UNIT II

11 Hours

Poisoning – clinical features, general management, common agents in poisoning, pharmaceutical agents, drugs of misuse, chemical pesticides, envenomation; Food and nutrition: Deficiency diseases – clinical features and treatment; Obesity and its related disorders – causes, complications, benefits of weight loss, management of obesity (diet, exercise and medications); Protein-energy malnutrition; Anemia – signs, symptoms, types and management; Diseases of the endocrine glands (diabetes mellitus) – etiology, clinical manifestations, management and complications.

UNIT III

11 Hours

Pediatrics: Review normal fetal development & child birth, including assessment of a neonate; Tools and scales for assessment in paediatrics; Development of a normal child – neuromotor, physical growth, cognitive, intellectual, social etc.; The examination & assessment of a pediatric patient; Prenatal problems and management; Cerebral palsy – causes, complications, clinical manifestations and treatment; Spinal Bifida – management and treatment; Epilepsy – types, diagnosis and treatment; Recognizing developmental delay and common Causes of delay; Congenital & acquired Orthopaedic and neuro-muscular disorders in childhood–clinical manifestation & principles of management.

UNIT IV

12 Hours

Geriatrics: Normal aging – definition, the anatomical, physiological and cognitive changes related to aging; Scales and tools used in geriatrics; Epidemiology and socio-economic impact of aging; Diet & Nutritional requirement of the elderly. Nutritional disorders & their management; Musculo skeletal disorders – etiology, clinical manifestation & principles of management; Cardio – pulmonary disorders – etiology, clinical manifestation & principles of management; Neurological disorders (CNS & PNS) – etiology, clinical manifestation & principles of management; Falls in elderly. Prevention and management

Suggested Readings

- *Davidson's principles and Practices of Medicine – Edward – 2014 – Churchill Livingstone.*
- *Hutchinson's Clinical Methods – Swash – 2012 – Bailliere Tindall*
- *A Short Text book of Medicine – Krishna Rao – 2011 – Jaypee Brothers.*
- *Ralston, S. H., Penman, I. D., Strachan, M. W. J., & Hobson, R. P. (2018). Davidson's principles and practice of medicine (23rd ed.). Elsevier.*

- Jameson, J. L., Longo, D. L., Kasper, D. L., & et al. (2018). *Harrison's principles of internal medicine (20th ed.)*. McGraw-Hill Education.

Web Sources

- <https://www.cdc.gov/leprosy/index.html>
- https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---safework/documents/presentation/wcms_232617.pdf

Course Title: Research Methodology & Biostatistics

Course Code: BPT5302

L	T	P	Credits
4	0	0	4

Total Hours: 60

Course Outcomes

To gain knowledge about the role of statistics in the field of rehabilitation.

1. Develop skills to calculate central tendencies and plot graph.
2. Differentiate between parametric and non-parametric tests and use them appropriately.
3. Gain expertise in data analysis to obtain result of the undertaken research.
4. Gain knowledge about analysis of variance.
5. To gain skills about basic ethical principles and techniques of conducting research.
6. To know about types and techniques of sampling.
7. To know about various experimental methods.
8. To analyse and process data various data.

Course Content

UNIT I

15 Hours

Research- Definition, history, objectives, scope, research methods versus methodology, criteria for good research, Research problem - statement of research problem, its purpose and objectives, Research design – meaning and need of design, features of good design, types and basic principles of design, Informed Consent, Research Proposal, funding and its significance, Sampling design –types of sampling (probability and non-probability method), characteristics of good sample design, Measurement and scaling techniques – measurement scale, source of error in

measurement, technique of developing measurement tool, meaning of scaling, its importance and different types of scaling.

UNIT II

15 Hours

Methods of data collection – collection of primary data, collection of data through schedules and questionnaire; Questionnaire – Types, problem of response, reliability and validity of questionnaire, advantages and limitations, difference between questionnaire and schedule; Review of Literature, Interview, Reliability, Validity, Variables in research; Hypothesis – definition, tests of hypothesis and limitations of the tests; Testing of hypothesis – basic concepts of testing, procedure of hypothesis testing, tests of hypothesis, and limitations of the tests

UNIT III

15 Hours

Statistics - Definition, characteristics, importance of study of stats, branches of statistics, applications in physiotherapy, Presentation of data -Descriptive and inferential statistics, variables and their types, measurement scales. basic principles of presentation, Types of diagrams, techniques of construction of graph, graphs of frequency distribution, histograms, frequency polygons, limitations of diagrams and graphs. Central tendencies - Definition and need for measures of central values, meaning and calculation of mean, mode, median, limitations. Probability and standard distributions - meaning, the normal distribution, divergence from normality - skewness and kurtosis.

UNIT IV

15 Hours

Correlation analysis - Types of correlation, methods of correlation, scatter diagram, Karl Pearson's coefficient of correlation, Rank correlation coefficient. Parametric Test, Sampling techniques: need and criteria for good sample, procedures of sampling and sampling design errors, sampling variation and test of significance. Analysis of variance & covariance – basic principle of ANOVA.

Transaction mode

Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested readings

- *Research methods in Behavioral Sciences. Mohsin S.M. – 2011 - Orient publications, New Delhi.*
- *Methods of Social Survey and Research, Bajpai S.R. – 2010 - Kitab Ghar, Kanpur.*

- *First course in Methodology of Research. Meenakshi –2015 - Kalia Prakashan, Patiala.*
- *Research Methodology. Kumar R. – 2017 - Pearson Education, Australia.*
- *Research Methods for Clinical Therapists, by Carolyn M. Hicks : Applied Project Design and Analysis Paperback – Illustrated, 7 August 2009*
- *Hogg, R. V., McKean, J., & Craig, A. T. (2005). Introduction to mathematical statistics. Pearson Education.*
- *Gupta, S. P. (1978). Statistical Methods. Sultan Chand and sons Publishers, New Delhi.*
- *Motulsky, H. (2019). Essential Biostatistics: A Nonmathematical Approach. Oxford University Press.*
- *Daniel, W. W., & Cross, C. L. (2019). Biostatistics: A Foundation for Analysis in the Health Sciences (11th ed.). Wiley.*
- *Gerstman, B. B. (2020). Basic Biostatistics: Statistics for Public Health Practice (3rd ed.). Jones & Bartlett Learning.*

Web Sources

- <https://statistics.laerd.com/statistical-guides/measures-central-tendency-mean-mode-median.ph>
- <https://towardsdatascience.com/sampling-techniques-a4e34111d808>
- <https://www.scribbr.com/methodology/sampling-methods>
- <https://www.scribbr.com/methodology/hypothesis/>

Course Title: ORTHOPEDICS LAB

Course Code: BPT5303

L	T	P	Credits
0	0	2	1

Total Hours: 15

Course Outcomes

On the completion of the course the students will be able to:

1. To be skilled in Orthopaedic evaluation and clinical reasoning.
2. To be skilled in assessment and examination techniques.
3. To be able to conduct various clinical tests of major joints of human body.
4. To be aware of various operative and non-operative treatment methods in orthopedics.

Course Content

Practical shall be conducted for all relevant topics discussed in theory in the following forms:

Evaluation and clinical reasoning in orthopedics.

Examination of upper extremity: Shoulder, Elbow, Forearm, Wrist and Hand.

Examination of lower extremity: Hip, Knee, Ankle and Foot.

Examination of spine: Cervical spine, Thoracic Spine, Lumbar Spine.

Case presentations and Case discussions.

Discussion on various Orthopaedic treatment techniques.

Transaction Mode

Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings:

- *Outline of Fracture-Adams – 2007 - Churchill Livingstone.*
- *Outline of Orthopaedics - Adams -2009 - Churchill Livingstone.*
- *Watson – Zones, Fractures and Joint Injuries – Wilson – 2009- Churchill Livingstone.*
- *Clinical Orthopaedic Examination – Mcrae – 2016 - Churchill Livingstone.*
- *Physical Examination in Orthopaedics – Apley – 1997- Butterworth Heinmann.*
- *Textbook of orthopaedics- Maheshwari – 2015 – JPB Publications. Textbook of orthopaedics- Maheshwari*

Web Sources

- <https://www.sciencedirect.com/topics/nursing-and-health-professions/joint-examination>
- https://jssphysiotherapy.edu.in/assets/documents/departments/Back_Examination.pdf

Course Title: GENERAL MEDICINE LAB

Course Code: BPT5304

L	T	P	Credits
0	0	2	1

Total Hours: 15

Course Outcomes

On the completion of the course the students will be able to:

1. To be skilled in General Medicine evaluation and clinical reasoning.
2. To be skilled in assessment and examination techniques.
3. To be able to conduct various clinical tests of human body.

4. To be aware of various operative and non-operative treatment methods in general medicine.

Course Content

Practical shall be conducted for all relevant topics discussed in theory in the following forms: Recording of blood pressure, Recording of ECG, Auscultations, Breathing Sounds, Pulmonary function test, Bedside case presentations and case discussions, Practical including evaluation, clinical diagnosis and treatment for the conditions covered in Paediatrics & Geriatrics.

Transaction Mode

Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings:

- *Davidson's principles and Practices of Medicine – Edward – 2014 – Churchill Livingstone.*
- *Hutchinson's Clinical Methods – Swash – 2012 – Bailliere Tindall*
- *A Short Text book of Medicine – Krishna Rao – 2011 – Jaypee Brothers.*
- *Ralston, S. H., Penman, I. D., Strachan, M. W. J., & Hobson, R. P. (2018). Davidson's principles and practice of medicine (23rd ed.). Elsevier.*
- *Jameson, J. L., Longo, D. L., Kasper, D. L., & et al. (2018). Harrison's principles of internal medicine (20th ed.). McGraw-Hill Education.*

Web Sources

- <https://www.cdc.gov/leprosy/index.html>
- https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/safework/documents/presentation/wcms_232617.

Web Sources

- https://www.physio-pedia.com/Clinical_Reasoning
- [https://www.physio-pedia.com/Evidence-Based_Practice\(EBP\)_in_Physiotherapy](https://www.physio-pedia.com/Evidence-Based_Practice(EBP)_in_Physiotherapy)

Course Title: CLINICAL ORIENTATION-IV

			Cred
L	T	P	its

Course Code: BPT5305

0	0	4	2
---	---	---	---

Total Hours: 30**Course Outcomes**

On successful completion of this course, the students will be able to:

1. Gain firsthand experience in a professional lab setting, enhancing understanding of clinical procedures and protocols.
2. Learn about various laboratory equipment and tools used in physiotherapy and their specific functions.
3. Work collaboratively with peers, fostering teamwork and communication skills.
4. Gain skills in designing individualized exercise programs based on patient needs, conditions, and goals.

Course Content

Assisting in patient assessments under supervision, Applying basic therapeutic exercises (ROM, stretching, strengthening), Practicing safe transfer techniques (bed to chair, etc.),

Peer case discussions and reflection sessions.

Transaction Mode

Lecture, Seminar, e-Team teaching, e-Tutoring, Dialogue, Case based studies Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- *Introduction to Physical Therapy and Patient Skills* by Mark Dutton
- *Physical Rehabilitation* by Susan B. O'Sullivan and Thomas J. Schmitz
- *Principles of Rehabilitation Medicine* by Raj Mitra
- *Orthopedic Physical Assessment* by David J. Magee
- *The Physiotherapist's Pocketbook: Essential Facts at Your Fingertips* by Karen Kenyon and Jonathan Kenyon

Web Sources

- <https://www.stcharleshealthcare.org/professionals/clinical-orientation>
- <http://www.centrahealth.com/caregiver-onboarding/clinical-orientation>

Course Title: VESTIBULAR REHABILITATION**Course Code: BPT5306**

L	T	P	Credits
3	0	0	1

Total Hours: 45**Course Outcomes**

On the completion of the course the students will be able to:

1. Identify and describe various nystagmus patterns associated with BPPV.
2. Differentiate between the common variants of BPPV based on clinical presentation and diagnostic tests.
3. Implement advanced diagnostic and therapeutic techniques for managing complex horizontal canal BPPV.
4. Recognize and describe various psychogenic dizziness conditions.

Course Content**UNIT I****11 Hours**

Migraine: Overview and Demographic, Pathophysiology of Migraine, Genetic/Familial Influence, Migraine Variants, Vestibular and balance manifestations, VRT/Other treatment modalities with migraine

UNIT II**11 Hours**

Benign Paroxysmal Positional Vertigo (BPPV): Review of nystagmus patterns, Review of common variants of BPPV o Biochemistry and co-morbidities associated with BPPV, Atypical variants of BPPV

UNIT III**11 Hours**

Apogeotropic and Anterior Canal-BPPV: Complex Horizontal Canal, Advanced Technique and Management Complicating factors, Complex Diagnoses presenting with Dizziness and Management, Parkinson's Disease / Multiple Sclerosis / Diabetes, Cerebellar Disease / POTS / Bilateral Vestibulopathies, Vestibulotoxicity.

UNIT IV**12 Hours**

Psychogenic dizziness: Overview of personality disorders and historical perspective of vestibular/psychiatric conditions Psychogenic Variants, Space and Motion Discomfort (SMD), Mal de Debarquement Syndrome (MDDS), Migraine Anxiety Related Dizziness

(MARD), Phobic Postural Vertigo (PPV), Persistent Postural-Perceptual Dizziness (PPPD), Motor Conversion

Transaction Mode

Open learning, Group discussions, Lecture, Seminar, e-Tutoring, Dialogue, Peer Group Discussion, Self-Learning and Cooperative Learning

Suggested Readings

- Kisner, C., Colby, L. A., & Borstad, J. (2017). *Therapeutic exercise: foundations and techniques*. Fa Davis. *The Principle of Exercise Therapy* -Gardiner (2005) - C.B.S.Delhi.
- *Vestibular Rehabilitation*, Susan J. Herdman, Richard Clendaniel, 2014.
- Jacobson, G. P., & Shepard, N. T. (2008). *Balance Function Assessment and Management*. Plural Publishing.
- Newman-Toker, D. E. (Ed.). (2019). *Dizziness and Vertigo Across the Lifespan*. Elsevier.
- Burkard, R. F., Halmagyi, J. M., & López-Escámez, M. A. (2016). *Clinical Neurophysiology of the Vestibular System*. Oxford University Press.

Web Sources

- <https://my.clevelandclinic.org/health/treatments/15298-vestibular-rehabilitation>
- <https://vestibular.org/article/diagnosis-treatment/treatments/vestibular-rehabilitation-therapy-vrt/>
- https://www.physiopedia.com/Vestibular_Treatment

Course Title: VESTIBULAR REHABILITATION LAB

Course Code: BPT5307

L	T	P	Credits
0	0	2	1

Total Hours: 15

Course Outcomes

On the completion of the course the students will be able to:

1. Assess understanding and knowledge retention of introductory concepts on vestibular dysfunctions.
2. Evaluate comprehension and ability to define and describe balance.
3. Measure proficiency in assessing and intervening in BPPV cases
4. Evaluate differentiation and management approaches for different types of vestibular dysfunctions

Course Content

Introduction and Components of balance, Vestibular dysfunction: BPPV assessment, Interventions. Vestibular dysfunctions –unilateral, bilateral, central. Vestibular hypo function – physical therapy assessment tools, physical therapy interventions, Complete vestibular loss – assessment and interventions. Vestibular dysfunctions not responsive to physical therapy management. Cervicogenic dizziness –Assessment, physical therapy interventions.

Transaction Mode

Open learning, Group discussions, Lecture, Seminar, e-Tutoring, Dialogue, Peer Group Discussion, Self-Learning and Cooperative Learning

Suggested Readings

- Kisner, C., Colby, L. A., & Borstad, J. (2017). *Therapeutic exercise: foundations and techniques*. Fa Davis. *The Principle of Exercise Therapy* -Gardiner (2005) - C.B.S.Delhi.
- *Vestibular Rehabilitation*, Susan J. Herdman, Richard Clendaniel, 2014.
- Jacobson, G. P., & Shepard, N. T. (2008). *Balance Function Assessment and Management*. Plural Publishing.
- Newman-Toker, D. E. (Ed.). (2019). *Dizziness and Vertigo Across the Lifespan*. Elsevier.
- Burkard, R. F., Halmagyi, J. M., & López-Escámez, M. A. (2016). *Clinical Neurophysiology of the Vestibular System*. Oxford University Press.

Web Sources

- <https://my.clevelandclinic.org/health/treatments/15298-vestibular-rehabilitation>

- <https://vestibular.org/article/diagnosis-treatment/treatments/vestibular-rehabilitation-therapy-vrt/>
- https://www.physiopedia.com/Vestibular_Treatment

Course Title: Physical & Functional Diagnosis and Prescription: (PFDP) Theory	L	T	P	Cr edi ts
Course Code: BPT5308	3	0	0	3

Total Hours: 45

Course Outcomes:

After completion of this course the student shall be able to

1. Explain movement dysfunction and models used to evaluate function in ICICDH, ICF approach
2. Explain choice of appropriate tools/instruments of assessment in musculoskeletal, neurological and cardio-vascular and respiratory conditions

Unit 1

12 Hours

Introduction to International Classification of Function, Disability & Health (I.C.F.) as a basis Functional Diagnosis of impairment, activity limitation and participation restriction, Assessment of Musculoskeletal Dysfunction of tissue flexibility, Joint mobility, Muscle strength & Endurance, Trick movement, Sensations, Limb length, Abnormal posture, Gait deviations due to musculoskeletal dysfunction, Special Tests Cervical Spine: Foraminal compression, Distraction, Shoulder depression, vertebral artery, Dizziness tests Shoulder: Yergason's, Speed's, Drop- Arm, Supraspinatus, Impingement, Anterior & Posterior Apprehension, Allen's, Adson's test. Elbow: Cozen's, Miller's, Tinel's sign, Forearm, Wrist & Hand: Phalen's, Bunnel-Littler, Froment's sign Lumbar Spine: Schober's, SLR, Prone, Knee Bending, Slump. Sacro Iliac joint: Faber- Patrick's, Gaenslen, Gillet, March's test Hip: Nelaton's line, Bryant's triangle, Thomas, Ober's, Tripod sign, Trendlenburg sign Knee: Tests for collateral & cruciate ligaments (valgus, varus, Lachman, Drawer's, McMurray's, Fluctuation, Patellar tap, Q- angle, Clarke's test Ankle & Foot: Anterior Drawer, Talar Tilt, Homan's & Moses test

Unit II

11 Hours

General principles of Human development & maturation Aspects a) Physical b) motor c) Sensory d) Cognitive & Perceptive e) Emotional f) Social. Factors influencing human development & growth: a) Biological b) Environmental inherited Principles of

maturation in general & anatomical directional pattern – a) Cephalo – caudal b) Proximo – distal c) Centro – lateral d) Mass to specific pattern e) Gross to fine motor development f) Reflex maturation tests Development in specific fields - Oromotor development, sensory development, neurodevelopment of hand function

Unit III

11 Hours

Assessment of Cardio Vascular & Pulmonary Dysfunction: cardiorespiratory Assessment and management techniques: Vital parameters, Chest expansion, Symmetry of chest movement, Breath Holding Test, Breath Sounds, Rate of Perceived Exertion (R.P.E.), 6minute walk test, Auscultation, Breathing exercises, postural drainage, thoracic expansion, rib mobilization, Respiratory PNF

Unit- IV

11 Hours

Evaluation of Functional Capacity using sub maximal tests (Exercise Tolerance – Six Minutes Walk test) Theoretical bases of different protocols for maximal exercise testing (e.g.: Bruce Protocol, Modified Bruce Protocol, Balke) Interpretation of reports – A.B.G., P.F.T., P.E.F.R., E.C.G.- (Normal & Variations due to Ischemia & Infarction), X-ray Chest, Biochemical Reports Ankle Brachial Index Tests for Peripheral Arterial & Venous circulation, BMI, Waist – Hip Ratio, Skin fold Caliper, Girth measurements

Course Title: Physical & functional diagnosis & Prescription (PFDP) Lab	L	T	P	Credits
Course Code: BPT5309	0	0	2	1

Total Hours: 15

Course Outcomes

On the completion of the course the students will be able to:

1. Demonstrate the skills for independent performance of various tests and procedures
2. Document evaluation finding of patient based on ICF model identifying structural impairments, functional impairments, participation, contextual factors, performance and capacity measurement

Course Content

Student shall be able to perform the Demonstration of all the test procedures mentioned in the syllabus on self / human model

Transaction Mode

Open learning, Group discussions, Lecture, Seminar, e-Tutoring, Dialogue, Peer Group Discussion, Self-Learning and Cooperative Learning

Suggested Readings

- *Cognitive behaviour therapy Basics and beyond (Second edition) Judith S. Beck, The Guildford Press.2011*
- *Grazebrook and Garland (2005) BABCP Board.*
- *Padesky, C.A & Mooney, K.A. (1990). International Cognitive Therapy Newsletter (ICTN).Vol 6, 13-14 Roth, A and Fonagy, P (2005) What Works for Whom: A Critical Review of Psychotherapy Research. London, Guildford.*
- *Greenberger, D., & Padesky, C. A. (2015). Mind Over Mood: Change How You Feel by Changing the Way You Think (2nd ed.). The Guilford Press.*
- *Riggenbach, J. (2012). The CBT Toolbox: A Workbook for Clients and Clinicians. PESI Publishing & Media.*

Web Sources

- https://www.physio-pedia.com/Cognitive_Behavioural_Therapy
- https://www.physio-pedia.com/The_Inclusion_of_CBT_in_Physiotherapy_Education.

SEMESTER-VI

Course Title: PHYSIOTHERAPY IN ORTHOPEDIC CONDITIONS	L	T	P	Credits
Course Code: BPT6350	3	0	0	3

Total Hours: 45

Course Outcomes

On the completion of the course the students will be able to:

1. Develop skills to assess various Orthopaedic conditions.
2. Draw out a provisional diagnosis based on patient history and evaluation.
3. Gain proficiency in planning physiotherapy treatment for various bone and joint deformities.
4. Learn about the principles of physiotherapy management of fractures.

Course Content

UNIT I**11 Hours**

PT assessment for Orthopaedic conditions; SOAP format Selection and application of physiotherapeutic techniques, manoeuvres, modalities for preventive, curative and rehabilitation means in all conditions; Traumatology; Physiotherapy assessment in fracture cases (Upper limb, Lower Limb and spine) Principles of PT management in fracture cases – guidelines for treatment during immobilization and after immobilization period. PT management in complications (early and late).

UNIT II**11 Hours**

Physiotherapy assessment, goals, precautions and PT management in following deformities: Congenital disorders or Deformities, Congenital Torticollis, Cervical rib, Sprengels shoulder, Coxa vara & valga, CTEV, Pes Planus, Pes cavus; Acquired Deformities: Scoliosis, Kyphosis, Lordosis, Coxa vara, Genu valgum, Genu varum and Recurvatum, Physiotherapy management for Soft Tissue injuries and inflammatory condition of upper and lower limb

UNIT III**11 Hours**

Amputation- level of amputation of upper limb and lower limb, PT assessment, aims, pre and postoperative PT management, stump care, stump bandaging, pre and post prosthetic management including check out of prosthesis, training, complications and its management; Pre and post-operative physiotherapy assessment, goals, precautions and PT management for Arthrodesis, Osteotomy, Tendon transplantation; Soft tissue release – tenotomy, myotomy, lengthening. Bone grafting. Arthroplasty – partial and total, External fixators, Synovectomy. Leprosy: Common deformities; Clinical Features, PT assessment, aims and management after surgical procedures; Poliomyelitis - Common deformities, Clinical Features, PT assessment, aims and management after surgical corrections and reconstructive surgeries

UNIT IV**12 Hours**

Infective conditions; Review sign and symptoms, radiological features, pathology, common deformities and medial surgical management, PT assessment and management for, Osteomyelitis – acute and chronic, Septic arthritis, Pyogenic arthritis, TB spine and major joints (knee and hip); Degenerative and inflammatory conditions, Review sign and symptoms, radiological features, pathology, common deformities and medial surgical management, PT assessment and management in acute and chronic stage and detailed home programme for Rheumatic Arthritis

Osteoarthritis – emphasis on hip, knee and hand. Ankylosing spondylitis Periarthritic shoulder, Gout, Perthes disease; Spinal Conditions - Outline PT assessment, PT aims, management and home program for Cervical and lumbar spondylosis, Spondylitis, Spondylolisthesis, Spinal canal Stenosis Spinal postural abnormalities, SI joint dysfunction, Sacralisation, Lumbarisation Intervertebral disc prolapsed, Coccydynia, Spina bifida. Treatment guidelines for soft tissue injuries – acute, sub-acute and chronic stages, Repair of soft tissues – rupture of muscle, tendon and ligamentous tear,

Transaction mode

Demonstration method, Flipped learning, Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- Thompson, A. (2013). *Tidy's Physiotherapy*. Varghese publishing House.
- Sullivan, S. (2013). *Physical Rehabilitation Assessment and Treatment*. Jaypee brothers, Delhi.
- Clarkson, H. M. (2000). *Musculoskeletal Assessment: Joint Range of Motion and Manual Muscle Strength*. Lippincott Williams & Wilkins.
- Magee, D. J. (2014). *Orthopedic Physical Assessment*. Elsevier.
- Donatelli, R. A. (2019). *Orthopaedic Physical Therapy*. Elsevier.

Web Sources

- https://www.physio-pedia.com/SOAP_Notes
- <https://www.versusarthritis.org/about-arthritis/conditions/ankylosing-spondylitis/>

Course Title: PHYSIOTHERAPY IN CARDIOPULMONARY CONDITIONS	L	T	P	Credits
Course Code: BPT6351	3	0	0	3

Total Hours: 45

Course Outcomes

On successful completion of this course, the students will be able to

1. Gain knowledge about anatomy and physiology of pulmonary and circulatory system.
2. Gain knowledge about the lung volumes and capacities
3. Develop skills to differentiate normal and abnormal heart and lung sounds based on auscultation.
4. Plan and provide cardiac and pulmonary rehabilitation programme.

Course Content

UNIT I

11 Hours

Review of Anatomy and Physiology of the Cardio Respiratory System Patient assessment – Bedside assessment of patient. Investigations and tests – exercise tolerance test, radiographs, ECG, ABG, Haematological and biochemical tests.

UNIT II

12 Hours

Physiotherapy techniques to increase lung volume – controlled mobilization, positioning, breathing exercises, incentive spirometry; To decrease work of breathing – positioning, breathing re-education, breathing control techniques, mechanical aids – IPPB, CPAP, BiPAP; To clear secretions – hydration, humidification and nebulisation, mobilization and breathing exercises, postural drainage, manual techniques – percussion, vibration and shaking, autogenic drainage, mechanical aids – PEP, IPPB, facilitation of cuff and huff, nasopharyngeal suctioning. Physiotherapy management in breathlessness; Review of pathological changes and principle of management by physiotherapy in following conditions – Thrombosis, Embolism, Arteriosclerosis, Thrombophlebitis, Gangrene, Congestive cardiac failure, Hypertension, Hypotension.

UNIT III

11 Hours

Physiotherapy in Obstructive Lung Diseases: Treatment techniques for Asthma, Bronchiectasis, Chronic Bronchitis and Emphysema; Relaxation posture and techniques, reassurance and education about disease, Controlled breathing, breathing exercise, postural drainage, vibratory shaking, huffing and coughing, graduated exercise programme and posture correction.

UNIT IV

11 Hours

Physiotherapy in Restrictive lung disorders; Treatment techniques for Restrictive lung dysfunction including Pneumonia, Bronchogenic Carcinoma, Pleura Effusion, Occupational Lung diseases - mobilizing exercise to thorax and spine breathing exercise to increase ventilation, Exercise for posture correction, graduated exercise to increase tolerance, Pulmonary rehabilitation and cardiac rehabilitation.

Transaction mode

Demonstration method, Flipped learning, Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- Downie, A. (1979). *Cash's Textbook of Chest, Heart and Vascular Disorders for Physiotherapists*. Faber & Faber, Budapest (1979).
- Porter, S. (2013). *Tidy's Physiotherapy E-Book*. Elsevier Health Sciences.
- DeTurk, W., & Cahalin, L. (2019). *Cardiovascular and Pulmonary Physical Therapy: An Evidence-Based Approach (3rd ed.)*. McGraw-Hill Education.
- Kisner, C., & Colby, L. A. (2007). *Physical Therapy for the Cardiovascular System*. F.A. Davis Company.
- Frownfelter, D., & Dean, E. (2016). *Cardiovascular and Pulmonary Physical Therapy: Evidence to Practice (6th ed.)*. Wolters Kluwer.

Web Sources

- <https://www.lung.org/lung-health-diseases/lung-procedures-and-tests/spirometry>
- <https://www.nhlbi.nih.gov/health/pulmonary-rehabilitation>

Course Title: Physiotherapy in Medical Conditions

Course Code: BPT6352

Course Outcomes

L	T	P	Credits
3	0	0	3

Total Hours- 45

On the completion of the course the students will be able to

1. Learn about deficiency related disorders and their physiotherapy management.
2. Develop proficiency in providing rehabilitation for vestibular disorders.

3. Gain expertise in treating dermatological conditions using electrotherapy.
4. Gain knowledge about obesity management.

Course Content

UNIT I

11 Hours

Physiotherapy management in general medical conditions:

Types of oedema-Traumatic, Obstructive, Paralytic, oedema due to poor muscle and laxity of fascia, Vestibular Rehabilitation: Exercise Prescription in Vertigo, Physiotherapy in management of burns, skin grafting and reconstructive procedures. Physiotherapy management in wounds, ulcers and pressure sores – care of ulcers and wounds, electrotherapy in healing of wounds, different types of scars, pain relief during scar mobilization, prevention of hyper-granulated scars keloids.

UNIT II

11 Hours

Physiotherapy in dermatology

UVR therapy in various skin conditions (Acne, Psoriasis, Alopecia), Faradic foot bath for hyperhydrosis; care of anaesthetic hand and foot, evaluation and management of leprosy, Deficiency Diseases – Rickets, Diabetes, Osteoporosis, Osteomalacia, osteopenia, Obesity.

UNIT III

11 Hours

Pediatrics

Review of the examination & assessment of a pediatric patient, Review of pathological changes and principle of management by physiotherapy of the following conditions- Congenital & acquired musculo-skeletal disorders, Congenital & acquired Cardio - pulmonary disorders. Congenital & acquired neurological disorders (CNS & PNS), Hereditary disorders, Nutritional Vitamins Deficiency & Development Disorders

UNIT IV

12 Hours

Geriatrics

Review of the examination & assessment of a geriatric patient, Review of pathological changes and principle of management by physiotherapy

of the following conditions – Musculoskeletal disorders, Cardio - pulmonary disorders, Neurological disorders (CNS & PNS), Dementia – types and principles of management

Transaction Mode

Lecture, Seminar, e-Team Teaching, e-Tutoring, Mobile Teaching, Self- Learning and Cooperative Learning

Suggested Readings

- Porter, S. (2013). Tidy's Physiotherapy E-Book. Elsevier Health Sciences.
- Cash, J. E. (1951). A Textbook of Medical Conditions for Physiotherapists. American Journal of Physical Medicine & Rehabilitation, 30(6), 388.

Course Title: PHYSIOTHERAPY ETHICS

Course Code: BPT6353

L	T	P	Cred its
2	0	0	2

Total Hours: 30

Course Outcomes

On the completion of the course the students will be able to

1. Be aware of History of physiotherapy.
2. Be aware of ethics and laws of physiotherapy.
3. Be aware of the rules that govern the profession.
4. Apply the ethical guidelines while dealing with patients.

Course Content

UNIT I

07 Hours

History of physiotherapy, Ethical principles in health care, Ethical principles related to physiotherapy, Scope of practice, Consumer Protection Law, Law of disability and discrimination.

UNIT II

08 Hours

Enforcing standards in health profession-promoting quality care, Professional ethics in research, Education and patient care delivery, Informed consent issues, Medical ethics and Economics in clinical decision-making.

UNIT III

07 Hours

Ethical issues in physiotherapy, Ethical issues in clinical practice, Ethical issues in private practice, Professional ethics, Palliative care.

UNIT IV

08 Hours

Rules of professional conduct, Physiotherapy as a profession, Relationship with patients, Relationship with medical and other professional.

Confidentiality and Responsibility, Malpractice and negligence, Resolution of conflicts, Role of physiotherapy, Role of PT in health care, Ethical responsibilities of a PT, Core values, Decision making process

Transaction Mode

Open learning, Problem solving, Flipped teaching, Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- *Ethical Issues Perspectives for the physiotherapists* – Kavita Raja, Fiddy Davis
- *Essentials of Community Physiotherapy and Ethics* – Prof.Dr. Rajinder Rajput
- *Physical Therapy Ethics*-Donald L Gabard
- Michael, J. (2011). *Practical ethics for the physical therapist*. F.A. Davis Company.
- Swisher, L. L., Page, C. G., & Harker, C. W. (2005). *Professionalism in physical therapy: History, practice, & development*. Elsevier Health Sciences.
- Swisher, L. L., & Page, C. G. (2005). *Clinical ethics in physical therapy: A guide for practice*. W.B. Saunders Company.

Web Sources

- https://www.ipcb.pt/sites/default/files/upload/rh/files/concursos/WCPT%20-%20Ethical%20responsibilities%20of%20physical%20therapists_0.pdf
- <https://www.hueglifraserlaw.com/blog/portland-oregon-medical-malpractice/2016/03/11/physical-therapy-malpractice/>
- <https://manavrachna.edu.in/blog/scope-of-physiotherapy/>

Course Title: PHYSIOTHERAPY IN CARDIOPULMONARY CONDITIONS LAB

Course Code: BPT6354

L	T	P	Credits
0	0	2	1

Total Hours: 15

Course Outcomes

On successful completion of this course, the students will be able to:

1. To gain skills about the thoracic surface marking and important landmarks.
2. Read and interpret chest X-Ray.
3. Gain expertise in recording and interpreting ECG.
4. Outline a plan for providing cardiac and pulmonary rehabilitation.

Course content

Include Clinical Hours on patient examination under supervision on the various conditions as outlined in “Physiotherapy in Cardiopulmonary Conditions”.

Physiotherapy intervention under supervision on the various conditions as outlined in “Physiotherapy in Cardiopulmonary Conditions”.

Includes case presentations emphasizing on differential diagnosis and clinical reasoning skills.

To reach the diagnosis and making of plan of care of the disorder.

Transaction mode

Demonstration method, Video based teaching, Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested readings

- Downie, A. (1979). *Cash's Textbook of Chest, Heart and Vascular Disorders for Physiotherapists*. Faber & Faber, Budapest (1979).
- Porter, S. (2013). *Tidy's Physiotherapy E-Book*. Elsevier Health Sciences.
- DeTurk, W., & Cahalin, L. (2019). *Cardiovascular and Pulmonary Physical Therapy: An Evidence-Based Approach (3rd ed.)*. McGraw-Hill Education.
- Kisner, C., & Colby, L. A. (2007). *Physical Therapy for the Cardiovascular System*. F.A. Davis Company.

- Frownfelter, D., & Dean, E. (2016). *Cardiovascular and Pulmonary Physical Therapy: Evidence to Practice (6th ed.)*. Wolters Kluwer.

Web Source

- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6490271/>
- <https://www.hopkinsmedicine.org/health/conditions-and-diseases/restrictive-lung-disease>

Course Title: PHYSIOTHERAPY IN ORTHOPEDIC CONDITIONS LAB

Course Code: BPT6355

L	T	P	Credits
0	0	2	1

Total Hours: 30

Course Outcomes

On successful completion of this course, the students will be able to

1. Become proficient in conducting of special tests.
2. Read and interpret radiographic films.
3. To evaluate the red and yellow flags of physiotherapy.
4. Plan out short- and long-term goals of physiotherapy treatment.

Course Content

General Physiotherapy approach for following conditions - Fractures and Dislocations
Various physiotherapy modalities and treatment techniques for the conditions mentioned in “Physiotherapy in Orthopaedic Conditions” to be demonstrated and practiced by the students in clinical setup.

PT management of various congenital disorders or Deformities.

Case presentations and Case discussions.

Transaction mode

Demonstration method, Video based teaching, Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested readings

- Loudon, J. K., Swift, M., & Bell, S. (2008). *The clinical orthopedic assessment guide. Human Kinetics.*
- Joshi, J. (1999). *Essentials of orthopaedics & applied physiotherapy. Elsevier India.*
- Clarkson, H. M. (2000). *Musculoskeletal Assessment: Joint Range of Motion and Manual Muscle Strength. Lippincott Williams & Wilkins.*
- Magee, D. J. (2014). *Orthopedic Physical Assessment. Elsevier.*
- Donatelli, R. A. (2019). *Orthopaedic Physical Therapy. Elsevier.*

Web Sources

- <https://www.physio-pedia.com/Fracture>
- <https://calgaryyouthphysio.com/orthopaedic-congenital-conditions/>

Course Title: PHYSIOTHERAPY IN GENERAL MEDICAL CONDITIONS LAB

L	T	P	Credits
0	0	2	1

Course Code: BPT6356

Course Outcomes**Total Hours- 15**

On the completion of the course the students will be able to

1. Become proficient in pulmonary and cardiac assessment.
2. Draw provisional diagnosis on the basis of patient assessment.
3. Provide post-operative physiotherapy.
4. Gain expertise in cardiopulmonary physiotherapy management.

Course Content

Various physiotherapy modalities and treatment techniques for the following conditions: Oedema, Vertigo, Burns, Various physiotherapy modalities and treatment techniques for the following conditions: Acne, Alopecia, Rickets, Psoriasis, Osteoporosis, Osteomalacia, Various physiotherapy modalities and treatment techniques for the following paediatric conditions:

- Congenital & acquired musculo-skeletal disorders.
- Congenital & acquired Cardio - pulmonary disorders.
- Congenital & acquired neurological disorders (CNS & PNS)

Various physiotherapy modalities and treatment techniques for the following geriatrics conditions: Congenital & acquired musculo-skeletal disorders, Congenital & acquired Cardio - pulmonary

disorders, Congenital & acquired neurological disorders (CNS & PNS)

Transaction Mode

Lecture, Seminar, e-Team Teaching, e-Tutoring, Mobile Teaching, Self- Learning and Cooperative Learning

Suggested Readings

- Porter, S. (2013). Tidy's Physiotherapy E-Book. Elsevier Health Sciences.
- Cash, J. E. (1951). A Textbook of Medical Conditions for Physiotherapists. American Journal of Physical Medicine & Rehabilitation, 30(6), 388.

Course Title: The Outreach of Indian Knowledge System	L	T	P	Cr.
Course Code: IKS0012	2	0	0	2

Total Hours: 30

Course Learning Outcomes : On the completion of the course, the students will be able to

1. Understand to Gain knowledge about the historical development, philosophical roots, and interdisciplinary nature of the Indian Knowledge System (IKS), including its contributions to science, mathematics, medicine, and arts.
2. Analyze the traditional wisdom in fields like Ayurveda, Yoga, Astronomy, Metallurgy, and Linguistics, and how they have influenced both ancient and modern scientific advancements.
3. Examine the impact of Indian knowledge on global civilizations, including its contributions to trade, education, and cultural exchange, and how it shaped modern intellectual traditions.
4. Development the relevance of IKS in the modern world, including its role in sustainable development, environmental conservation, and its integration into contemporary education, research, and innovation.

Course Content

Unit-I

7 Hours

Introduction, the outreach of Indian Knowledge System beyond Indian boundaries forms the ancient times.

Unit – II:

8 Hours

Outreach to East, Southeast, Central and Southeast Asia of Indian phonetic script, decimal value place system-based arithmetic, algebra, astronomy and calendar, medical pharmacopeia, architecture, methods of making iron and steel, cotton textiles, etc.

Unit – III:

8 Hours

The transmission of Indian linguistics, knowledge of plants, iron and steel metallurgy, textiles and dyeing, shipbuilding etc., to Europe in 17/18/19th centuries.

Unit – IV:

7 Hours

Current global outreach of Ayurveda, History, merits and demerits, characteristics, future impacts of Yoga and Indian Fine Arts.

Transactional Mode

Seminars, Group discussion, Team teaching, Focused group discussion, Assignments, Project-based learning, Simulations, reflection and Self-assessment

Suggested Readings

- Dharampal (1995). *The Beautiful Tree: Indigenous Indian Education in the Eighteenth Century*. Biblia Impex.
- Michel Danino (2010). *The Lost River: On the Trail of the Sarasvati*. Penguin India.
- Pingree, D. (1978). *The Astronomical Works of Brahmagupta*. Journal of the American Oriental Society.
- Sastry, T. A. (2008). *Indian Traditional Knowledge: Opportunities for Sustainable Development*. Indian Journal of Traditional Knowledge.
- P.P. Divakaran (2018). *The Mathematics of India: Concepts, Methods, Connections*. Hindustan Book Agency.
- Kapil Kapoor & Avadhesh Kumar Singh (2005). *Indian Knowledge Systems*. D.K. Printworld.

Course Title: EXERCISE PHYSIOLOGY

Course Code: BPT6357

L	T	P	Credits
4	0	0	4

Total Hours: 60**Course Outcomes**

On completion of this course, the successful students should be able to:

1. To gain knowledge of bioenergetics and metabolic rate
2. To gain knowledge about the metabolism process in the human body
3. To examine exercise testing and prescription
4. To gain knowledge about nutrition and its effect on exercise

Course Content**UNIT I****15 Hours**

Bioenergetics of exercises, Basal metabolic rate, resting metabolic rate, factors affecting, energy cost of exercise

UNIT II**15 Hours**

MET, Physical activity classification based on energy expenditure, Role of aerobic and anaerobic mechanism during exercises

UNIT III**15 Hours**

Acute effects of high, burst and short duration exercises, Respiratory response to exercise, Cardiovascular response to exercise, Hormonal response to exercise

UNIT IV**15 Hours**

Exercise and acid base balance, Nutrition and nutrition in exercise, Metabolism of carbohydrate, fat, protein, vitamin, mineral and water, Body composition and Obesity exercises for weight reduction, Exercise testing planning and prescription, Conditioning exercise for strength, duration and flexibility, Body temperature regulation

Transaction mode

Demonstration method, Group Discussion, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning.

Suggested readings

- *Essentials of Exercise Physiology: McArdle, WD, Katch, FI, and Katch, VL. 2nd edn, Lippincott Williams and Wilkins (2000)*
- *Fundamentals of Exercise Physiology: For Fitness Performance and Health, Robergs RA, and Roberts, S.O. McGraw Hill (2000)*
- *Exercise Physiology: Powers, SK and Howley ET. 4th edn; Mc Graw Hill (2001)*
- Powers, S. K., & Howley, E. T. (2020). *Exercise Physiology: Theory and Application to Fitness and Performance (10th ed.)*. McGraw-Hill Education.
- American College of Sports Medicine. (2017). *ACSM's Guidelines for Exercise Testing and Prescription (10th ed.)*. Wolters Kluwer

Web Sources

- <https://www.ptdirect.com/training-design/anatomy-and-physiology/acute-respiratory-responses>
- <https://www.garnethealth.org/news/basal-metabolic-rate>
- [https://www.physio-pedia.com/Cardiopulmonary_Exercise_Testing_\(CPET\)_In_Adults](https://www.physio-pedia.com/Cardiopulmonary_Exercise_Testing_(CPET)_In_Adults)

Course Title: CLINICAL REASONING AND EVIDENCE-BASED PRACTICE

Course Code: BPT6358

L	T	P	Credits
4	0	0	4

Total Hours: 60

Course Outcomes

On the completion of the course the students will be able to:

1. Comprehend the clinical reasoning in physiotherapy practice.
2. To understand the concepts behind evidence based practice.
3. To gain knowledge about evidence based practice.
4. Apply evidence based practice in clinical situations.

Course Content

UNIT I

15 Hours

Evidence Based Practice: an overview; Need for Evidence-Based Practice; History of Evidence Based Health Care and Evidence-Based Practice.

UNIT II**15 Hours**

Evidence Based Practice: Process, Research Strategies, Assessing validity of evidence, Critical appraisal of evidence about prognosis, Meaning of evidence for physiotherapy practice.

UNIT III**15 Hours**

Clinical Guidelines as resource for Evidence-Based Practice: Historical Guidelines and their importance, Implementing the guidelines, Evidence based practice in quality improvement, Assessing patient outcomes.

UNIT IV**15 Hours**

Context of physical assessment and clinical reasoning; Legal/ethical principles, Clinical governance, Evidence based practice, National and local initiatives for changing roles in practice, Health promotion.

Transaction Mode

Open learning, Group discussions, Lecture, Seminar, e-Tutoring, Dialogue, Peer Group Discussion, Self-Learning and Cooperative Learning

Suggested Readings

- *Clinical Reasoning in the Health Professions 4th Edition - October 15, 2018 by Joy Higgs, Gail M. Jensen, Stephen Loftus, Nicole Christensen*
- *Clinical Reasoning in the Health Professions, Joy Higgs, Mark A Jones, Stephen Loftus, PhD, MSc, BDS, Nicole Christensen, 14 Feb 2008*
- *Herbert et al, Practical Evidence-Based Physiotherapy Elsevier Publishers.*
- *Fetters, L., & Tilson, J. (2020). Evidence-Based Practice in Physical Therapy. F.A. Davis Company.*
- *Moseley, A. M., Sherrington, C., & Elkins, M. (2009). Physiotherapy Evidence Database (PEDro) Scale. Centre for Evidence-Based Physiotherapy.*

Web Sources

- https://www.physio-pedia.com/Clinical_Reasoning
- [https://www.physio-pedia.com/Evidence_Based_Practice\(EBP\)_in_Physiotherapy](https://www.physio-pedia.com/Evidence_Based_Practice(EBP)_in_Physiotherapy)

Course Title: COMMUNITY BASED REHABILITATION**Course Code: BPT6359**

L	T	P	Credits
4	0	0	4

Total Hours: 60**Course Outcomes**

On successful completion of this course, the students will be able to:

1. Understand the principles and strategies of CBR
2. Comprehend the various components and programmes of CBR
3. Gain knowledge of disability and development
4. Acquire knowledge on vocational rehabilitation and schemes provided by the government to prevent disabilities.

Course content:**UNIT I****15 Hours**

Introduction, Principles and Strategies of CBR, Meaning, scope, basic principles and strategies of Community Based Rehabilitation, Difference between Community Based Rehabilitation and Institutional Based Rehabilitation, Existing poverty alleviation/developmental programs and inclusion of Community

UNIT II**15 Hours**

Community Based Rehabilitation as a context specific program as in different socio cultural and economic conditions such as urban, rural, tribal, hilly regions, Different team approaches in Community Based Rehabilitation, Building and use of existing resources of the community in sustaining Community Based Rehabilitation such as primary health, primary education, rural development and corporate sectors and development of referral and resource directory.

UNIT III**15 Hours**

Disability and Development: Human growth & development across life span – pre-natal, infancy, early childhood and adults, Theories & principles, Milestones in different domains (gross & fine motor, cognition, vision, hearing, Social-emotional and daily living skills), Basic anatomy & physiology of human body, Concept of disability (including mental illness), definitions and classification, Poverty, disability and developmental programs, Global, National, State and Local legislations concerning

disability and development, Schemes & concessions for persons with disabilities, Advocacy and rights of persons with disabilities, History of disability rehabilitation.

UNIT IV

15 Hours

Programmes implemented by the Government for the prevention of disabilities. Association between nutrition, health care and disability, Factors contributing to disability such as maternal care, accidents, ageing and others, Role of community in the prevention of disabilities, Guidance & counseling to persons with disabilities and their family (need for early, Detection and intervention), Identification of behavioral problems and application of appropriate teaching and learning, Independence / management of daily living skills and mobility, Identifying trades and need for vocational training, Planning for placements, developing marketing linkages.

Transaction Mode

Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- *Physiotherapy in Community Health and Rehabilitation-Waqar Naqvi- Jaypee*
- *Essentials of Community-based Rehabilitation By Nagar Satya Bhushan- Jaypee*
- *Essentials of community physiotherapy & ethics by Prof (Dr)Rajendra Rajput*
- *Textbook of Rehabilitation by S Sunder*
- *World Health Organization. (2010). Community-Based Rehabilitation: CBR Guidelines. World Health Organization.*

Web Sources

- <https://apps.who.int/iris/bitstream/handle/10665/279966/WPR-2017-DNH-005-factsheet-03-cbr-eng.pdf?sequence=4>
- <https://www.ncbi.nlm.nih.gov/books/NBK310933/>
- https://www.3ieimpact.org/sites/default/files/2019-05/srs4-commbasedrehab_0.pdf

Course Title: OEDEMA MANAGEMENT

Course Code: BPT6360

L	T	P	Credits
4	0	0	4

Total Hours: 60**Course Outcomes**

On successful completion of this course, the students will be able to:

1. Discuss the anatomy and physiology of the lymphatic system
2. Determine the lymphatic system's role in fluid homeostasis (edema/swelling management)
3. Apply differential diagnosis of edema
4. Describe problem-solving rationale and appropriate MEM techniques in relation to specific diagnoses.

Course content:**UNIT I****15 Hours**

Tissue response to trauma, Anatomy and physiology of the cardiovascular and lymphatic system

UNIT II**15 Hours**

Types of edema & differential diagnosis; Key Components of Manual Edema Mobilization (MEM); Diaphragmatic breathing and practice, Light manual lymphatic system stimulation and practice: Pump Points, Clear and Flow; Exercise incorporation; Adjuncts: Compression/bandaging/garments, Kinesiology taping, neutral warmth devices, Self-management home program design.

UNIT III**15 Hours**

MEM method for the upper extremity: Diaphragmatic breathing & exercise, Manual technique for UE: pump point stimulation, Manual techniques for UE: clear and flow (including hand and fingers), Compression/bandaging/garments, Kinesiology taping, Neutral warmth devices, Self-management home program design

UNIT IV**15 Hours**

MEM for the lower extremity: Diaphragmatic breathing & exercise, Manual technique for LE: pump point stimulation, Compression/bandaging/garments, Kinesiology taping, Neutral warmth devices, Self-management home program design

Transaction mode

Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- *Edema: Medical Causes and Management" by Stanley G. Rockson*
- *Lymphedema Management: The Comprehensive Guide for Practitioners*
- *Lymphedema: A Concise Compendium of Theory and Practice by Arin K. Greene, Sumner A. Slavin, and Hakan Brorson*
- *Lymphoedema Care" edited by Mary Elizabeth Woods and Michelle Draper*
- *Physical Therapy for Lymphedema: Complete Decongestive Therap by Lisa Levick*

Web Sources

- https://www.physio-pedia.com/Peripheral_Edema
- <https://propelphysiotherapy.com/physiotherapy/edema-treatment/>

SEMESTER-VII

Course Title: NEUROLOGY

Course Code: BPT7400

L	T	P	Credits
3	0	0	3

Total Hours:

45

Course Outcomes

On successful completion of this course, the students will be able to:

1. Gain knowledge about structure and working of brain, spinal cord and nerves.
2. Be skilled in assessment and evaluation of various neurological conditions.
3. Investigate nervous system disorders.
4. Be aware of clinical features and management of various diseases affecting brain and spinal cord.

Course content:

UNIT I

12 Hours

Briefly outline the Etiology, Pathogenesis, clinical features, investigations, and differential diagnosis, medical and surgical management of the following Neurological disorders:

Cerebrovascular disease: Define stroke, TIA and RIA, Types of stroke (Hemorrhagic, ischemic, venous infarct), Stroke syndromes (MCA, PCA, ACA, Vestibulobasilar)

Risk factors, causes, differential diagnosis, medical and surgical management, Classification of hemorrhagic stroke; Head injury –Etiology, classification, clinical signs and symptoms, investigations differential diagnosis, medical management, surgical management and complications; Spinal cord disorders: Spinal cord injury, Spinal epidural abscess, Transverse myelitis, Spina bifida, Sub-acute combined degeneration of cord, Conus medullaris syndrome, Syringomyelia, Cervical and lumbar disc lesions, Spinal Tumors and Spinal arachnoiditis, Progressive encephalomyelitis, Psychiatry: Definition, defense mechanism, symptomatology, types & causes of mental disorders, psychosomatic disorders; Psychosis – Schizophrenia (including paranoid), maniac depressive psychosis

UNIT II

11 Hours

Demyelinating diseases (central and peripheral): Guillain – Barre syndrome, Acute disseminated encephalomyelitis, Multiple sclerosis; Movement disorders: Parkinson's disease & Kinetic disorders, Dystonia, Myoclonus, Wilsons disease; Infections of brain & spinal cord: Poliomyelitis, Meningitis, Encephalitis, Brain Abscess, Tuberculosis infection of central nervous system, Complications of systemic infections on nervous system – rheumatic fever, AIDS, tetanus, pertusis; Psychoneurosis – Anxiety, hysteria, anxiety states, neurasthesis, reactive depression, obsessive compulsive neurosis, Organic reaction to – toxins, trauma & infection; Senile dementia

UNIT III

11 Hours

Epilepsy- Definition, Classification, clinical features, investigations & Management.
 Intracranial Tumors- Broad Classification, Signs & Symptoms, investigations & Management; Briefly outline the Etiology, Pathogenesis, clinical features and management of the following Neurological disorders: Disorders of the muscle, neuromuscular junction and motor neuron: Muscle diseases – muscular dystrophy, myotonic dystrophy, myopathy, non-dystrophic myotonia; Disorders of neuromuscular junction - Myasthenia Gravis, botulism; Motor neuron disease – amyotrophic lateral sclerosis, spinal muscular dystrophy, neuromyotonia; Mental retardation – Definition, causes manifestation and management; Methods of Treatment in Psychiatry (A Brief outline), Psychotherapy – Group therapy, Psychodrama, behaviour modification, family therapy, play therapy, CBT, REBT, psychoanalysis, hypnosis & NLP

UNIT IV

11 Hours

Peripheral & Cranial nerve disorders – Peripheral nerve injuries (Seddon's & Sunderland Classification), Peripheral Neuropathies & Plexus injuries, RSD & Causalgia, Cranial Nerve Disorders- Types of Disorders, clinical manifestation & management; Lower cranial nerve paralysis – facial palsy, Bell's palsy, hemi facial spasm, lesions in cranial nerves; Congenital and childhood disorders – Cerebral palsy, Hydrocephalus, Cerebral malformations, Down's syndrome, Klippel-feil syndrome, Personality disorders, Geriatric Psychiatry

Transaction Mode

Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- *Guided to clinical Neurology* - Mohn & Gaectier – 1995 - Churchill Livingstone.
- *Davidson's Principles and practices of medicine* - Edward – 2014 - Churchill Livingstone.
- *Brain's Diseases of the Nervous System* - Nalton – 2009 - ELBS.
- *Principles of Neurology* - Victor – 2014 - McGraw Hill International edition.
- *A guide to mental health and Psychiatric Nursing*- R Sreevani
- *Essentials of Psychiatry and Mental Health Nursing*

Web Sources

- <https://www.sciencedirect.com/topics/medicine-and-dentistry/cerebrovascular-disease>
- <https://www.msmanuals.com/en-in/home/brain,-spinal-cord,-and-nerve-disorders/cranial-nerve-disorders/overview-of-the-cranial-nerve-disorders>
- <https://www.physio.co.uk/what-we-treat/neurological/conditions/spinal-cord-injury.php>

Course Title: GENERAL SURGERY

Course Code: BPT7401

L	T	P	Credits
3	0	0	3

Total Hours: 45

Course Outcomes

On successful completion of this course, the students will be able to:

1. Gain knowledge about various surgeries of lungs, heart, eyes, ear, nose, throat.
2. Be aware of principles of anesthesia.
3. Be aware of surgical techniques applied in obstetrics and gynaecology.
4. Be aware of complications during and after surgery and their treatment guidelines.

Course content

UNIT I

11 Hours

Introduction to principles of surgery and its procedure; Shock: definition, types, clinical feature, pathology & management; Hemostasis – components, hemostatic disorders, factors affecting bleeding during surgery

UNIT II

11 Hours

Anesthesia: Principles of anesthesia, types and its effects on patient; Wound healing – basic process of Tissue repair, phases of healing process, clinical management of wounds, factors affecting wound healing; Scars – types and treatment; Surgical oncology – cancer – definition, types, clinical manifestations of cancer, stages and surgical procedures involved in management.

UNIT III

12 Hours

Thoracic surgery- Thoracotomy, Mastectomy – Definition, Types of Incisions with complications; Lung surgeries - Pneumonectomy, Lobectomy, segmentectomy – Indications, Physiological changes and Complications; Thoracoplasty, Pleurectomy, Pleurodesis and Decortication of the Lung; Cardiac surgeries – An overview of the Cardio-Pulmonary Bypass Machine – Extra cardiac Operations, Closed Heart surgery, Open Heart surgery. Valvotomy and Valve Replacement, Pacemaker surgery, Coronary Angioplasty, surgery for congenital heart disorders.

UNIT IV

11 Hours

Abdominal Surgery – Types of Incisions, indications, pre-operative preparation, types of incision used and post-operative complications of Nephrectomy, Appendicectomy, herniorrhaphy, colostomy, adrenalectomy, cystectomy, hysterectomy, prostatectomy, cholecystectomy, ileostomy; Transplant Surgery: Heart, Lung and Kidney – Indications, Physiological changes and Complications; SBurns: Causes, Classification, complications, Clinical features & Management.

Transaction Mode

Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- *Davidson's principles and Practices of Medicine - Edward – 2014 - Churchill Livingstone.*
- *Baily and Love - Short Practice of Surgery - Mann and Rains – 2018 - H.K. Levis Publications, London.*
- *Harrisons Text book of internal medicine – Jameson and Fauci – 2018 – Mc Graw hill.*
- *Textbook of Surgery - Gupta R.L. - 2003 - Jaypee.*
- *Principles and Practices of Trauma Care - Kocher – 2013 - Jaypee.*
- *Shenoy, R. (2019). Manipal Manual of Surgery (4th ed.). CBS Publishers & Distributors Pvt Ltd.*

Web Sources

- <https://www.healthline.com/health/shock>
- <https://www.rcseng.ac.uk/news-and-events/media-centre/media-background-briefings-and-statistics/cardi thoracic-surgery/>

Course Title: Ethics, Rehabilitation and Medico-legal aspects-I

Course Code: BPT7402

L	T	P	Credits
4	0	0	4

Course Outcomes

Total Hours- 60

1. Learn the basic principles, role and models of rehabilitation
2. Gain knowledge about prevention of disability and rehabilitation of disabled persons in community
3. Study about the role of NGOs in rehabilitation
4. Develop expertise in prescribing orthotics and prosthetics

Course content

UNIT I

16 Hours

Conceptual framework of rehabilitation - roles of rehabilitation, team members, definitions and various models of rehabilitation, Epidemiology of disability with emphasis on locomotor disability - its implications-individual, family, social, economic and the state.

UNIT II

15 Hours

Preventive aspects of disability and organizational skills to manage it. Community based rehabilitation (CBR) – Principles, WHO policies about rural health care. Role of physiotherapy in CBR – Screening for disabilities, Prescribing exercise programme, Disability prevention, strategies to improve ADL. Statutory provisions - Schemes of assistance to persons with disabilities.

UNIT III

14 Hours

Role of NGOs in rehabilitation of persons with disabilities, Principles of Orthotics – types, indications, contra indications assessment (check out), Biomechanical principles of orthosis application. Uses and fitting- region wise, Fabrication of simple splints and self-help devices for upper and lower extremity – indications and applications.

UNIT IV

15 Hours

Principles of Prosthetics – types, indications, contraindications, assessment check out, uses and fitting – region wise, Psychological

aspect of orthotic and prosthetic application.

Transaction mode

Demonstration method, Group Discussion, Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested readings

- Sullivan, S. & Schmitz (2013). Physical Rehabilitation – Assessment and Treatment. F. A. Davis.
- Lusardi, M. M., Jorge, M., & Nielsen, C. C. (2013). Orthotics and prosthetics in rehabilitation. Elsevier Health Sciences.

Course Title: NEUROLOGY LAB

Course Code: BPT7403

L	T	P	Credits
0	0	2	1

Total Hours: 15

Course Outcomes

On successful completion of this course, the students will be able to:

1. Be skilled in assessment of cranial nerves.
2. Be skilled in evaluating the patient suffering from neurological conditions.
3. Gain skill of case presentation.
4. Gain skill of differential diagnosis in front of class and teachers.

Course content

Basic history taking to determine whether the brain, spinal cord or peripheral nerve is involved. Assessment of higher mental function such as Orientation, Memory, Attention, Speech and Language, Assessment of Cranial Nerves, Assessment of Motor System, Assessment of Sensory function, Touch, Pain and Position. Assessment of

Tone-Spasticity, Rigidity and Hypotonia. Assessment of Cerebral Function. Assessment of Balance & Coordination. Assessment of Gait Abnormalities.

Transaction Mode

Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- *Guided to clinical Neurology* - Mohn & Gaectier – 1995 - Churchill Livingstone.
- *Davidson's Principles and practices of medicine* - Edward – 2014 - Churchill Livingstone.
- *Brain's Diseases of the Nervous System* - Nalton – 2009 - ELBS.
- *Principles of Neurology* - Victor – 2014 - McGraw Hill International edition.
- *DeJong's The Neurologic Examination*, William W. Campbell · 2012

Web Sources

- <https://pediaa.com/what-is-the-difference-between-spasticity-and-rigidity/>
- <https://study.com/learn/lesson/muscle-tone-overview-disorders.html>
- <https://www.hopkinsmedicine.org/health/conditions-and-diseases/neurological-exam>

Course Title: GENERAL SURGERY LAB

Course Code: BPT7404

L	T	P	Cred its
0	0	2	1

Total Hours: 15

Course Outcomes

On successful completion of this course, the students will be able to:

1. Be aware of technique of wound dressing.
2. Be skilled in technique of giving CPR.
3. Gain skill of case presentation and differential diagnosis in front of class and teachers.
4. Be aware of post-operative assessment of thoracic and cardiac surgeries and surgical procedure involved in child birth.

Course content –

Dressing of wounds
 Practicing technique of CPR
 Demonstration of procedure of skin grafting
 Clinical examination of incisions of abdominal surgeries.
 Bedside case presentations and case discussions
 Lab sessions consisting of evaluation and assessment methods on student models, treatment techniques and practice sessions.
 Post-operative examination of thoracic and cardiac surgeries
 Antenatal examination
 Demonstration of normal as well as surgical procedures involved in child birth.
 Exercise tolerance tests
 Bedside case presentations and case discussions
 Lab sessions consisting of evaluation and assessment methods on student models, treatment techniques and practice sessions.

Transaction Mode

Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings:

- *Davidson's principles and Practices of Medicine - Edward – 2014 - Churchill Livingstone.*
- *Baily and Love - Short Practice of Surgery - Mann and Rains – 2018 - H.K. Levis Publications, London.*
- *Harrisons Text book of internal medicine – Jameson and Fauci – 2018 – Mc Graw hill.*
- *Textbook of Surgery - Gupta R.L. - 2003 - Jaypee.*
- *Principles and Practices of Trauma Care - Kocher – 2013 - Jaypee.*
- *Principles and Practices of Trauma Care - Kocher - Jaypee.*

Web Sources

- <https://www.sciencedirect.com/topics/medicine-and-dentistry/wound-dressings>
- <https://www.medistudents.com/osce-skills/pregnant-abdomen-examination>

Course Title: Ethics, Rehabilitation and Medico-legal aspects

Course Code: BPT7405

L	T	P	Credits
0	0	2	1

Total Hours: 15

After the completion of this course the learner will be able to:

1. Become proficient using orthotic devices.
2. Understand vocational evaluation and occupational therapy.
3. Learn about wheel chair transfer.
4. Plan out indications of splints and prosthetics.

Course Content Transaction Mode

Introduction and indications for the application of various aids & appliances like common splints, orthotic devices, Learning basic principles of pre- vocational evaluation & occupational therapy, Training of wheel chair activities, bed activities, transfer activities, Introduction and indications for the application of various aids & appliances like common splints, prosthetics.

Transaction Mode

Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- Physical Rehabilitation- Assessment & Treatment – Sullivan & Schmitz- F.A.Davis
- Hand Splinting – Wilson- W.B. Saunders.
- Orthotics in Rehabilitation: Splinting the hand and body- McKee & Morgan F.A.Davis.
- Occupational Therapy and Physical dysfunction: Principles, Skills Web Sources
- <https://www.webmd.com/pain-management/occupational-rehab>
- <https://www.saintlukeskc.org/health-library/transfer-bed-wheelchair>

Course Title: CLINICAL ORIENTATION

Course Code: BPT7406

L	T	P	Credits
0	0	4	2

Total Hours: 30

Course Outcomes

On successful completion of this course, the students will be able to:

5. Gain firsthand experience in a professional lab setting, enhancing understanding of clinical procedures and protocols.

6. Learn about various laboratory equipment and tools used in physiotherapy and their specific functions.
7. Work collaboratively with peers, fostering teamwork and communication skills.
8. Gain skills in designing individualized exercise programs based on patient needs, conditions, and goals.

Course content

Independent demonstration of:

- Joint and muscle assessments
- Neurological examination
- Cardiorespiratory evaluations

Functional outcome measures (e.g., FIM, Berg Balance, 6MWT)

Evidence-based treatment planning (with goals & prognosis).

Role-playing for case presentation and patient education.

Transaction Mode

Lecture, Seminar, e-Team teaching, e-Tutoring, Dialogue, Case based studies Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- *Introduction to Physical Therapy and Patient Skills* by Mark Dutton
- *Physical Rehabilitation* by Susan B. O'Sullivan and Thomas J. Schmitz
- *Principles of Rehabilitation Medicine* by Raj Mitra
- *Orthopedic Physical Assessment* by David J. Magee
- *The Physiotherapist's Pocketbook: Essential Facts at Your Fingertips* by Karen Kenyon and Jonathan Kenyon

Web Sources

- <https://www.stcharleshealthcare.org/professionals/clinical-orientation>
- <http://www.centrahealth.com/caregiver-onboarding/clinical-orientation>

Course Title: DRUG ABUSE	L	T	P	Credits
Course Code: BPT7407	4	0	0	4

Total Hours: 60**Course Outcomes**

On the completion of the course the students will be able to

1. Comprehend the Meaning, Nature, and Extent of Drug Abuse
2. Evaluate the impact on the individual, including physical and mental health.
3. Understand the role of healthcare professionals in medical management.
4. Study the importance of strict enforcement of laws and time-bound trials.

Course Content**UNIT I****15 hours**

Meaning of Drug Abuse: Meaning, Nature and Extent of Drug Abuse in India and Punjab, Consequences of Drug Abuse for Individual, Education, Employment, Income, Family;
Prescription Drug Abuse, Intravenous Drug Abuse.

UNIT II**15 Hours**

Management of Drug Abuse: Medical Management: Medication for treatment and to reduce withdrawal effects, Psychiatric Management: Counselling, Behavioural and Cognitive therapy, Social Management: Family, Group therapy and Environmental Intervention, Rehabilitation, Substance Use Disorder.

UNIT III**15 Hours**

Prevention of Drug abuse: Role of family: Parent child relationship, Family support, Supervision, Shaping values, Active Scrutiny, School: Counselling, Teacher as role-model, Parent-teacher-Health Professional, Coordination, Random testing on students.

UNIT IV**15 Hours**

Controlling Drug Abuse: Media: Restraint on advertisements of drugs, advertisements on bad effects of drugs, Publicity and media, Campaigns against drug abuse, Educational and awareness program, Legislation: NDPs act, Statutory warnings, Policing of Borders, Checking, Supply/Smuggling of Drugs, Strict enforcement of laws, Time bound trials.

Transaction Mode

Video based teaching, Case based teaching, Team teaching Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- Ahuja, Ram (2003), *Social Problems in India*, Rawat Publication, Jaipur.
- *Extent, Pattern and Trend of Drug Use in India*, Ministry of Social Justice and Empowerment, Government of India, 2004.
- Inciardi, J.A. 1981. *The Drug Crime Connection*. Beverly Hills: Sage Publications.
- Kapoor. T. (1985) *Drug epidemic among Indian Youth*, New Delhi: Mittal Pub.
- Kessel, Neil and Henry Walton. 1982, *Alcoholism*. Harmond Worth: Penguin Books.
- Modi, Ishwar and Modi, Shalini (1997) *Drugs: Addiction and Prevention*, Jaipur: Rawat Publication.
- *National Household Survey of Alcohol and Drug abuse*. (2003) New Delhi, Clinical Epidemiological Unit, All India Institute of Medical Sciences, 2004.

Web Sources

- https://www.physio-pedia.com/Prescription_Drug_Abuse
- https://www.physio-pedia.com/Intravenous_Drug_Abuse

Course Title: DIAGNOSTIC IMAGING

Course Code: BPT7408

L	T	P	Credits
4	0	0	4

Total Hours: 60

Course Outcomes

On the completion of the course the students will be able to:

1. Gain comprehensive theoretical and practical knowledge about diagnostic imaging.

2. Independently interpret all, routine and special radiological and imaging investigations.
3. Provide radiological services in acute emergency and trauma.
4. Gain comprehensive theoretical and practical knowledge to work in collaboration with rehabilitation team.

Course Content

UNIT I

11 Hours

Image interpretation: Radiography (x-rays), Fluoroscopy, Ultrasound, Endoscopy

UNIT II

15 Hours

Radiography: Equipment components, Procedures for Radiography; Benefits versus Risks and Cost, Indications and contraindications; Fluoroscopy: Equipment used for fluoroscopy, Indications and Contra indications, How it helps in diagnosis, The Findings in Fluoroscopy, Benefits versus Risks and Costs.

UNIT III

17 Hours

Computed tomography (CT): Equipment used for Computed Tomography, Indications and Contra indications, How it helps in diagnosis, The Findings in Computed Tomography, Benefits versus Risks and Costs; Magnetic resonance imaging (MRI), Equipment used for MRI, Indications and Contra indications, How it helps in diagnosis, The Findings in MRI, Benefits versus Risks and Costs, Functional MRI.

UNIT IV

17 Hours

Ultrasound; Equipment used for Ultrasound, Indications and Contra indications, How it helps in diagnosis, The Findings in Ultrasound, Benefits versus Risks and Costs; Endoscopy: Equipment used for Endoscopy, Indications and Contra indications, How it helps in diagnosis, The Findings in Endoscopy, Benefits versus Risks and Costs.

Transaction Mode

Lecture, Seminar, e-Team Teaching, e-Tutoring, Mobile Teaching, Self-Learning and Cooperative Learning

Suggested Readings

- Sutton, D. (1987). *A textbook of radiology and imaging*.
- Donner, M. W. (1976). *Textbook of Radiology: David Sutton and Ronald G. Grainger, eds. New York, Churchill Livingstone*
- Smith, W. L. (2009). *Radiology 101: The basics and fundamentals of imaging. Lippincott Williams & Wilkins*.
- Adler, A. M., & Carlton, R. R. (2017). *Introduction to radiologic sciences and patient care (6th ed.). Saunders*.
- *Radiology Fundamentals - Introduction to imaging and technology- Harjit Singh, Janet Neutze*.

Web Sources

- <https://radiologykey.com/x-ray-imaging-mammography/>
- <https://radiology.ucsf.edu/patient-care/prepare/mri>

Course Title: OBSTETRICS & GYNECOLOGY	L	T	P	Credits
Course Code: BPT7409	4	0	0	4

Total Hours: 60

Course Outcomes

On successful completion of this course, the students will be able to

1. Examine physiological changes in pregnancy.
2. Identify common abnormalities of labour, delivery and puerperium.
3. Develop skills to manage post-surgical patients.
4. Learn to diagnose and manage the gynecological malignancies.

Course Content

UNIT I

15 Hours

Pregnancy, Diagnosis of pregnancy, Abortion, Physiological changes during pregnancy
Importance of antenatal care exercise, Prenatal common complications – investigation and management, Normal labor, Multiple child birth

UNIT II

15 Hours

Child birth complications, investigation and management, Normal puerperium, lactation and importance of post-natal exercises

UNIT III

15 Hours

Surgical procedures involving childbirth – pelvic repair, cesarian section, colposcopy, dilatation and curettage, Gynecological disorders, Infections and sexually transmitted disease in female Salpingitis, parametritis, retro-uterus, prolapse of uterus, pelvic inflammatory diseases, urinary incontinence

UNIT IV

15 Hours

Cancer of the female reproductive organs- surgical management in brief, mastectomy, Hysterectomy.

Transaction mode

Demonstration method, Video based teaching, Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested readings:

- *Physiotherapy in obstetrics and gynaecology- Polden- F.A.DAVIS*
- *Textbook of Gynecology including contraception-DC DUTTA*
- *Essentials of Obstetrics and Gynecology- Neville F. Hacker, J. George Moore, Joseph C. Gambone*
- *Leveno, K. J., Dashe, J. S., Corton, M. M., Spong, C. Y., & Bloom, S. L. (2018). Williams Obstetrics (25th ed.). McGraw-Hill Education.*
- *Beckmann, R. C., Beckmann, C. R. B., Smith, R. P., & Ling, F. W. (2019). Beckmann and Ling's Obstetrics and Gynecology (8th ed.). Lippincott Williams & Wilkins.*

Web Sources

- <https://www.nice.org.uk/guidance/conditions-and-diseases/gynaecological-conditions>
- <https://www.nichd.nih.gov/health/topics/pregnancy/conditioning>

Course Title: SPORTS PHYSIOTHERAPY ON FIELD MANAGEMENT**Course Code: BPT7410**

L	T	P	Credits
4	0	0	4

Total Hours: 60**Course Outcomes**

On successful completion of this course, the students will be able to:

1. Introduction to various types of sports injuries.
2. Assess and examine common sports injuries.
3. Develop skills to prevent field injuries.
4. Learn to diagnose and manage the gynecological malignancies.

Course Content**UNIT I****15 Hours**

Sports injuries – Types of Injuries – Definition, Causes, Clinical Features, Management and Prevention of Soft Tissue Injuries: Skin Injuries – strain – Sprain – contusion – cramp Tendon injuries – Bursitis. Bone injuries: Fracture – Subluxation – Dislocation.

UNIT II**15 Hours**

Assessment & evaluation - Methods of evaluation – documentation, Clinical Examination - Investigative Procedures, Causes & Mechanism of Sports Injuries, Principle of management of sports injuries- Onsite management of the collapsed athlete triage - The primary abcd survey : airway and cervical spine – breathing – circulation – defibrillation – the glasgow coma scale

UNIT III**15 Hours**

Principles of Injury prevention: Warm up – Cool down – Stretching – Types of stretching, Principles of stretching. PRICE technique – Immobilization and Early mobilisation, Splinting – Handling & Transfer, Cryotherapy: Methods of application (Ice packs, Ice towel, Ice Immersion, Ice cube massage, Excitatory cold, Vapocoolant spray, cryokinetics & Cold whirlpool).

UNIT IV**15 Hours**

Taping and Bracing - Soft tissue Massage – Trigger point release – Muscle energy techniques – Manual therapy

Transaction mode

Demonstration method, Video based teaching, Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested readings:

- *Norkin & White: Measurement of Joint Motion – A Guide to Goniometry - F.A.Davis.*
- *Dvir: Isokinetics: Muscle Testing, Interpretation and Clinical Applications, W.B.Saunders.*
- *Reed: Sports Injuries – Assessment and Rehabilitation, W.B. Saunders.*
- *Lillegard, Butcher & Rucker: Handbook of Sports Medicine: A symptom – Oriented Approach, Butterworth & Heinemann*
- *Richard B. Birrer: Sports Medicine for the primary care Physician, CRC Press.*
- *Torg, Welsh & Shephard: Current Therapy in Sports Medicine III - Mosby.*
- *Zulunga et al: Sports Physiotherapy, W.B. Saunders*
- *Gould: Orthopaedic Sports Physical Therapy, Mosby.*
- *C. Norris: Sports Injuries – Diagnosis and Management for Physiotherapists, Heinmann*
- *C. Norris: Sports Injuries – Diagnosis and Management for Physiotherapists, Heinmann.*

Web Sources

- <https://www.niams.nih.gov/health-topics/sports-injuries>
- <https://medicine.umich.edu/sites/default/files/content/downloads/Anacker%20Michael%20On-Field%20Assessment%20%26%20Management%20of%20Injuries%2010-2.pdf>
- <http://www.drraghuveer.com/sports-medicine/management-of-sports-injuries/>
- <https://www.verywellfit.com/sports-injury-first-aid-treatment-3120820>

SEMESTER VIII

Course Title: PHYSIOTHERAPY IN NEUROLOGICAL CONDITIONS

L	T	P	Credits
---	---	---	---------

Course Code: BPT8450

3	0	0	3
---	---	---	---

Total Hours: 45**Course Outcomes**

On successful completion of this course, the students will be able to:

1. To identify basic principles of various treatment techniques used for neurological conditions.
2. Develop skill in planning physiotherapy treatment and rehabilitation in neurological diseases.
3. Become competent to handle a psychiatric patient.
4. Gain expertise in providing post neuro surgery rehabilitation.

Course content**UNIT I****11 Hours**

Neurological assessment, Higher mental functions, Motor examination, Reflexes
Sensory

Examination, Special tests, Gait analysis, Functional analysis, Assessment tools and scales, Pediatric neurology, Motor Development, Milestones, Neo-natal & Primitive Reflexes, Evaluation and management in Cerebral Palsy, developmental disorders, autism, hydrocephalus, Spina Bifida and syringomyelia.

UNIT II**11 Hours**

Approaches of neurological physiotherapy: Basic outline of principles of treatment techniques & approaches used in: N.D.T. Therapy, Motor Relearning Programme, P.N.F., Roods Approach, Sensory Re-education, Facilitatory & Inhibitory Techniques, Muscle re-education approach, Peripheral and Cranial nerve injuries –Evaluation and management of Brachial Plexus Injuries, Lumbosacral plexus lesion, Axillary nerve palsy, Sciatic nerve palsy, Neuritis, Neuralgia, Injuries of nerves of upper & lower extremities, Facial Nerve Palsy

UNIT III**11 Hours**

Review of pathological changes, assessment & Physiotherapy Management and Rehabilitation in following conditions: Hemiplegia, Tabes Dorsalis, Syringomyelia, Meningitis, Encephalitis, Transverse Myelitis, Parkinsonism, Multiple sclerosis, Cerebellar Ataxia.

UNIT IV**12 Hours**

Review of pathological changes, assessment & Physiotherapy Management and Rehabilitation of the following conditions: Reflex Sympathetic Dystrophy, Polyneuropathies (classification, types, and pathophysiology): Alcoholic, Diabetic, and Sensory.

Guillain Barre syndrome, Myopathies and Muscular Dystrophies, Motor Neuron Disorder, Disseminated Sclerosis, Amyotrophic Lateral Sclerosis, Spinal cord lesions & infections

Traumatic Spinal cord injuries and head injuries, Physiotherapy Rehabilitation in Surgeries of Nerve

Transaction mode

Demonstration method, Video based teaching, Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested readings:

- *Neurological Physiotherapy - A problem solving approach - Susan Edwards - Churchill Livingstone.*
- *Neurological Rehabilitation - Umpherd - Mosby.*
- *Treatment of Cerebral Palsy and Motor Delay-Sophie Levitt*
- *Guided to clinical Neurology - Mohn & Gaectier - Churchill Livingstone.*
- *Examination in Neurology examination- Dejong.*
- *Differential Diagnosis-John PatternNeurology in Clinical Practice – Bradley&Daroff*
- *Neurological Assessment-Blicker staff.*
- *Clinical Evaluation of Muscle Function-Lacote- Churchill Living*

Web Sources

- <https://www.albertahealthservices.ca/assets/about/scn/ahs-sc-bjh-hf-barthel-index-of-adls.pdf>
- <https://www.stgeorges.nhs.uk/service/audiology/vestibular-balance-and-dizziness-service/vestibular-function-tests/>

Course title: PHYSIOTHERAPY IN SURGICAL CONDITIONS

Course Code: BPT8451

L	T	P	Credits
3	0	0	3

Total Hours: 45

Course Outcomes

On successful completion of this course, the students will be able to:

1. Gain skills about the incision lines used in different surgeries.
2. Gain expertise in providing relaxation techniques.
3. Develop skills to administer pre- and post-operative physiotherapy intervention
4. Become competent in scar and burn management

UNIT I

11 Hours

Review of pathological changes and principles of pre- and post-operative management by physiotherapy of the following conditions: Wounds, Burns & Plastic Surgery: ulcers, pressure sores; Burns & their complications; Common reconstructive surgical proceedings of the management of wounds, ulcers, burns & consequent contractures & deformities.

UNIT II

11 Hours

Abdominal and transplant surgeries; Common abdominal surgeries, including GIT, liver, spleen, kidney, bladder etc.; Common organ transplant surgeries – heart, liver, bone marrow etc.

UNIT III

12 Hours

Principles of Intensive Care Physiotherapy: Knowledge of the following equipments: Endotracheal tubes, tracheostomy tube, Humidifier, Different Ventilators, Suction Pump, Electrocardiogram, Pressure monitors (arterial, central venous pressure), Pulmonary Wedge, intracranial and temperature monitors; Evaluation of the patient in the intensive care Unit including Glasgow Coma Scale; Outline the history of mechanical Respiration.

UNIT IV**11 Hours**

Define the terms: Respirator, Lung Ventilator, Resuscitators, IPPB, PEEP, CPAP, SIMV; Outline the principles of Aerosol Therapy. Humidification therapy; Describe techniques of sterile nasopharyngeal and endotracheal suctioning.

Transaction mode

Demonstration methods, Group discussion, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested readings

- Thompson, A. (2013). *Tidy's Physiotherapy*. Varghese publishing House.
- Sullivan, S. (2013). *Physical Rehabilitation Assessment and Treatment*. Jaypee brothers, Delhi
- Magee, D. J. (2021). *Orthopedic Physical Assessment (7th ed.)*. Saunders.
- Pryor, J. A., & Prasad, A. (2016). *Physiotherapy for Respiratory and Cardiac Problems: Adults and Paediatrics (4th ed.)*. Churchill Livingstone.
- Donatelli, R. A. (2011). *Physical Therapy of the Shoulder (5th ed.)*. Churchill Livingstone.

Web Sources

- https://www.researchgate.net/publication/342199130_Burns_Definition_Classification_Pathophysiology_and_Initial_Approach
- <https://www.news-medical.net/health/Transplant-Surgery.aspx>

Course Title: Ethics, Rehabilitation and Medico-legal aspects-I

Course Code: BPT8452

L	T	P	Credits
3	0	0	1

Course Outcomes**Total Hours- 45**

1. Learn about various disorders of speech.
2. Gain knowledge about principles of vocational rehabilitation.
3. Grasp the facts regarding role and principles of occupational therapy.

4. Develop skills to provide disability rehabilitation programme.

Course Content

UNIT I

11 Hours

Communication - Principles & mechanisms including speech & hearing, Commons disorders of speech & hearing -etiology, clinical features assessment & principles of management

UNIT II

12 Hours

Vocational problems - Principles of vocational problems, including evaluation & vocational goals for people with disability. Mentally subnormal - Identification, assessment and classification. Etiology and principles of management including prevention. Rehabilitation of the mentally subnormal, including vocational training & home education programme

UNIT III

11 Hours

Occupational therapy – Introduction, Activities of Daily Living (ADLs) - definition, scope and importance. Teaching and training of wheel chair activities, bed activities transfer activities, locomotor activities, self-care activities, such as toilet, eating, dressing etc.

UNIT IV

11 Hours

Architectural Barriers, Describe architectural barriers and possible modifications with Text Books to Rheumatoid Arthritis, CVA, Spinal Cord Injury and other disabling conditions, Disability evaluation -Outline the principles of disability evaluation

Transaction mode

Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- *Physical Rehabilitation – Assessment and Treatment – Sullivan & Schmitz – 2013 - F. A. Davis.*
- *Textbook of Rehabilitation – Sunder – 2005 – Jaypee publishers*
- *Occupational Therapy and Physical Dysfunction. Principles, Skills and Practices – Hand Splinting - Tuner, Forster & Johnson –2009 - Churchill Livingstone*
- *Orthotics in Rehabilitation : Mckee and Morgan – 1998 - F. A. Davis*

- *Atlas of Limb Orthotics and Limb Prosthetics American Academy of Orthopedic Surgeons – Mosby.*
- *Krusens Handbook of Physical Medicine and Rehabilitation – 1992 - Saunders*

Web Sources

- <https://www.nityango.org/community-rehabilitation/>
- <https://wecapable.com/locomotor-disability-meaning/>

Course Title: PHYSIOTHERAPY IN NEUROLOGICAL CONDITIONS LAB

Course Code: BPT8453

L	T	P	Credits
0	0	2	1

Course Outcomes

Total Hours- 15

On successful completion of this course, the students will be able to:

1. Become skilled in assessment and evaluation of patient suffering from neurological conditions.
2. Develop proficiency in case presentation and discussion.
3. Gain knowledge about the clinical characteristic of neurological conditions
4. Identify gait abnormalities

Course content

Clinical assessment of neurological function by:

Basic history taking to determine whether the brain, spinal cord or peripheral nerve is involved.

Assessment of higher mental function such as Orientation, Memory, Attention, Speech and Language.

Assessment of Cranial Nerves. Assessment of Motor System.

Assessment of Sensory function, Touch, Pain and Position.

Assessment of Tone-Spasticity, Rigidity and Hypotonia. Assessment of Cerebral Function.

Assessment of Balance & Coordination. Assessment of Gait Abnormalities

Transaction mode

Demonstration method, Group Discussion, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning

Suggested Readings:

- Lindsay, K. W., Bone, I., & Fuller, G. (2010). *Neurology and neurosurgery illustrated e-book*. Elsevier Health Sciences.
- Walker, B. R., & Colledge, N. R. (2013). *Davidson's principles and practice of medicine*. Elsevier Health Sciences
- *Examination in Neurology examination- Dejong*.
- *Differential Diagnosis-John PatternNeurology in Clinical Practice – Bradley&Daroff*
- *Neurological Assessment-Blicker staff*.
- *Clinical Evaluation of Muscle Function-Lacote- Churchill Living*

Web Sources

- <https://www.ncbi.nlm.nih.gov/books>
- <https://www.msdmanuals.com/en-in/professional/neurologic-disorders/neurologic-examination/how-to-assess-sensation>

Course Title: PHYSIOTHERAPY IN SURGICAL CONDITIONS LAB

Course Code: BPT8454

L	T	P	Credits
0	0	2	1

Total Hours: 15

Course Outcomes

On successful completion of this course, the students will be able to:

1. Learn about the incisions and procedures used for thoracic and cardiac surgeries.
2. Gain knowledge about normal and surgical procedure involved in child birth.
3. Develop skills to present and discuss the history and management of a surgical case.
4. Present as well as discuss case studies.

Course content

Practical shall be conducted for all relevant topics discussed in theory in the following forms:

Post-operative examination of thoracic and cardiac surgeries

Antenatal examination

Demonstration of normal as well as surgical procedures involved in child birth.

Exercise tolerance tests

Bedside case presentations and case discussions

Lab sessions consisting of evaluation and assessment methods on student models

Treatment techniques and practice sessions.

Demonstration of procedure of anesthesia

Dressing of wounds

Practicing technique of CPR

Demonstration of procedure of skin grafting

Clinical examination of incisions of abdominal surgeries

Exercise tolerance tests,

Bedside case presentations and case discussions,

Lab sessions consisting of evaluation and assessment methods on student models

Treatment techniques and practice sessions.

Transaction mode

Demonstration method, Group Discussion, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning

Suggested Readings:

- Williams, N., & O'Connell, P. R. (Eds.). (2008). *Bailey & Love's short practice of surgery*. CRC press.
- Townsend, C. M. (2021). *Sabiston textbook of surgery: the biological basis of modern surgical practice*. Elsevier Health Sciences.
- Magee, D. J. (2021). *Orthopedic Physical Assessment (7th ed.)*. Saunders.
- Pryor, J. A., & Prasad, A. (2016). *Physiotherapy for Respiratory and Cardiac Problems: Adults and Paediatrics (4th ed.)*. Churchill Livingstone.
- Donatelli, R. A. (2011). *Physical Therapy of the Shoulder (5th ed.)*. Churchill Livingstone

Web Sources

- <https://www.beaumont.org/treatments/intervention-surgical-delivery>
- <https://cpr.heart.org/en/resources/what-is-cpr>

Course Title: Ethics, Rehabilitation and Medico-legal aspects-II

Course Code: BPT8455

L	T	P	Credit s
0	0	2	1

Total Hours: 15

Course Outcomes

On successful completion of this course, the students will be able to:

1. Become proficient using orthotic devices.
2. Understand vocational evaluation and occupational therapy.
3. Learn about wheel chair transfer.
4. Plan out indications of splints and prosthetics.

Course Content

Introduction and indications for the application of various aids & appliances like common splints, orthotic devices.

Learning basic principles of pre- vocational evaluation & occupational therapy.

Training of wheel chair activities, bed activities, transfer activities.

Introduction and indications for the application of various aids & appliances like common splints, prosthetics.

Transaction Mode

Lecture, Seminar, e-Team Teaching, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- *Physical Rehabilitation- Assessment & Treatment – Sullivan & Schmitz-F.A.Davis*
- *Hand Splinting – Wilson- W.B. Saunders.*

- *Orthotics in Rehabilitation: Splinting the hand and body- Mckee & Morgan-F.A.Davis.*
- *Occupational Therapy and Physical dysfunction: Principles, Skills*
- *Atlas of Limb Orthotics and Limb Prosthetics American Academy of Orthopedic Surgeons – Mosby.*
- *Krusens Handbook of Physical Medicine and Rehabilitation – 1992 - Saunders*

Web Sources

- <https://www.webmd.com/pain-management/occupational-rehab>
- <https://www.saintlukeskc.org/health-library/transfer-bed-wheelchair>

Course Title: CLINICAL ORIENTATION

Course Code: BPT8456

L	T	P	Credits
0	0	4	2

Total Hours: 30

Course Outcomes

On successful completion of this course, the students will be able to:

9. Gain firsthand experience in a professional lab setting, enhancing understanding of clinical procedures and protocols.
10. Learn about various laboratory equipment and tools used in physiotherapy and their specific functions.
11. Work collaboratively with peers, fostering teamwork and communication skills.
12. Gain skills in designing individualized exercise programs based on patient needs, conditions, and goals.

Course content

Independent demonstration of:

- Joint and muscle assessments
- Neurological examination
- Cardiorespiratory evaluations

Functional outcome measures (e.g., FIM, Berg Balance, 6MWT)

Evidence-based treatment planning (with goals & prognosis).

Role-playing for case presentation and patient education.

Transaction Mode

Lecture, Seminar, e-Team teaching, e-Tutoring, Dialogue, Case based studies Peer Group Discussion, Mobile Teaching, Self-Learning, Collaborative Learning and Cooperative Learning

Suggested Readings

- *Introduction to Physical Therapy and Patient Skills by Mark Dutton*
- *Physical Rehabilitation by Susan B. O'Sullivan and Thomas J. Schmitz*
- *Principles of Rehabilitation Medicine" by Raj Mitra*
- *Orthopedic Physical Assessment" by David J. Magee*
- *The Physiotherapist's Pocketbook: Essential Facts at Your Fingertips" by Karen Kenyon and Jonathan Kenyon*

Web Sources

- <https://www.stcharleshealthcare.org/professionals/clinical-orientation>
<http://www.centrahealth.com/caregiver-onboarding/clinical-orientation>

Course Title: PEDIATRICS	L	T	P	Credits
Course Code: BPT8457	4	0	0	4

Total Hours: 60

Course Outcomes

On successful completion of this course, the students will be able to:

1. Learn about Cerebral Palsy and its management
2. Gain knowledge about various types of muscular disorders.
3. Develop skills to assess neurological disorders in childhood.
4. Learn about infant immunization.

UNIT I

15 Hours

Cerebral palsy: Types, etiology, clinical features, management and rehabilitation of various types of cerebral palsies. Pediatric neurology, Motor Development, Milestones, Neo-natal & Primitive Reflexes.

UNIT II

15 Hours

Muscular disorders: Types of muscular dystrophies and Myopathies of childhood, DMD, BMD etc.

UNIT III

15 Hours

Neurological affection of childhood: Poliomyelitis, Spina bifida, Hydrocephalus, Encephalitis. Birth injuries of brachial plexus, paraplegia in children.

UNIT IV

15 Hours

Infant feeding, Nutritional deficiency, Immunization.

Transaction mode

Demonstration method, Group Discussion, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning

Suggested Readings

- *Nelson's Textbook of Paediatrics- Behrman & Vaughan- W.B Saunders*
- *Textbook of Pediatrics- Partsarthy- Jaypee*
- *The short textbook of Paediatrics- Gupte- Jaypee*
- *Tecklin, J. S. (2014). Pediatric Physical Therapy (5th ed.). Lippincott Williams & Wilkins.*
- *Rosenbaum, P. L., Rosenbloom, L. A., & Palisano, R. M. (2021). Physical Therapy for Children with Cerebral Palsy: An Evidence-Based Approach (2nd ed.). Saunders.*
- *Aoyama, S. C., & Campbell, S. K. (2020). Pediatric Physical Therapy Handbook (2nd ed.). Wolters Kluwer.*

Web Sources

- <https://www.msmanuals.com/en-in/home/children-s-health-issues/general-problems-in-newborns/birth-injuries-in-newborns>
- <https://www.cerebralpalsyguide.com/cerebral-palsy/>

Course Title: GERIATRICS

Course Code: BPT8458

L	T	P	Credits
4	0	0	4

Total Hours: 60**Course Outcomes**

On completion of this course, the successful students should be able to:

1. Learn about the process of normal aging
2. Gain knowledge about various depressive disorders in elderly.
3. Develop skills to assess neurological disorders in childhood.
4. Learn about neurological disorders and there management.

UNIT I**15 Hours**

Normal aging- definition, the anatomical, physiological and cognitive changes related to aging.

Examination and assessment of geriatric patient.

UNIT II**15 Hours**

Dementia- Types and its management

Overview of depressive disorders in the elderly.

UNIT III**15 Hours**

Musculoskeletal disorders- etiology, clinical manifestation and its management

Cardiopulmonary disorders- etiology, clinical manifestation and its management

UNIT IV**15 Hours**

Neurological disorders (CNS & PNS) - etiology, clinical manifestation & and its management

Transaction mode

Demonstration method, Group Discussion, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning

Suggested Readings:

- *Geriatric Physical Therapy- Guccione- Mosby*
- *Essential Geriatrics- Henry Woodford*
- *Inpatient Geriatric Psychiatry-Optimum Care, Emerging Limitations, and Realistic Goals-Howard H. Fenn, Ana Hategan, James A. Bourgeois*

- Guccione, A. A., Wong, R. A., & Avers, D. (2011). *Geriatric Physical Therapy* (3rd ed.). Elsevier.
- Houglum, P., & Bertoti, D. B. (2016). *Therapeutic Exercise for Musculoskeletal Injuries* (4th ed.). Human Kinetics.

Web Sources

- <https://www.alz.org/alzheimers-dementia/what-is-dementia>
- <https://www.uptodate.com/contents/normal-aging>

Course Title: NEURO-PHYSIOLOGICAL TECHNIQUES

Course Code: BPT8459

L	T	P	Credits
4	0	0	4

Total Hours: 60

Course Outcomes

On completion of this course, the successful students should be able to:

1. Assess patient with neurological disorder.
2. Perform special tests for neurological conditions.
3. Provide rehabilitation based on neurodevelopmental techniques.
4. Learn to apply appropriate neurological intervention techniques.

Course Content

UNIT I

15 Hours

Pediatric Neurology: Pediatric Examination, Developmental milestones, developmental reflexes

Neuro developmental screening tests.

Evaluation & Management - History, Observation, Palpation, and Milestone Examination, developmental reflex Examination

UNIT II

15 Hours

Neurophysiological Techniques – Concepts, Principles, Techniques

Effects of following Neurophysiological techniques: NDT, PNF

UNIT III

15 Hours

Vojta therapy, Rood's Sensory motor Approach, Sensory Integration Approach

UNIT IV

15 Hours

Brunnstorm movement therapy, Motor relearning program, Contemporary task-oriented approach, Muscle re-education approach and Constraint induced movement therapy

Transaction mode

Demonstration method, Group Discussion, e-Tutoring, Dialogue, Peer Group Discussion, Mobile Teaching, Self-Learning

Suggested Readings:

- Lindsay, K. W., Bone, I., & Fuller, G. (2010). *Neurology and neurosurgery illustrated e-book*. Elsevier Health Sciences.
- Walker, B. R., & Colledge, N. R. (2013). *Davidson's principles and practice of medicine*. Elsevier Health Sciences.
- ecklin, J. S. (2015). *Pediatric Neurologic Physical Therapy (3rd ed.)*. Lippincott Williams & Wilkins.
- Bly, L. (1994). *Neurodevelopmental Treatment Approach: Theoretical Foundations and Principles of Clinical Practice (1st ed.)*. SLACK Incorporated.
- Bobath, K., & Bobath, B. (1987). *NDT in Neurology*. Blackwell Scientific Publications.

Web Sources

- <https://www.physio.co.uk/treatments/neurological-rehabilitation/bobath.php>
- <https://raisingchildren.net.au/autism/therapies-guide/sensory-integration>
- https://www.physio-pedia.com/images/5/5b/Brunnstrom%27s_Approach.pdf

Course Title: ICU MANAGEMENT

			Cred
L	T	P	its

Course Code: BPT8460

4	0	0	4
---	---	---	---

Total Hours: 60**Course Outcomes**

On completion of this course, the successful students should be able to:

1. Reduce the patient's stay in the ICU and overall hospital stay.
2. Prevent ICU related complications.
3. To improve function and quality of life in the long term.
4. To make patients functionally independent.

Course Content**UNIT I****15 Hours**

Positioning, Education, Manual and ventilator hyperinflation, Ambu Bag

UNIT II**15 Hours**

Weaning from mechanical ventilation, Non-invasive ventilation, Percussion, vibration, suctioning

UNIT III**15 Hours**

Respiratory muscle strengthening, Chest Physiotherapy, Postural Drainage

UNIT IV**15 Hours**

Breathing exercises and mobilization, Prevention of complications

Transaction mode

Demonstration method, Group Discussion, Collaborative Learning and Cooperative Learning

Suggested readings

- Donna Frownfelter, Tidy's Physiotherapy, Colby Kisner

- *Textbook of Critical Care*-Jean-Louis Vincent, Edward Abraham,Patrick Kochanek
- Parrillo, J. E., & Dellinger, R. P. (2014). *Critical Care Medicine: Principles of Diagnosis and Management in the Adult* (4th ed.). Elsevier.
- Vincent, J. L., & Abraham, E. (2017). *Textbook of Critical Care* (7th ed.). Elsevier.
- Marino, P. L. (2019). *Marino's The ICU Book* (4th ed.). Wolters Kluwer.

Web Sources

- https://www.physio-pedia.com/The_Intensive_Care_Unit
- <https://pubmed.ncbi.nlm.nih.gov/33115261/>