Bachelor in Physiotherapy (B.P.T.)

Programme Summary

Duration: 4 years + 6 months internship

Eligibility

10+2 from the CBSE/ICSE/ State boards or intermediate or pre university examination (2 years) or any other examination recognized and equivalent to any of the above, with at least 50% marks in aggregate or in PCB.

Program outcomes:

- The aim of the course is to provide comprehensive, individually focused training that prepares the students for providing a quality Physiotherapy care to the patients.
- Demonstrate sufficient understanding of knowledge in Physiotherapy.
- Able to integrate theoretical knowledge with clinical assessment.
- Develop the ability to collect history, perform relevant clinical assessment and frame appropriate electrotherapeutic and exercise therapy management for the patients.
- Demonstrate clinical decision making ability and provide appropriate patient care.
- Develop effective communication with patients, family, colleagues and students.
- Promote health education and improved quality of life through the practice of the profession.
- To carry out research and publications towards upliftment of the field of Physiotherapy.
- Actively engage in lifelong learning activities.
- Work effectively in various inter professional collaborative settings like hospitals, Rehabilitation Centers, Special Schools, Educational Institutions, Health and Fitness Centers, Geriatric Centers, Ergonomic Consultant in Corporate Sectors, Private Consultation, Home Care Services, Industrial Sectors, Sports Management, Fitness Consultant.

Course outcomes:

S.No.	Course code	Course name	Maximum marks	Course outcomes
1st Year				
1	BP-101	Human Anatomy	70+30	To understand about the structure of human body. To learn about the scope of anatomy in the field of Physiotherapy. Classification of bones, joints, and muscles Structure of skin, layers of skin. To learn about the axis and planes of body on which the movement occur. To understand about the structure of pectoral region, arm, forearm, hand, gluteal region, thigh, leg, ankle and foot. To know about the shoulder joint, elbow joint, wrist joint, hip joint, knee joint, ankle joint, sacro iliac joint, Temporomandibular joint and their movements. To learn about the para vertebral muscles, intercostals muscles, Brain, parts of brain, Spinal cord, Cerebrospinal fluid, IIIrd and IVth ventricles, Cerebellum, muscles of face and neck. To understand about thorax, heart, lungs, esophagus, abdomen and abdominal organs like Diaphragm, stomach, kidney, liver, uterus, structure of male and female reproductive organs To understand about the blood supply and nerve supply of all the bones, muscles and joints and other soft tissue structures. To understand the course of blood vessels, veins and nerves in the human body. To understand about the clinical aspects regarding the joints, bones and all soft tissue structures.
2	BP-102	Human Physiology	70+30	To understand fundamentals of cell structure and function. To acquire knowledge about physiology of muscle function, sliding filament theory, types of contractions, muscle fatigue. To know about the composition of blood, formation and functions of RBC, WBC, Plasma, and blood groups. To learn about the blood coagulation time, bleeding time, clotting time, blood pressure, cardiac cycle and cardiac output, examination of ECG To attain knowledge about respiration, mechanism of respiration, muscles performing respiration, volume and capacities of lung, and gaseous exchange. To know about the digestive system, gastric juices performing digestion, enzymatic activity of juices, absorption and metabolism of food. To understand about the structure and function of endocrine glands, hormones and their effect on every system of the human body. To know about the function of kidney, urine formation, normal and abnormal urine output, constituents of urine, micturition, and kidney function tests. To attain knowledge about the neuron, reflex arc, normal and abnormal reflexes, sympathetic and parasympathetic nervous system, sensory and motor areas.
3	BP-103	General, clinical and Social	70+30	To acquire knowledge about the nature and fields of Psychology, scope of Psychology in Physiotherapy. To obtain knowledge about behaviour and experience.

		Psychology		To get information about motivation, types of motivation, learning theories, nature of emotion and relationship with autonomic nervous system, Gestalt's theory of learning. To know about memory, its types, and causes of forgetting. To get information about Nature of attention, factors deterring attention; nature of perception, principles of perceptual grouping; illusions and Hallucinations. Mental mechanisms and their role in health and disease. Psychological reaction of patients to physical illness, reaction to loss, death, bereavement. Emotional needs and Psychological factors in relation to unconsciousness handicap. To know about intelligence tests – their uses; how the test is standardized Intelligence Quotient (I.Q.) general intelligence and special intelligence. To understand the concept of Personality, types, measurement of Personality with the help of various Questionnaire
4	BP-104	Biochemistry	70+30	To understand the concepts of Biochemical organization of human cell. Learn experimental evidences for proteins and physiotherapeutic significance of structural proteins. To know about the biochemical asspects of hemoglobin, connective tissue, muscle tissue and nervous tissue, protein, carbohydrate and lipid metabolism.
5	BP-105	Basic principles of Physiotherapy	70+30	To study the definition, branches and scope of Physiotherapy in day today's life. It includes general knowledge of electrotherapy modalities with reference to current and magnetism, conductors and non conductors, light, heat and cold, and exercises like active and passive exercises, resistive exercises. It gives knowledge about wax therapy, pulleys, gym ball, fundamental positions, walking pattern.
6		Laboratory course 1	70+30	
7		Laboratory course 2	70+30	To learn about physiologic examinations like blood sampling, clotting time, bleeding time, platelet count, RBC and WBC count
2nd Year				
1	BP201	Exercise Therapy	70+30	To understand the principles and techniques of relaxation and its principles. To learn the use of suspension for treatment. Use of various techniques like PNF, Hydrotherapy their principles for treating various conditions. To learn evaluation methods – Principles – techniques of muscle testing, goniometry, limb girth and length, posture, chest expansion and hand function. To learn various soft tissue manipulations. Learning the normal gait pattern and correction of gait abnormalities. To learn the various techniques of mobilization, 7.strengthening and stretching along with their principles. To learn the basic concepts of various types of co-ordination exercises, breathing exercises ADL, hand function. To learn the different types of traction, and its uses. To learn the history of yoga and various types of asana along with the advance yoga therapy and its therapeutic utilities.
2	BP202	Electrotherapy	70+30	Learning the basic of all low frequency current modalities like, TENS, muscle stimulator, di-dynamic and

		and Actinotherapy		sinusoidal currents,their indications and contra indications. To learn the nature, indications and contra indications of various medium frequency current modalities like IFT and Russian currents. Learning the physiological and therapeutic effects of high frequency currents and their uses for various conditions, modalities are SWD and MWD. Learning the use of various radiations for treatment purpose like, UVR, IRR and LASER. To learn the therapeutic uses of Ultrasound, its physiological effects, indications and contra indications. To learn about various thermotherapy techniques like, paraffin wax bath, contrast bath and moist heat therapy for treating various conditions. To learn about various diagnostic techniques like biofeedback, SD curve, NCV and EMG to know about the condition of muscles and nerves and use the information to treat the conditions. To learn the various advanced techniques of treatment like combination therapy, long wave, and treating some conditions using techniques of cryotherapy.
3	BP203	Biomechanics and Kinesiology	70+30	Introduction to kinesiology, learning fundamental concepts of COG,LOG, planes, axis and starting positions. To learn about body musculature, all joints, reflexes, muscle tone and all neuromuscular functions. Fundamentals of anatomical levers, pulleys, and principles of motion. Fundamental principles of force and work- Force and its magnitude, direction, point of application, components of muscular force, components of external force, graphic representation of force, true force and the resistance arms of the lever, the confused affects of two or more forces. Principles of Stability, covering all the joints. Application of Kinesiology to Locomotion, Biomechanics of all phases of gait cycle. Evaluation of exercise for conditions like kyphosis, lordosis, scoliosis etc for corrective purposes.
4	BP204	Pathology microbiology	70+30	Introduction to etiology and classification of diseases. To learn various types of inflammations. Introduction to wound and its healing. Learning various degenerative and metabolic disorders of bone, tumors, and fractures. To learn the pathology of CNS diseases and peripheral nerve diseases. Diseases of respiratory, CVS, and musculoskeletal system. Introduction and Historical background of microbiology Discovery of micro organisms. To learn the contribution of various scientists in the field of microbiology. To learn the chemotherapy basics and vaccination. To learn the microbial structure, function and culture media. To learn about main pathogens and human body immunity, antigen antibody reaction. Types of infections.
5	BP205	Pharmacology	70+30	Learning definition of Pharmacology and its scope in Physiotherapy. To learn Dosage forms & Modes of Drugs administration, drug absorption, metabolism and Biotransformation.

				Basic concepts of drug toxicity, allergy and drug resistance. Learning pharmacodynamics, drug potency and drug antagonism. To learn the pharmacology and physiotherapeutic role of following Pharmacodynamics agents. General and local anesthetics, anxiolytics, anticonvulsants, sedatives, antihistaminic agents, anti inflammatory analgesic agents, neuro-muscular blockers and muscle relaxants. Introduction to drug classification, effects and side effects of some drugs.
6		Laboratory course 1	70+30	To learn about various types of exercises, manipulations, mobilization, joint range by goniometry and learning various yoga asana.
7		Laboratory course 2	70+30	To learn the practical application of various modalities for different conditions , learning indications and contraindications, and to learn what are the precautions to be taken in an electro lab and how to work with patients and modalities.
8		Laboratory course 3	70+30	Evaluation and assessment of various joint motions posture and gait. To evaluate various soft tissues.
3rd Year				
1	BP-301	Clinical Orthopedics	70+30	Basic introduction to orthopedics, general idea about terminology, deformity, diseases of bones, joints and soft tissues Clinical features, investigations and treatment of bone and joint infection General diseases of bones and joints like RA, AS, gout, rickets etc Regional diseases of ligaments , menisci and tendons Types, features, complications and surgical management of fractures Diseases of spine Regional conditions like deformities of hand, foot etc, tennis elbow, VIC etc Clinical features, assessment, types and treatment of leprosy, CP, PNI, polio and amputation
2	BP-302	Clinical neurology and psychiatry	70+30	Review the anatomy and physiology of nervous system. Clinical features and management of congenital disorders. To study in detail the clinical features , investigation and treatment of brain vascular diseases like stroke and head injury. Features, assessment and treatment of spinal cord disorders like tumors, syringomyelia, etc. To know about the demyelinating and degenerative diseases and their treatment like GBS, Parkinon's etc To study about the cranial nerves and their diseases. To know about the nerve and muscle diseases and their management. To understand some of the psychiatric disorders like MR, schizophrenia etc.
3	BP-303	Clinical cardiothoracic conditions	70+30	To review the basic anatomy and physiology of heart and lungs. To understand the basic principles of cardiothoracic assessment and investigations. To study the thoracic cage deformities. Common conditions of cardiovascular system like cardiac failure, CHD, IHD etc. To know the common cardiac surgeries, types of incisions, pre and postoperative management Common respiratory diseases like asthma, TB, etc. Thoracic surgeries like thoracoplasty.
4	BP-304	General	70+30	To understand the concepts of medicine and general medical conditions

		medicine , skin and pediatrics		Learn clinical features, assessment and medical management of heart diseases, respiratory diseases, digestive system diseases, kidney and genitourinary system, blood diseases, skin and pediatric diseases
5	BP-305	General surgery, obg, gyne, ent and plastic surgery	70+30	To study the clinical features, pathology and management of hemorrhages, about anesthesia and pain relief. General and plastic surgery procedures and their management. To understand the anatomy and physiology of ear, nose and throat and their diseases. To know about some obs and gynecological disorders and their management.
6	BP-306	Disability, prevention and rehabilitation	70+30	To understand the basic terminologies in rehabilitation To know the ethics in hospital and work To understand the interdepartmental relationships, with patients, family members and community To know the basic philosophy of rehabilitation and its use in some conditions To know the social and vocational problems and how to deal with them
7		Lab course 1	70+30	Demonstration and practice of general orthopedic examination. Discussion of common orthopedic appliances and instrument.
8		Labcourse 2	70+30	Demonstration and practice of neurological examination. Discussion about investigations in neurology like CT,MRI etc
4th Year				
1	BP 401	PT in Orthopedics	70+30	Detailed study on causes, types and management of fractures. With detailed study on assessment, investigations of fractures and dislocations of upper limb, lower limb and spine. Detailed assessment, diagnostic test, management of Soft Tissue Injuries of upper & lower limb. Degenerative and infective conditions of joints Deformities of joints and spinal column with investigations & management. Orthopedic Surgery of upper/lower limb with pre & post rehabilitation. Aamputation causes & management .low back pain with causative factors, tests and its rehab.
2	BP 402	PT in Neurology	70+30	Evaluation and application of advanced neuro rehab techniques for rehabilitation. Evaluation, assessment of various neurological disorders. Peripheral injuries and neuropathies rehabilitation. Assessment and treatment of paralytic conditions.
3	BP403	PT in Cardio thorasic conditions	70+30	Detailed evaluation and procedures for cardiac rehab including management in ICU. Physiotherapy management of various cardiac disorders along with management of complications of peripheral vascular problems. Pre and post operative Physiotherapy management of various heart surgeries.
4	BP404	PT in Gen. Medical and surgical conditions	70+30	Physiotherapy management of systemic diseases, Oedema, Inflammation, Artherosclerosis, Aneurysms, Tumors, Rickets Diabetes, Panniculitis, obesity, Lymphedema, tetanus. Physiotherapy management pre and post operative for all abdominal surgeries. Physiotherapy management of various skin disorders. Physiotherapy management of gynecological conditions including bladder management. Physiotherapy management of ENT disorders. Skin grafting and flaps, liposuction, mamoplasty, Rhinoplasty & it PT management. Physiotherapy management of various pediatrics neurological disorders. Physiotherapy management of various sports injuries.

5	BP405	Research methodology, biostatistics and computer	70+30	Measurement of Central Tendency (mean, median mode). Theory of probability – Definition, Mathematical definition, Law of Probability (Addition and Multiplication theorems). Condition Probability, expectations – expected values or the mathematical expectation, addition and multiplication theorem on expectation. Test-t-test, f-test and X^2 – test Correlation and regression line:- Computer: Application, Soft and Hardware, Application in Medicine, Programming etc. Modern concept of Computer Technology in Rehabilitation of persons with disabilities.
6		Lab course 1	70+30	Practicals include detailed assessment of all joints with relevant diagnostic tests.
7		Lab course 2	70+30	Practicals include evaluation, assessment of various neurological disorders, application of various approaches.
8		Lab course 3	70+30	Practical's various techniques for management in ICU, respiratory care techniques of postural drainage.
9		Lab course 4	70+30	Practical assessment of various medical & surgical conditions, diagnostic tests techniques for rehabilitation.