SCHEME & SYLLABUS

(Choice Based Credit System)

for

Bachelor of Physiotherapy

(w.e.f. Session 2017-2018)

Program Code: BPT-101

Name – Department of Physiotherapy

DEPARTMENT OF PHYSIOTHERAPY

RIMT UNIVERSITY, MANDIGOBINDGARH, PUNJAB

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SECTION 1

Vision & Mission of the University

VISION

To become one of the most preferred learning places a center of excellence to promote and nurture future leaders who would facilitate in desired change in the society

MISSION

- To impart teaching and learning through cutting edge technologies supported by the world class infrastructure

- To empower and transform young minds into capable leaders and responsible citizens of India instilled with high ethical and moral values

SECTION 2

Vision and Mission of the Department

VISION

Department of Physiotherapy provides opportunity to youngsters who aspire to pursue their careers in medical field; this noble profession of serving humanity is widening its scope and emerging with new therapies and specialties. This advancement coerces the young minds to take plunge into this field and here Department of Physiotherapy caters their needs. With the aim to channelize the energy of youth in the right direction, it provides excellent training in the field of medical Education and health care. The Physiotherapy Department aims to produce the professionals who are skilled, dedicated and dutiful.

MISSION

- To provide learners to develop their hard and soft skills by providing a stimulating, intellectually challenging and engaging environment.

- To enable the students to acquire global competence through problem solving skills and exposure to latest developments.

- The students can work in health care setting such as hospitals, outpatient clinics, private practice, rehabilitation centers, patient's homes, fitness centers, sport venues, aged care centers, industrial set ups, nursing homes and educational institutions.

- To provide comprehensive education, integrate professional knowledge and skills in the students.

SECTION 3

About the Program

Physiotherapy is a health care profession concerned with the assessment, maintenance and restoration of physical function of the body. It is a form of treatment without medicines that uses physical means (electrical and manual) thereby reducing the possibility of the side effects. With emphasis on manual skills patients are guided through movements that focus on functional improvement and increased mobility. This upcoming field is beneficial in management of wide range of injuries including sports injuries (sprain, strain, muscle pull), back & neck pain (spondylitis), postural problems, occupational injuries, arthritis (Joints paints), amputee rehabilitation, spinal cord injuries (Paralysis), Post-Polio cases, chronic air travel disease, rehabilitation following cardiac surgery, stroke rehabilitation (Hemiplegia), asthma management, pediatric cases (Neurological-PT Cardio respiratory-PT & Orthopedics-PT), geriatric problems, pre post-surgical conditions, Obstetric & Gynea (Prenatal, Peri-natal, Post-natal) and also important means for fitness and endurance training to sports individuals. These health professionals can work in health care setting such as hospitals, outpatient clinics, private practice, rehabilitation centers, patient's homes, fitness centers, sport venues, aged care centers, industrial set ups, nursing homes and educational institutions. Physiotherapists also work with community organizations and as consultants, academicians and researchers.

SECTION 4

Program Educational Objectives (PEOs), Program Outcomes (POs) and Program Specific Outcomes (PSOs)

PROGRAMME EDUCATION OBJECTIVES (PEOs)

PEO1	**Future Prospects: To Develop and create a competent physiotherapist who will utilize and practice professional principles of physiotherapy in self practice, hospitals, government and non-government organizations, academics, research institutes and cooperate settings.**
PEO2	**Professional Competence: Integrate knowledge of basic sciences and physiotherapy in order to modify treatment approaches that reflect the breadth and scope of physiotherapy practice and Demonstrate clinical competency in evaluation, treatment planning and implementation.**
PEO3	**Leadership Quality: To inculcate students with leadership skills with high level of integrity for team building and also an ability to function professionally with ethical responsibility as an individual as well as in multidisciplinary team with positive attitude.**
PEO4	**Life Long Learning: Sustain continued professional development through lifelong learning activities and work for development of field that includes creation, absorption and adoption of new knowledge and tools.**

PROGRAMME OUTCOMES (POs)

Program Name	**Bachelor of Physiotherapy**
Program Code	BPHS-201
Program Credits	214
Number of Semesters	Total 8 semester in 4 years
Program Outcomes (PO): On successful completion of this Program, the learner will be able to:	
PO 1	Problem analysis: Ability to asses, analyze and treat patients with various diseases and disorders in the field of Physiotherapy and Rehabilitation sciences.
PO 2	Design/development of Treatment Protocol: Design and implement treatment protocol for various disease and disorders according to the need of the patients with appropriate consideration of functional and environmental needs.
PO 3	Knowledge Application: Apply the concepts of Anatomy, physiology and kinesiology in professional Physiotherapy Practice and select various exercise therapies and Electrotherapeutic techniques for prevention and Treatment of various conditions.
PO 4	Case studies and clinical Trial: An ability to design and conduct clinical trial, analyze data and provide well informed conclusions on a given study.
PO 5	Evidence Based Practice: Employ critical thinking and evidence-based practice to make clinical decisions about physical therapy services. Also collaborate with patients, caregivers, and other health care providers to develop and implement an evidence-based plan of care that coordinates human and financial resources.
PO 6	Professional Conduct: Able to work professionally in the field of physiotherapy and maintain good intrapersonal and interpersonal skills.
PO 7	Individual and team work: Function effectively as an individual as a member or leader in diverse teams, and in multidisciplinary settings.
PO 8	Ethics: Practice ethical principles and commit to professional ethics, responsibilities and norms of healthcare industry.
PO 9	Communication: Ability to communicate effectively on different diseases and disorders treated by physiotherapists, being able to comprehend and write effective reports and design documentation, make effective presentations, give and receive clear instructions to the Patients and fellow colleagues.
PO 10	Environment and Sustainability: Understand the impact of professional practice and health industry solutions in society and environmental contexts and demonstrate knowledge of and need for sustainable development.
PO 11	Use of Modern Technology/ Recent Advances: Apply scientific research and other forms of best evidences in the practice of physiotherapy.
PO 12	Life Long Learning: Demonstrate a commitment to professional growth and lifelong learning to upgrade skills backed by empirical scientific studies

SECTION 5

Curriculum / Scheme with Examination Grading Scheme

PROGRAMME SPECIFIC OUTCOMES (PSOs)

Programme Specific Objectives (PSOs) are **specific statements** that describe the professional career accomplishments that the program is designed for. The PSOs of the 'BPT' are as follows:	
PSO1	Develop the ability to collect history, perform relevant clinical assessment and frame appropriate electrotherapeutic and exercise therapy management for the patients.
PSO2	Demonstrate clinical decision making ability and provide appropriate patient care.
PSO3	Able to counsel the patients, family, colleagues and students regarding all necessary aspects of physiotherapy treatment protocol.
PSO4	Promote health education and improved quality of life through socially accepted and ethical practice of the profession.
PSO5	Work effectively in various inter professional collaborative settings like hospitals, Rehabilitation Centers, Special Schools, Health and Fitness Centers

SEMESTER WISE SUMMARY OF THE PROGRAMME: BPT

S. No.	Semester	No. of Contact Hours	Marks	Credits
1.	I	31	1100	26
2.	II	29	900	25
3.	III	20	700	18.5
4.	IV	24	800	20.5
5.	V	36	900	24
6.	VI	36	700	24
7.	VII	34	800	23
8.	VIII	36	900	23.5
	Total	246	6800	184.5

EXAMINATION GRADING SCHEME

Marks Percentage Range	Grade	Grade Point	Qualitative Meaning
80-100	O	10	Outstanding
70-79	A+	9	Excellent
60-69	A	8	Very Good
55-59	B	7	Good
50-54	B	6	Above Average
45-	C	5	Average
40-44	P	4	Fail
0-39	F	0	Fail
ABSENT	AB	0	Fail

Percentage Calculation: CGPA *10

Scheme Of Study

Total credits: 26
Contact hours: 31

Semester I (1st year)												
Subject			Contact Hours/Week			Credit	Evaluation Scheme (% of Total Marks)					Exam Duration (Hours)
S.no	Code	Title	L	T	P		CWA	LWA	MTE	ETE	Total	
1	BPT1101	HUMAN ANATOMY	4	0	0	4.0	16	---	24	60	100	3
2	BPT1102	HUMAN PHYSIOLOGY	4	0	0	4.0	16	---	24	60	100	3
3	BPT1103	EXERCISE THERAPY	4	0	0	4.0	16	---	24	60	100	3
4	BPT1104	ELECTRO THERAPY	4	0	0	4.0	16	---	24	60	100	3
5	BPT1105	BIOCHEMISTRY	3	0	0	3.0	16	---	24	60	100	3
6	BPT1106	HUMAN ANATOMY LAB	0	0	2	1.0	---	---	---	100	100	3
7	BPT1107	HUMAN PHYSIOLOGY LAB	0	0	2	1.0	---	---	---	100	100	3
8	BPT1108	EXERCISE THERAPY LAB	0	0	2	1.0	---	---	---	100	100	3
9	BPT1109	ELECTRO THERAPY LAB	0	0	2	1.0	---	---	---	100	100	3
10	BHUM1101	COMMUNICATION SKILLS	2	0	0	2.0	16	---	24	60	100	3
11.	BHUM1102	COMMUNICATION SKILLS LAB	0	0	2	1.0	---	---	---	100	100	3
	Total		21	0	10	26.0					1100	

Total credits: 25

Contact hours: 29

Semester II (1st year)												
Subject			Contact Hours/Week			Credit	Evaluation Scheme (% of Total Marks)					Exam Duration (Hours)
S.no	Code	Title	L	T	P		CWA	LWA	MTE	ETE	Total	
1	BPT1201	HUMAN ANATOMY	4	0	0	4.0	16	---	24	60	100	3
2	BPT1202	HUMAN PHYSIOLOGY	4	0	0	4.0	16	---	24	60	100	3
3	BPT1203	EXERCISETHERAPY	4	0	0	4.0	16	---	24	60	100	3
4	BPT1204	ELECTRO THERAPY	4	0	0	4.0	16	---	24	60	100	3
5	BPT1205	BIOCHEMISTRY	3	0	0	3.0	16	---	24	60	100	3
6		Program Elective –I	2	0	0	2.0	16	---	24	60	100	3
6	BPT1206	HUMAN ANATOMY LAB	0	0	2	1.0	---	---	---	100	100	3
7	BPT1207	HUMAN PHYSIOLOGY LAB	0	0	2	1.0	---	---	---	100	100	3
8	BPT1208	EXERCISE THERAPY LAB	0	0	2	1.0	---	---	---	100	100	3
9	BPT1209	ELECTRO THERAPY LAB	0	0	2	1.0	---	---	---	100	100	3
	Total		21	0	8	25.0					900	

Program Elective –I	Course Code	Course Title
	BEVS 1201	Environmental Studies
	BPT 1110	Stress Managment

Total credits: 18.5
Contact hours: 20

Semester III (2nd year)												
Subject			Contact Hours/Week			Credit	Evaluation Scheme (% of Total Marks)					Exam Duration (Hours)
S.no	Code	Title	L	T	P		CWA	LWA	MTE	ETE	Total	
1	BPT 2301	PATHOLOGY	3	0	0	3.0	16	---	24	60	100	3
2	BPT 2302	MICROBIOLOGY	3	0	0	3.0	16	---	24	60	100	3
3	BPT 2303	BIOMECHANICS AND KINESIOLOGY-I	4	0	0	4.0	16	---	24	60	100	3
4	BPT 2304	BIOMECHANICS AND KINESIOLOGY-I LAB	0	0	3	1.5	---	---	----	100	100	3
5	BPT 2305	PHARMACOLOGY I	3	0	0	3.0	16	---	24	60	100	3
6	BPT 2306	FIRST AID	2	0	0	2.0	16	---	24	60	100	3
7	BPT 2307	SOCIOLOGY	2	0	0	2.0	16	---	24	60	100	3
	Total		17	0	3	18.5					700	

Total credits: 20.5
Contact hours: 24.0

Semester IV (2nd year)												
Subject			Contact Hours/Week			Credit	Evaluation Scheme (% of Total Marks)					Exam Duration (Hours)
S.no	Code	Title	L	T	P		CWA	LWA	MTE	ETE	Total	
1		Program Elective –II	3	0	0	3.0	16	---	24	60	100	3
2	BPT 2402	PHARMACOLOGY II	3	0	0	3.0	16	---	24	60	100	3
3	BPT 2403	GENERAL MEDICINE	4	0	0	4.0	16	---	24	60	100	3
4	BPT 2404	GENERAL SURGERY	4	0	0	4.0	16	---	24	100	100	3
5	BPT 2405	GENERAL MEDICINE LAB	0	0	2	1.0	---	---	---	100	100	3
6	BPT 2406	GENERAL SURGERY LAB	0	0	2	1.0	---	---	---	100	100	3
7	BPT 2407	BIOMECHANICS AND KINESIOLOGY-II	3	0	0	3.0	16	---	24	60	100	3
8	BPT 2408	BIOMECHANICS AND KINESIOLOGY-II LAB	0	0	3	1.5	---	---	---	100	100	
	Total		17	0	7	20.5					800	

Program Elective –II	Course Code	Course Title
	BPT 2401	Medical terminology and record keeping
	BPT 1110	Time Management

Total credits: 24
Contact hours: 36

Semester V (3rd year)												
Subject			Contact Hours/Week			Credit	Evaluation Scheme (% of Total Marks)					Exam Duration (Hours)
S.no	Code	Title	L	T	P		CWA	LWA	MTE	ETE	Total	
1	BPT3501	ORTHOPEDICS-I	3	0	0	3.0	16	---	24	60	100	3
2	BPT3502	ORTHOPEDICS-I LAB	0	0	2	1.0	---	30	---	70	100	
3	BPT3503	NEUROLOGY-I	3	0	0	3.0	16	---	24	60	100	3
4	BPT3504	NEUROLOGY-I LAB	0	0	2	1.0	---	30	---	70	100	3
5	BPT3505	PHYSIOTHERAPY IN MEDICAL AND SURGICAL CONDITIONS	3	0	0	3.0	16	---	24	60	100	3
6	BPT3506	PHYSIOTHERAPY IN MEDICAL AND SURGICAL CONDITIONS LAB	0	0	2	1.0	---	30	---	70	100	3
7	BPT3507	COMMUNITY MEDICINE AND REHABILITATION	3	0	0	3.0	16	---	24	60	100	3
8	BPT3508	COMMUNITY MEDICINE AND REHABILITATION LAB	0	0	2	1.0	---	30	---	70	100	3
9	BPT3509	CLINICALS –I	0	0	16	8.0	---	30	---	70	100	3
	Total		12	0	24	24.0					900	

Total credits: 24
Contact hours: 36

Semester VI (3rd year)												
Subject			Contact Hours/Week			Credit	Evaluation Scheme (% of Total Marks)					Exam Duration (Hours)
S.no	Code	Title	L	T	P		CWA	LWA	MTE	ETE	Total	
1	BPT3601	ORTHOPEDICS-II	3	0	0	3.0	16	---	24	60	100	3
2	BPT3602	ORTHOPEDICS-II LAB	0	0	2	1.0	---	30	---	70	100	3
3	BPT3603	NEUROLOGY-II	3	0	0	3.0	16	---	24	60	100	3
4	BPT3604	NEUROLOGY-II LAB	0	0	2	1.0	---	30	---	70	100	3
5	BPT3605	ORTHOPEDIC PHYSIOTHERAPY -I	3	0	0	3.0	16	---	24	60	100	3
6	BPT3606	ORTHOPEDIC PHYSIOTHERAPY -I LAB	0	0	2	1.0	---	30	---	70	100	3
7	BPT3607	NEUROLOGY PHYSIOTHERAPY- I	3	0	0	3.0	16	---	24	60	100	3
8	BPT3608	NEUROLOGY PHYSIOTHERAPY-I LAB	0	0	2	1.0	---	30	---	70	100	3
9	BPT3609	CLINICALS -II	0	0	16	8.0	---	30	---	70	100	3
	Total		12	0	24	24.0					700	

Total credits: 23

Contact hours: 34

Semester VII (4th year)												
Subject			Contact Hours/Week			Credit	Evaluation Scheme (% of Total Marks)					Exam Duration (Hours)
S.no	Code	Title	L	T	P		CWA	LWA	MTE	ETE	Total	
1	BPT4701	ORTHOPEDIC PHYSIOTHERAPY -II	3	0	0	3.0	16	---	24	60	100	3
2	BPT4702	ORTHOPEDIC PHYSIOTHERAPY –II LAB	0	0	2	1.0	---	30	---	70	100	3
3	BPT4703	NEUROLOGY PHYSIOTHERAPY-II	3	0	0	3.0	16	---	24	60	100	3
4	BPT4704	NEUROLOGY PHYSIOTHERAPY-II LAB	0	0	2	1	---	30	---	70	100	3
5	BPT4705	CARDIOPULMONARY PHYSIOTHERAPY	3	0	0	3.0	16	---	24	60	100	3
6	BPT4706	CARDIOPULMONARY PHYSIOTHERAPY LAB	0	0	2	1	---	30	---	70	100	3
7	BPT4707	RESEARCH METHODOLOGY AND BIOSTATISTICS	3	0	0	3	16	---	24	60	100	3
8	BPT4708	CLINICALS -III	0	0	16	8.0	---	30	---	70	100	3
	Total		12	0	22	23.0					800	

Total credits: 23.5

Contact hours: 36

Semester VIII (4th year)												
Subject			Contact Hours/Week			Credit	Evaluation Scheme (% of Total Marks)					Exam Duration (Hours)
S.no	Code	Title	L	T	P		CWA	LWA	MTE	ETE	Total	
1	BPT 4801	SPORTS PHYSIOTHERAPY	3	0	0	3.0	16	---	24	60	100	3
2	BPT 4802	SPORTS PHYSIOTHERAPY LAB	0	0	2	1.0	---	30	---	70	100	3
3	BPT 4803	PAEDIATRICS AND GERIATRICS PHYSIOTHERAPY	3	0	0	3.0	16	---	24	60	100	3
4	BPT 4804	PAEDIATRICS AND GERIATRICS PHYSIOTHERAPY LAB	0	0	2	1.0	---	30	---	70	100	3
5	BPT 4805	OBSTETRICS AND GYNAECOLOGY	3	0	0	3.0	16	---	24	60	100	3
6	BPT 4806	OBSTETRICS AND GYNAECOLOGY LAB	0	0	2	1.0	---	30	---	70	100	3
7	BPT 4807	MANAGEMENT AND ETHICAL ISSUES IN PHYSIOTHERAPY	2	0	0	2.0	16	---	24	60	100	3
8	BPT 4808	RESEARCH PROJECT	0	0	3	1.5	---	---	---	100	100	3
9	BPT 4809	CLINICALS-IV	0	0	16	8.0	---	30	---	70	100	3
	Total		11	0	25	23.5					900	

Semester IX

S.No	Course Code	Course Title	L	T	P	Credit
1	BPT500	INTERNSHIP	0	0	48	0.0
Total			**0**	**0**	**48**	**0.0**

- **After completing VIII semester in university, student may start Compulsory Rotatory Internship in hospitals for a period of 6 (six) months**
- **The internship will be considered to be completed only on successful presentation of the project in front of the board, appointed for this purpose.**

SUBJECT TITLE: HUMAN ANATOMY
SUBJECT CODE: BPT1101

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
4	0	0	4

SEMESTER: I
CONTACT HOURS/WEEK: 4

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs

Objective of course: Through this course students should be able to

- Recognize and interpret the anatomy and applied aspects of upper limb bones, joints, nerves and soft tissues
- Analyze and interpret the anatomy and applied aspects of thorax, joints and soft tissues
- Recognize and analyze the anatomy and applied aspects of embryology and histology

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Introduction to anatomy**: anatomical positions of body, axis, planes, common anatomical landmarks, connective tissue classification, composition and functions of bones, joints classification and types according to morphology and development **Joints :** definition and classification, structure of fibrous and cartilaginous joints, blood supply and nerve supply of joints **Histology**: general histology, connective Tissue, cartilage and Bone, muscular tissue, circulatory system – different sizes of arteries and veins, lymphoid tissue, skin and its appendages, study of the basic tissues of the body, cell and epithelium, Nerve Tissue	18 hrs

UNIT-II	**Embryology** : ovum, development of skin, development of bones, axial and appendicular skeleton and muscles., neural tube, development of brain and brain stem structures, spermatozoa, fertilization, formation of the germ layers and their derivations., development of fascia, development of blood vessels and lymphatic., brain vessels and spinal cord.	18 hrs
UNIT-III	**Arm and shoulder complex** : osteology and myology of clavicle, axilla and applied anatomy, humerus and scapula, shoulder joint complex anatomy, nerves, arteries veins and lymph supply of arm and shoulder complex, brachial plexus and its applied anatomy, radiological anatomy of shoulder. **Forearm, elbow and hand complex** : osteology and myology of radius and ulna, elbow joint anatomy, radioulnar joint anatomy, osteology and myology of carpals, metacarpals and phalanges of hand, wrist joint, joints of the hand, nerves, arteries veins and lymph supply of forearm and hand, extensor retinaculum and spaces of hand arches of hand, skin of the palm and dorsum of hand, radiological anatomy of elbow and hand, dermatomes and myotomes of upper limb.	18 hrs
UNIT-IV	**Thorax** : thoracic wall: position and shape, osteology and myology of ribs, costal cartilages and sternum, thoracic vertebrae, joints of the thorax and intervertebral discs, movements of vertebral column, origin insertion nerve supply and action of diaphragm, openings in the diaphragm, origin insertion nerve supply and action of intercostal and accessory muscles of respiration,, nerve supply and action of intercostal and accessory muscles of respiration, respiratory movements and clinical anatomy. **Heart and lung** : pectoral region and breast, cardiovascular system, mediastinum, shape and parts of the heart, blood supply and nerve supply of the heart, conducting system of the heart, divisions and contents of pericardium, pleura and lungs, lobes and bronchopulmonary	18 hrs

Course Outcomes

BPT1101.1	Describing all anatomical structures from a regional perspective.
BPT1101.2	Identifying muscles, bones, bony prominences joints, along with surface Landmarks.
BPT1101.3	Demonstrating movements of joints.
BPT1101.4	Applying the knowledge of palpation of nerves and arteries.

Recommended Books: 1. Human anatomy: regional and applied dissection and clinical; Volume 1: upper limb and thorax by BD Chaurasia, CBS publishers & distributors Pvt. Ltd.

2. Text book of anatomy upper and lower extremity by inderbirsingh, jaypee brothers medical publishers Pvt. Ltd.

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus.

SUBJECT TITLE: HUMAN PHYSIOLOGY

SUBJECT CODE: BPT1102

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
4	0	0	4

SEMESTER: I

CONTACT HOURS/WEEK: 4

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs

Objective of course: Through this course student should be able to

- Understand the basics of various system of human body
- Identify how changes in normal physiology lead to disease
- Describe the inter-dependency and interactions of the human body systems

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Cell introduction**: general physiology, cell structure and function, transport mechanism across membrane, cell junctions, cell death **Cell physiology**: homeostasis **Muscle physiology** : structure and properties of skeletal muscle, changes during muscular contraction, neuromuscular junction	18 hrs
UNIT-II	**Introduction of blood and body fluids**: distribution, composition of body fluid and blood, functions of blood **Plasma**: composition, formation and functions **Red blood cell**: count and its variations, stages of erythropoiesis, reticuloendothelial system, structure and function of haemoglobin, anemia, blood indices, PCV, ESR **White blood cell**: classification, functions, count and its variation **Platelets**: functions, count and its variations **Homeostatic mechanisms**: factors involved in blood coagulation, mechanism of blood clotting, applied physiology **Blood groups**: types of blood group and its significance, Rh factor, blood transfusion **Lymphatic system**: composition and functions	18 hrs

	Cardiovascular system : structure of heart, blood vessels, divisions of circulation, cardiac muscles and its properties **Cardiac cycle** : definition and phases of cardiac cycle, heart sounds **Cardiac output** : definition, factors maintaining cardiac output, pathological variation, heart rate and its regulation **Arterial blood pressure** : definition of ABP, normal values of ABP and its variations, and regulation of ABP.	
UNIT-III	**Introduction to respiratory system** : anatomy and functions of respiratory system, pulmonary circulation **Mechanics of respiration:** introduction of external and internal respiration, movements of thoracic cage and lungs during respiration, respiratory pressures **Pulmonary function test** : dead space, lung volume and capacity, respiratory minute volume, forced expiratory volume or timed vital capacity, vital capacity **Transport of gases** : diffusion across the respiratory membrane, oxygen transport, oxygen-haemoglobin dissociation curve, carbondioxide transport, carbondioxide dissociation curve **Regulation of respiration** : neural and chemical regulation **Disorders of respiration** : apnea, hyperventilation, hypoventilation, hypoxia, hypercapnea, hypocapnea, dyspnea, carbon monoxide poisoning, artificial respiration	18 hrs
UNIT-IV	**Introduction to digestive system:** physiological anatomy and nerve supply of alimentary canal **Salivary glands** : composition and functions of saliva, regulation of salivary secretion, process of mastication **Stomach :** functional anatomy of stomach, structure and functions of stomach, gastric glands, properties and composition of gastric juice, functions of gastric juice, applied physiology **Pancreas :** functional anatomy and nerve supply of pancreas, properties, composition, functions and regulation of pancreatic juice, applied physiology **Liver :** functions of liver, functions and regulation of bile, functions of gall bladder, applied physiology **Intestine :** anatomy of small and large intestine, secretions and functions of intestine, intestinal motility, applied physiology	18 hrs

Course Outcomes

BPT1102.1	Understanding the general physiology of the body.
BPT1102.2	Explaining normal functioning and interaction of all the organ systems.
BPT1102.3	Identifying applied physiology of various body systems..
BPT1102.4	Analyzing the response of various body systems to physiological and pathological stress.

Recommended Books: 1. Essentials of medical physiology by KSembulingam and PremaSembulingam, Jaypee Brothers Medical Publishers Pvt. Ltd.
2. Textbook of medical physiology by Hall and Guyton, W B Saunders (Elsevier)

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: EXERCISE THERAPY
SUBJECT CODE: BPT 1103

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
4	0	0	4

SEMESTER: I
CONTACT HOURS/WEEK: 3
Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs

Objective of course: Through this course student should be able to

- **Interpret to understand the relation between body dysfunction and its therapeutic management**
- **Enhance the student skill to clinical application of therapeutic exercise and massage**
- **Examine the knowledge of the student therapeutic skill in physiotherapy.**

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Introduction to exercise therapy: Force, Composition, Resolution, Equilibrium stable, unstable, neutral gravity-LOG-COG. Speed, velocity, work, energy, power, acceleration, momentum, friction and inertia.** **Mechanics in exercise therapy. : Mechanics of force , gravity and equilibrium, Body levers, Physiological effects of therapeutic exercises, Axis and planes in body** **Starting Positions. : Fundamental starting positions, Derived positions, Joint position and muscle work in starting positions, Joint**	**12hrs**

	position and muscle work in derived positions, Effects and uses of various positions	
UNIT-II	**Relaxation : definition of muscle tone, postural tone, voluntary movement, degrees of relaxation, pathological tension in muscle, stress mechanics, types of stresses, effects of stress on the body mechanism, indications of relaxation, methods and techniques of relaxation, principles and uses of relaxation, jacobsons, mitchels and additional methods.** **Therapeutic massage : history and classification of massage technique, principles, indications and contraindications, technique of massage manipulations, physiological and therapeutic uses of specific manipulations**	**14hrs**
UNIT-III	**Passive movements: principles of passive movements, therapeutic effects of passive movements, techniques of application of passive movements in upper extremities and lower extremities, Causes of immobility, classification of passive movements,, Specific definitions related to passive movements, Indications and contraindications** **Active movements: definition of strength, power and work, endurance, muscle actions, physiology of muscle performance, structure of skeletal muscle, chemical and mechanical events during contraction &relaxation, muscle fiber type, motor unit, force gradation., causes of decreased muscle performance, physiologic adaptation to training: strength and power, endurance, types of active movements, concept of assisted -resisted exercises, concept of resisted exercises** **Free exercise: classification, principles, techniques, indications, contraindications, effects and uses** **Active assisted exercise: principles, techniques, indications, contraindications, effects and uses of active assisted, and assisted-resisted exercise, resisted exercise: definition and principles, indications and contraindications, precautions and techniques, effects and uses** **Types of resisted exercises : manual and mechanical resistance exercise, isometric exercise, dynamic exercise: concentric and eccentric, dynamic exercise: constant versus variable resistance, isokinetic exercise, open-chain and closed-chain exercise**	**14hrs**
UNIT-IV	**Methods of Testing-I : manual muscle testing:, principles of manual muscle testing, testing positions for manual muscle testing, types of muscle grading systems, techniques of MMT for upper extremity, techniques of mmt for lower extremity, echniques of MMT for trunk, measurement of joint range: ROM-definition, goniometer parts and types, principles and uses, factor affecting range of motion, limitations of goniometry, normal rom for all peripheral joints and spine, techniques of use goniometer, measurement of rom for all peripheral joints and spine**	**14hrs**

	Strengthening.: Basics of muscle work and weakness., Types of strengthening exercises., Principles of application of strengthening exercises., Concept of Progressive resisted exercises., Techniques of strengthening exercises in upper extremity., Techniques of strengthening exercises in lower extremity., Techniques of strengthening exercises in trunk., Indications and contraindications for strengthening exercises. **Suspension Therapy.: Principles of suspension therapy, Types of suspension therapy, Effects and uses of suspension therapy, Techniques of application of suspension therapy for upper extremity, Techniques of application of suspension therapy for lower extremity** **Stretching. : Basics concepts of stretching, Types of stretching exercises, Determinants of stretching exercises, Indications and contraindications of stretching exercises, Guidelines for application of stretching procedures, Stretching techniques for upper extremity, Stretching techniques for lower extremity, Stretching techniques for neck and trunk.** **Proprioceptive Neuromuscular Facilitation : Principles of PNF, Description of PNF diagonal patterns for upper limbs lower limb and trunk., Strengthening and lengthening techniques of PNF, Effects and uses of PNF**	

Course Outcomes

BPT1103.1	Understanding the basic principles, concepts and terminologies of Fundamental exercise therapy and yogic practice..
BPT1103.2	Explaining biomechanics of fundamental exercise therapy and yogic practice.
BPT1103.3	Describing the concepts of therapeutic gymnasium, hydrotherapy and goniometry.
BPT1103.4	Analyzing the use of various types of exercises in appropriate condition

Recommended Books: 1. The Principles of exercise therapy by denagardiner, CBS publishers & distributors PVT. LTD.

2. Principles and Practice of therapeutic massage by GourangSinhaAkhoury, jaypee brothers medical publishers PVT. LTD.

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: ELECTROTHERAPY

SUBJECT CODE: BPT 1104

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
4	0	0	4

Objective of course: Through this course student should be able to

- **Interpret to understand the working of Physiotherapy Modalities**
- **Enhance the student skill to clinical application of electrotherapeutic Modalities**
- **Examine the knowledge of the student therapeutic skill in physiotherapy.**

Sr. No.	Contents	Contact Hours
Unit - I	**Basic Physics(Review) :** Static electricity, Current electricity, Transformers, Thermionic valve, Fuse, Shock, electric shock of current from mains and apparatus, safety features of current from mains and apparatus ,Safety measures in Electrotherapy Department	14 Hours
UNIT-II	**Low frequency currents:** principles, definitions and descriptions of types of low frequency current used therapeutically, faradic current, Intermittent galvanic current, physiological effect and therapeutic uses of low frequency currents, electrical stimulation of nerve and muscle., direct current, Pulsed currents, long duration, Short duration, Uses of TENS, Types of TENS, Techniques of treatment with TENS, Sinusoidal currents, Dynamic currents **Electro diagnostic test and electrical reaction:** Assessment by analyzing the results of stimulating nerve and muscle through SD Curve., electro diagnosis, Pain modulation, evoked potentials, introduction to NCV and EMG, Biofeedback, chronaxie, Rheobase& pulse ratio	14 Hrs
UNIT-III	**Medium frequency currents :** interferential Currents, application and precaution, effects of interferential Currents, damage due to therapeutic nerve and muscle stimulating currents	14 Hrs
UNIT-IV	**Heat Therapy and Cryotherapy:** Energy conversions and heat transfer, Thermal regulatory mechanism of body, Physiological effect of temperature change of body, Therapeutic effect of local tissue heating, Physiological changes due to cooling,	12 Hrs

	Therapeutic uses of cold, Types of application of heat therapy, Methods of applying cold therapy, Contrast bath and dangers of cold therapy **Fluid therapy and compression therapy :** construction, method of application, therapeutic uses, indications and contraindications, advantages and disadvantages, Intermittent compression therapy.	

Course Outcomes

BPT1104.1	Understanding the fundamental concepts and applications of physics and
BPT1104.2	Basic Knowledge of electrical components.
BPT1104.3	Describingprinciples,techniques,effects,indications,contraindicationsanddosageparameterforlowfrequencycurrents,mediumfrequency Currents, heat and cold modalities.
BPT1104.4	Analyzing the use of current modalities, superficial heat therapy and Cryotherapy inappropriate diseased conditions

SUBJECT TITLE: BIOCHEMISTRY
SUBJECT CODE: BPT1105
SEMESTER: I
CONTACT HOURS/WEEK: 3

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
3	0	0	3

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs

Objective: Through this course student should be able to:
- **Learn the basic concepts of nutrition and its constituents**
- **Analyse the importance, source and metabolism of carbohydrates, lipids and proteins**
- **Explore the enzymatic action, its importance and diagnostic enzymology**
- **Analyze the mechanism of hormone action and role of hormones in human body**
- **Understand the role of biochemistry in clinical perspective and normal values of clinical tests**

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Nutrition : calorific values, importance of nutrition calorific values, respiratory quotient (definition and its significance), energy requirement of a person (basal metabolic rate), factors affecting BMR, energy reqirement for various activities, balanced diet, recommended dietary allowances, nutritional disorders**	

	Digestion and Absorption : general characteristics of digestion and absorption, digestion and absorption of carbohydrates, proteins, lipids, disorders of digestion and absorption **Vitamins: definition, classification according to solubility, Individual vitamins (A,B, C, D, E, K)-sources, coenzyme forms, functions, RDA, absorption, transport, deficiency, toxicity.**	**14hrs**
UNIT-II	**Carbohydrate chemistry and metabolism : definition, general classification with examples, structures, composition, sources, properties and functions, carbohydrate metabolism: glycolysis, citric acid cycle, glycogen metabolism(glycogenesis and glycogenolysis), gluconeogenesis, cori cycle, metabolic disorders, hormonal regulation of glucose, diabetes mellitus, glycosuria** **Lipid chemistry and metabolism : definition, general classification, properties and functions of fatty acids, essential fatty acids and their importance, lipoprotein (definition and classification), lipid Metabolism - introduction, lipolysis, oxidation of fatty acids, lipogenesis, ketone body formation (ketogenesis), sources and function Ketone bodies, utilization (ketolysis), ketosis, cholesterol metabolism, hypercholesterolemia and its effects**	**14 hrs**
UNIT-III	**Protein chemistry : definition, classification, function of protiens** **Amino Acid chemistry and metabolism : definition, clasification, peptides (definition), peptide bonds, biologically important peptides, catabolism of amino acids-introduction, transamination, deamination, fate of ammonia, transport of ammonia, urea cycle.** **Nucleotide and nucliec acid chemistry : nucleotide composition, functions of free nucleotides in body, nucleic acid (DNA and RNA) chemistry, structure and functions of tRNA, rRNA, mRNA** **Enzymes : definiton, mechanism of enzyme action, active site, classification with examples, factors affecting enzyme activity, enzyme inhibition and significance,diagnostic enzymology** **Hormone action : definition, classification, mechanism of hormone action**	**14 hrs**
UNIT-IV	**Acid-Base balance : acids, bases, buffers, pH, buffer systems of the body, role of lungs and kidneys in acid base balance** **Biochemistry of connective tissue : introduction, various tissue proteins: collagen, elastin (structure and associated disorders)** **Water balance : water distribution in the body, regulation of water balance, water turnover** **Electrolyte balance: osmolarity, distribution of electrolytes, electrolyte balance** **Clinical biochemistry : normal levels of blood and urine constituents, relevance of blood and urine levels of glucose, urea, uric acid, creatinine, calcium, phosphates, pH, bicarbonate, liver function test, renal function test**	**12hrs**

Course Outcomes

BPT1105.1	Understanding the basic concepts and principles of Biochemistry.
BPT1105.2	Understanding macronutrients, micronutrients and role of enzymes and hormones.
BPT1105.3	Identifying applied physiology of various body systems.
BPT1105.4	Applying the knowledge of biochemical processes for clinical diagnosis.

Recommended Books:1. BIOCHEMISTRY by U. SATYANARAYANA AND U. CHAKRAPANI
2. TEXTBOOK OF MEDICAL BIOCHEMISTRY by MN CHATTERJEA AND RANA SHINDE, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus.

SUBJECT TITLE: HUMAN ANATOMY- LAB
SUBJECT CODE: BPT-1106

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	6	3

SEMESTER: I
CONTACT HOURS/WEEK: 2

Internal Assessment: 30
End Term Exam: 70
Duration of Exam; 3 Hrs

Course Objectives: Through this course student should be able to
- Recognize basics of human anatomy and histology
- Understand the details of upper extremity in human anatomy
- Learn the anatomy of thorax, heart and lungs
- Recognize embryological details of human anatomy

Introduction to anatomy

Sr. No	Contents	Contact Hours
1	Demonstration of anatomical positions of body. Demonstration of skin and its appendages.	6hrs
II	Demonstration of osteology and myology of shoulder joint complex	6hrs
III	Demonstration of osteology and myology of arm.	6hrs

IV	Demonstration of osteology and myology of forearm bones. Demonstration of osteology and myology of elbow joint.	**6hrs**
V	Demonstration of osteology and myology of hand.	**6hrs**
VI	Demonstration of thoracic wall: position and shape.	**6hrs**
VII	Demonstration of osteology and myology of ribs.	**6hrs**
VIII	Demonstration of thoracic vertebrae.	**6hrs**
IX	Demonstration of joints of the thorax and intervertebral discs.	**6hrs**
X	Demonstration of lobes and bronchopulmonary segments	**6hrs**

Course Outcomes

BPT1106.1	Describing all anatomical structures from a regional perspective.
BPT1106.2	Identifying muscles, bones, bony prominences joints, along with surface Landmarks.
BPT1106.3	Demonstrating movements of joints.
BPT1106.4	Applying the knowledge of palpation of nerves and arteries.

Recommended Books:

1. HUMAN ANATOMY: REGIONAL AND APPLIED DISSECTION AND CLINICAL
VOLUME 1: UPPER LIMB AND THORAX by BD CHAURASIA, CBS PUBLISHERS & DISTRIBUTORS PVT. LTD.
2. TEXT BOOK OF ANATOMY UPPER AND LOWER EXTREMITY by INDERBIR SINGH,JAYPEE BROTHERS MEDICAL PUBLISHERS PVT.

SUBJECT TITLE: HUMAN PHYSIOLOGY LAB

SUBJECT CODE: BPT-1107

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	2	1

SEMESTER: I

CONTACT HOURS/WEEK: 2

Internal Assessment: 30
End Term Exam: 70
Duration of Exam; 3 Hrs

Course Objectives: Through this course student should be able to

- Examine the pulse rate, blood pressure and various hematological parameters
- Examine the normal and abnormal heart sounds and causes of abnormal heart sounds
- Examine the normal and abnormal lung sounds and causes of abnormal lung sounds

List of Practical's / Experiments:

Sr. No	Contents	Contact Hours

1	Estimation of hemoglobin.	**6hrs**
II	Demonstration of RBC count	
III	Demonstration of WBC count	**6hrs**
IV	Demonstration of ESR and PCV	
V	Demonstration of bleeding time and clotting time	**6hrs**
VI	Demonstration of blood groups	**6hrs**
VII	Demonstration of blood pressure and pulse	**6hrs**
VIII	Demonstration of auscultation of heart sounds	**6hrs**
IX	Demonstration of auscultation of lung sounds.	**6hrs**
X	Demonstration of pulmonary function test and spirometry.	**6hrs**

Course Outcomes

BPT1107.1	Demonstrate various tests and outcome measures according to current best evidence in the field of physiotherapy
BPT1107.2	Evaluate the functions of nervous system
BPT1107.3	Analyze the effect of various exercises on different systems of body
BPT1107.4	Illustrate the techniques of examination of superficial and deep reflexes

Recommended Books:1. ESSENTIALS OF MEDICAL PHYSIOLOGY by K SEMBULINGAM AND PREMA SEMBULINGAM, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.2. TEXT BOOK OF PRACTICAL PHYSIOLOGY by GK PAL AND PRAVATI PAL, ORIENT LONGMAN

SUBJECT TITLE: EXERCISE THERAPY LAB

SUBJECT CODE: BPT-1108

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	**0**	**2**	**1**

SEMESTER: I

CONTACT HOURS/WEEK: 3

Internal Assessment: 30
End Term Exam: 70
Duration of Exam; 3 Hrs

Course Objectives: Through this course students should be able to

- **Interpret the results of various therapeutic exercises.**
- **Understand the effects of therapeutic exercises in physiotherapy treatment.**
- **Demonstrate the application of therapeutic exercise in physiotherapy management**
- **Design the standardized protocol to clinical application of therapeutic exercise.**

List of Practicals / Experiments

Sr. No	Contents	Contact Hours
EXP 1	a) Demonstration of position of joints in various fundamental positions of body. b) Demonstration of various joint positions in derived positions from standing, lying and sitting. c) Demonstration of various joint positions in derived positions from kneeling and hanging.	6hrs
II	a) Demonstration of active movements in upper extremities. b) Demonstration of active movements in lower extremities.	6hrs
III	a) Demonstration of passive movements in upper extremities. b) Demonstration of passive movements in lower extremities.	6hrs
IV	a) Demonstration of techniques of manual muscle testing in upper extremities. b) Demonstration of techniques of manual muscle testing in lower extremities. c) Demonstration of techniques of manual muscle testing in trunk muscles.	6hrs
V	a) Demonstration of Goniometery in upper extremity. b) Demonstration of Goniometery in lower extremity joints.	6hrs
VI	a) Demonstration of Goniometery in Head and spine.	6hrs
VII	a) Demonstration of methods of strengthening in upper extremities. b) Demonstration of methods of strengthening in lower extremities. c) Demonstration of methods of strengthening in trunk muscles.	6hrs
VIII	a) Demonstration of stretching techniques for upper extremities.	6hrs
IX	a) Demonstration of stretching techniques in lower extremities. b) Demonstration of stretching techniques for trunk.	6hrs
X	a) Demonstration of techniques of suspension therapy in upper extremities. b) Demonstration of techniques of suspension therapy in lower extremities.	6hrs

XI	**a) Demonstration of Proprioceptive Neuromuscular Facilitation patterns and techniques.**	**6hrs**

Course Outcomes

BPT1108.1	Identifying various modalities.
BPT1108.2	Applying heat and cold therapy, low frequency and medium frequency Currents and TENS.
BPT1108.3	Practicing with faradic and galvanic currents to elicit muscle stimulation.
BPT1108.4	Analyzing the electro diagnostic procedures

Recommended books: 1.THERAPEUTIC EXERCISES FOUNDATIONS AND TECHNIQUES by CAROLYN KISNER, LYNN ALLEN CLOBY, F.A. DAVIS COMPANY
2. PRACTICAL EXERCISE THERAPY by MARGARET HOLLIS, BLACKWELL SCIENCE LTD.
3. THERAPEUTIC EXERCISES FOUNDATIONS AND TECHNIQUES by KISNER AND COLBY, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.
4. PROPRIOCEPTIVE NEUROMUSCULAR FACILITATION by VOSS ET AL, LIPPINCOTT WILLIAMS & WILKINS
5. PRINCIPLES OF EXERCISE THERAPY by DENA GARDINER, CB PUBLICATION
6. PRACTICAL EXERCISE THERAPY by MARGARET HOLLIS, BLACKWELL SCIENCE LTD.
7. PNF IN PRACTICE: AN ILLUSTRATED GUIDE by SUSAN S. ADLER , DOMINIEK BECKERS, MATH BUCK, SPRINGE

SUBJECT TITLE: ELECTROTHERAPY LAB
SUBJECT CODE: BPT 1109

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	2	1

SEMESTER: I
CONTACT HOURS/WEEK: 3

Internal Assessment: 30
End Term Exam: 70
Duration of Exam; 3 Hrs

Course Objectives: Through this course student should be able to

- **Apply knowledge of usage of various types of high frequency currents and its application**
- **Demonstrate the knowledge regarding application of modalities in various conditions.**
- **Implement the knowledge about indications and contraindications of various modalities**
- **Explore about the recent advancement in electrotherapy.**

EXP.	TOPICS	HOURS
I (a) & (b)	Demonstration of low frequency currents and technique of application of TENS. Demonstration and technique of application of muscle stimulator.	8hrs
II	Demonstration of medium frequency currents and technique of application of IFT.	8hrs
III (a) (b) & (c)	Demonstration and technique of application of hydro collateral packs. Demonstration and technique of application of whirlpool bath, Fluidotherapy. Demonstration and technique of application of paraffin wax bath unit.	8hrs
IV	Demonstration and technique of application of Cryotherapy.	8hrs
V	Demonstration and technique of application of EMG and NCV.	8hrs

Course Outcomes

BPT1109.1	Identifying various approaches of Communication.
BPT1109.2	Demonstrating and analyzing self and devising a strategy for self-growth And development.
BPT1109.3	Applying the concepts of goal setting skills in various emergency and casualty situations.
BPT1109.4	Creating awareness for self-realization

Text Books: 1. ELECTROTHERAPY EXPLAINED: PRINCIPLES AND PRACTICE by JOHN LOW, ALEX WARD, ANN REED, VAL ROBERTSON, BUTTERWORTH-HEINEMANN (ELSEVIER)
2. CLAYTON'S ELECTROTHERAPY by E BELLIS CLAYTON; NIGEL PALASTANGA; ANGELA FORSTER, PHILADELPHIA : LEA & FEBIGER

SUBJECT TITLE: Communication Skills
SUBJECT CODE: BHUM 1101

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
2	0	0	2

SEMESTER: I
CONTACT HOURS/WEEK: 4

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs

Course Objectives: Through this course student should be able to

- **Understand the basics of various system of communication**
- **Identify how changes in normal communication lead to opportunities**
- **Describe the inter-dependency and interactions of the human behavior**

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Communication: An Introduction** • **Definition, Nature and Scope of Communication** • **Importance and Purpose of Communication** • **Process of Communication** • **Types of Communication**	18 hrs

UNIT-II	**Unit-2: Non-Verbal Communication** **• Personal Appearance** **□ Gestures** **□ Postures** **□ Facial Expression** **□ Eye Contacts**	**18 hrs**
UNIT-III	**Effective Communication** **□ Essentials of Effective Communication** **□ Communication Techniques** **□ Barriers to Communication**	**18 hrs**
UNIT-IV	**Communication Network in an Organization-I** **□ Personal Communication** **□ Internal Operational Communication** **□ External Operational Communication** **Communication Network in an Organization-II** **□ Horizontal(Lateral) Communication** **□ Vertical(Downward) Communication** **□ Vertical(Upward) Communication**	**18 hrs**

Course Outcomes

BHUM1110.1	Integrate communication Skills of Subjects while assessing and planning treatment without hindering their cultural diversity.
BHUM1110.2	Ingrain various skills of personal development for proper grooming.
BHUM1110.3	Exploring the various personality traits and abilities to deal in different areas of profession.
BHUM1110.4	Follow the basic concepts and principles of communication

Course Outcomes

Recommended Books: 1. Essentials of medical physiology by K Sembulingam and Prema Sembulingam, Jaypee Brothers Medical Publishers Pvt. Ltd.

2. Textbook of medical physiology by Hall and Guyton, W B Saunders (Elsevier)

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: Communication Skills LAB
SUBJECT CODE: BHUM 1102

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	2	1

SEMESTER: I
CONTACT HOURS/WEEK: 4

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs

Course Objectives: Through this course student should be able to

- **Understand the basics of various system of communication**
- **Identify how changes in normal communication lead to opportunities**
- **Describe the inter-dependency and interactions of the human behavior**

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	Listening Skills-I • Purpose of Listening • Listening to Conversation (Formal and Informal) • Active Listening- an Effective Listening Skill • Benefits of Effective Listening • Barriers to Listening • Listening to Announcements- (railway/ bus stations/ airport /sports announcement/ commentaries etc.)	18 hrs
UNIT-II	Listening Skills-II • Academic Listening (Listening to Lectures) • Listening to Talks and Presentations • Note Taking Tips	18 hrs
UNIT-III	Oral Communication Skills (Speaking Skills)-I • Importance of Spoken English • Status of Spoken English in India • International Phonetic Alphabet(IPA) Symbols • Spelling and Pronunciation	18 hrs
UNIT-IV	Communication Network in an Organization-I • Personal Communication • Internal Operational Communication • External Operational Communication • Communication Network in an Organization-II • Horizontal(Lateral) Communication • Vertical(Downward) Communication • □ Vertical(Upward) Communication	18 hrs

Course Outcomes

BHUM 1102.1	Identifying various approaches of Communucation.
BHUM 1102.2	Demonstrating and analyzingselfanddevisingastrategyforself-growth And development.
BHUM 1102.3	Applyingtheconceptsofgoal setting skillsinvariousemergencyandcasualtysituations.
BHUM 1102.4	Creating awareness for self-realization

Recommended Books: 1. Essentials of medical physiology by KSembulingam and PremaSembulingam, Jaypee Brothers Medical Publishers Pvt. Ltd.
2. Textbook of medical physiology by Hall and Guyton, W B Saunders (Elsevier)
Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: HUMAN ANATOMY
SUBJECT CODE: BPT 1201

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
4	0	0	4

SEMESTER: II
CONTACT HOURS/WEEK: 4

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs
Objective of course: Through this course student should be able to

- Recognize and interpret the anatomy and applied aspects of lowerr limb bones, joints, nerves and soft tissues
- Analyze and interpret the anatomy and applied aspects of joints and soft tissues
- Recognize and analyze the anatomy and applied aspects of organ structures

UNIT-I	Osteology and Myology of Pelvis and lower limb bones : outline of osteology and myology of pelvis and lower limb bones Anatomy of Gluteal region : muscles , nerves and vessels of gluteal region, applied aspect of gluteal region Anatomy of Medial compartment of thigh : muscles of adductor compartment ,nerves and vessels of medial compartment of thigh, applied aspect Anatomy of Popliteal fossa and posterior compartment of thigh : boundaries and content of popliteal fossa , applied aspect of popliteal fossa,muscles ,nerves and vessels of back of thigh, applied aspect Anatomy of anterior of thigh : muscles of anterior compartment of thigh, femoral triangle, nerves and vessels of anterior of thigh, applied anatomy of anterior of thigh Anatomy of Anterolateral compartment of leg : muscle of anterior and lateral compartment of leg, nerves and vessels of anterior and lateral compartment of leg, applied aspect Anatomy of foot : muscles ,nerves and vessels present in the dorsum and sole of foot, tarsal tunnel and applied aspect Joints of Lower limb : anatomy and clinical aspect of hip joint, anatomy and clinical aspect of knee joint, anatomy and clinical aspect of ankle joint, anatomy and clinical aspect of tibiofibular joint Arches of foot : structure of arches, functions and clinical anatomy of arches of foot Anatomy of posterior aspect of leg : muscles of back of leg, nerves and vessels of back of leg, applied anatomy	18 hrs
UNIT-II	Anterior Abdominal wall : skin and superficial fascia, muscles of anterolateral abdominal wall,inguinal canal and structures passing through inguinal canal Anatomy of Visceral organs : anatomy of stomach ,location ,external and internal features,blood and nerve supply and clinical anatomy, anatomy of external features of liver , surfaces ,border,blood and nerve supply of liver and clinical anatomy, brief anatomy of kidney and ureter and applied anatomy Walls of Pelvis : pelvic inlet and outlet,pelvic cavity and its structures,pelvic floor, anatomy of urinary bladder and urethra Diaphragm and Posterior abdominal wall : gross anatomy of diaphragm ,opening in diaphragm and action, muscles and nerves of the posterior abdominal wall and applied anatomy	18hrs

	Abdominal cavity and Peritoneum : nine regions of abdomen,peritoneum , types of peritoneum,peritonealfolds,greater and lesser omentum	
UNIT-III	**Osteology of Skull and cervical spine :** introduction to the bones of the skull and its clinical anatomy, brief introduction to osteology of cervical spine **Anatomy of Scalp and Face :** scalp and superficial temporal region, anatomy of face , facial muscles name and action , arteries and nerves of face, applied anatomy of face **Anatomy of Neck and its triangles** : brief anatomy of neck , posterior triangle of neck, contents of posterior triangle, structures in the anterior median region of the neck , anterior triangle ,carotid triangle ,submental triangle, digastric triangle, muscular triangle, muscles of back of neck and suboccipital triangle **Arteries and Nerves of Neck:** external carotid artery, internal carotid aatey, jugular vein course, branches and applied anatomy	**18hrs**
UNIT-IV	**Anatomy of Special senses :** brief anatomy of internal and external structure of ear, brief anatomy of internal and external structure of eye, brief anatomy of tongue, brief anatomy of internal and external structure of nose **Central Nervous System and Meninges :** introduction to divisions of central nervoussystem,synapse,neuroglialcells,reflexarc,parts of nervous system, meninges of brain , cerebrospinal fluid and applied anatomy **Anatomy of Spinal Cord :** external features of spinal cord ,internal features of spinal cord,nuclei of spinal cord,sensory receptors, tracts of spinal cord **Anatomy of Cerebellum:** location, parts of cerebellum ,external features,divisons of cerebellum,connections of cerebellum and functions of cerebellum ,applied anatomy of cerebellum **Anatomy of Brain Stem :** introduction to brain stem , an overview of mid brain ,pons and medulla, clinical anatomy of brain stem **Anatomy of Ventricles of Brain :** brief introduction to ventricles of brain , location and function , applied anatomy **Anatomy of Cerebrum :** lobes of cerebral hemisphere, sulcus and gyrus,functional areas of cerebral hemispheres, an overview of grey and white matter in cerebral hemisphere, applied anatomy of cerebral hemisphere **Blood Supply of Spinal cord and Brain :** blood supply of brain and its clinical aspect, blood supply of spinal cord and its clinical aspect	**18hrs**

Course Outcomes

BPT1201.1	Through this course students should be able to extend the knowledge of basic anatomy of lower limb and its clinical aspect
BPT1201.2	Analyze the anatomy and applied aspects of joints of lower limb and soft tissues
BPT1201.3	Outline the anatomy and clinical aspect of visceral organs of abdomen.
BPT1201.4	Determine the anatomical relationship between different parts of human body

Recommended Books:1. HUMAN ANATOMY REGIONAL AND APPLIED VOLUME 2 by B D CHOURASIA, CBS PUBLISHERS & DISTRIBUTORS PVT. LTD.
2. HUMAN ANATOMY REGIONAL AND APPLIED VOLUME 3 by B D CHOURASIA, CBS PUBLISHERS & DISTRIBUTORS PVT. LTD.
3. ESSENTIALS OF ANATOMY by INDERBIR SINGH, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: HUMAN PHYSIOLOGY
SUBJECT CODE: BPT 1202

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
4	0	0	4

SEMESTER: II
CONTACT HOURS/WEEK: 4

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs

Objective of course: Through this course students should be able to

- Analyze the relationships within and between anatomical and physiological systems of the human body.
- Assess the normal functioning of various systems of the body
- Describe the normal and pathophysiology of various systems of human body
- Identify causes and effects of functional imbalances of various body systems

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Introduction to renal system :** physiological anatomy of kidney, Juxta-glomerular apparatus, renal circulation **Mechanism of Urine Formation :** glomerular filtration rate, tubular re-absorption & secretion **Mechanism of concentrating and diluting the Urine :** counter-current mechanism, applied physiology **Acidification of Urine and acid-base Balance :** removal of hydrogen ion and acidification of urine, acid-base balance **Micturition :** mechanism of micturition, micturition reflex **Skin and temperature regulation :** structure and functions of skin, regulation of body temperature	**18hrs**
UNIT-II	**Introduction to nervous system :**organization of CNS, structure and functions of neuron, classification of nerve fibers, properties of nerve fibers, synapse, cerebrospinal fluid **Reflex activity :** receptors, reflex arc, classification of reflexes, superficial and deep reflexes **Spinal cord :** tracts in spinal cord, ascending tracts, descending tracts **Parts of nervous system :** brainstem, thalamus, internal capsule, basal ganglia, cerebral cortex, cerebellum, limbic system, reticular formation **Autonomic nervous system :** divisions OF ANS, functions of ANS **Visual process and pathway :** structure of eye ball, visual process and pathway **Audition :** structure and function of ear, auditory pathways **Taste and olfactory pathways :** taste buds, pathways for taste, olfactory receptors, olfactory pathways	**18hrs**

III	**Introduction to endocrine system :** classification and functions of hormones, mechanism of action **Pituitary gland :** divisions of pituitary gland, anterior and posterior pituitary hormones, applied physiology **Thyroid & parathyroid gland :** thyroid hormones, functions of thyroid hormones, regulation of secretion of thyroid hormones, action of calcitonin, applied physiology **Endocrine Pancreas :** regulation of secretion of insulin and glucagon, functions of insulin and glucagon, applied physiology **Adrenal gland :** parts of adrenal gland, hormones of adrenal cortex, hormones of adrenal medulla, applied physiology	**18hrs**
IV	**Introduction to reproductive system :** physiological anatomy, reproductive organs **Male reproductive system :** seminal vesicles, function of seminal fluid, prostate gland, semen **Female reproductive system :** female reproductive organs, ovary and ovarian hormones, menstrual cycle, mammary gland and lactation, menopause	**18hrs**

Course Outcomes

BPT1202.1	Analyze the relationships within and between anatomical and physiological systems of the human body.
BPT1202.2	Extend basic knowledge of physiology in the field of physiotherapy.
BPT1202.3	Discuss the various physiological functions of body systems
BPT1202.4	Assess the normal functioning of various systems of the body

Recommended Books:1. ESSENTIALS OF MEDICAL PHYSIOLOGY by K SEMBULINGAM, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.

2. TEXTBOOK OF MEDICAL PHYSIOLOGY by GUYTON & HALL, SAUNDERS (ELSEVIER)

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: EXERCISE THERAPY

SUBJECT CODE: BPT1203

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
4	0	0	4

SEMESTER: IV

CONTACT HOURS/WEEK: 3

Internal Assessment: 40

End Term Exam: 60

Duration of Exam; 3 Hrs

Objective and outcome of course: Through this course students should be able to

- Understand the relation between body dysfunction and its therapeutic management
- Interpret the effectiveness of therapeutic exercises in physiotherapy management
- Demonstrate the clinical application of therapeutic exercises to enhance student skills

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Peripheral Joint Mobilization Techniques :** Introduction and basics of Joint mobilisaion, Joint Mobilization Techniques for upper extremitiy, Joint Mobilization Techniques for lower extremitiy	**12hrs**
UNIT-II	**Functional re-education and Assistive devices :** assistive devices, various training techniques for assisstive devices, advanced functional activities, functional evaluation, returning the patient to full participation, general therapeutic techniques to re-educate ADL function, basic functional activities	**14hrs**
UNIT-III	**Posture and respiratory care :** principles of management of faulty postures based on therapeutic exercises, Introduction to posture, static and dynamic posture ,postural control, assessment of posture and aetiology of pain in postural impairments, common faulty postures of thoracic region, common faulty postures of cervical region, common faulty postures of lumbar and pelvic region, Basic breathing exercises, techniques of application of breathing exercises, therapeutic effects of breathing exercises, Postural drainage	**14hrs**
UNIT-IV	**Balance and Neuromuscular Co-ordination :** The basic components of balance, balance assessment, balance rehabilitation, differences between static & dynamic balance, balance tests and nervous control of co- ordination, introduction to frenkels exercises, techniques of application of frenkels exercises, frenkels exercise of leg in lying, sitting and standing	**14hrs**

	Aerobic Exercise : definition and key terms, physiological response to aerobic exercise, exercise testing, determinants of an exercise program, warm-up period, aerobic exercise period, cool-down period, application of exercise program, normal and abnormal response to acute aerobic exercise, physiological changes that occur with training, application of principles of an aerobic conditioning program for various types of patients **Aquatic exercise :** definition, goals and indication, precaution and contraindication, properties of water, aquatic temperature and therapeutic exercise, pool for aquatic exercise, special equipment for aquatic exercise, pool care and safety, exercise interventions using an aquatic environment	

Course Outcomes

BPT1203.1	Understanding the concepts, principles and techniques of exercise Therapy in-depth.
BPT1203.2	Explaining the basic concepts, indications, contraindications and precautions of various types and modes of exercises, homeprogramand ergonomics.
BPT1203.3	Summarizinglimb-musclegirthmeasurement,balance,coordination, posture,musclere- educationandwalkingaids.
BPT1203.4	Applyingtheconceptsofmuscletesting,variousexercises,walkingaids Measurementsandgoniometry

Recommended Books:THERAPEUTIC EXERCISE: FOUNDATIONS AND TECHNIQUES by CAROLYN KISNER, LYNN ALLEN COLBY, F.A. DAVIS COMPANY

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: ELECTROTHERAPY

SUBJECT CODE: BPT1204

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
4	0	0	4

SEMESTER: II

CONTACT HOURS/WEEK: 3

Internal Assessment: 40

End Term Exam: 60

Duration of Exam; 3 Hrs

Objective of course: Through this course student should be able to

- Analyze the use of high frequency currents in various conditions.
    - Identify the key physiological effects of each modality.
    - Justify the appropriate clinical application.
    - Establish appropriate clinical doses, the key contraindications, dangers & precautions

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Physics of high frequency currents (HFC) :** types of high frequency current, properties of high frequency currents, condensors, electromagnetic induction **Electromagnetic radiations (EMR)** : properties, physiological effects, electromagnetic spectrum, laws governing effects of electromagnetic radiations	**12hrs**
UNIT-II	**Shortwave diathermy (SWD) :** frequency and wavelength, production, biophysical effects, methods of application, dosage, physiological and therapeutic effect, indications and contraindications, dangers, technique of application, pulsed diathermy **Microwave diathermy (MWD) :** frequency and wavelength, production, physiological effecs, therapeutic effects, indications and contraindications, dangers, technique of application and dosage	**14hrs**
UNIT-III	**Laser :** classification, principles of laser, types of laser and its production, methods of application of laser, physiological and therapeutic efects, indications, dangers and contraindications, dosage, scanning laser, technique of application	**14hrs**

	Infrared radiations (IRR) : classification, types of generators and its working, physiological and therapeutic effects, indications and contraindications, dangers, dosage, technique of application **Ultraviolet radiations (UVR) :** production, physiological and therapeutic effects, indications and contraindications, dangers, test dosage calculation, technique of application **Ultrasound :** definition and properties of ultrasound, production of therapeutic ultrasound, properties of ultrasound fields, physiological effects, methods of application, thermal and nonthermal effects of ultrasound, therapeutic effects of ultrasound, indications and its contraindications, dosage, phonophoresis	
UNIT-IV	**Spinal traction :** types of traction, effects of spinal traction, indications and contraindications, precautions, dosge calculation, technique of its application **Hydrotherapy :** physical properties of water, physiological effects, therapeutic uses, indications, contraindications, adverse effects, whirlpool bath and its application, hubbard tank construction and its application **Outline of advanced modalities :** shock wave therapy, longwave therapy, deep heat therapy, vaccum therapy, combination therapy	**14hrs**

Course Outcomes

BPT1204.1	Identifying various modalities.
BPT1204.2	Applying heat and cold therapy, low frequency and medium frequency Currents and TENS. .
BPT1204.3	Practicing with faradic and galvanic current toelicit musclestimulation.
BPT1204.4	Analyzing the electro diagnostic procedures

Recommended Books: 1. EXPLAINED - PRINCIPLES AND PRACTICE by JOHN LOW AND REED, BUTTERWORTH-HEINEMANN (ELSEVIER)

2. CLAYTON'S ELECTROTHERAPY by FORSTER & PALASTANGA BAILLIERE, BAILLIÈRE TINDALL (ELSEVIER)

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: BIOCHEMISTRY

SUBJECT CODE: BPT1205

SEMESTER: II

CONTACT HOURS/WEEK: 3

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
3	0	0	3

Internal Assessment: 40

End Term Exam: 60

Duration of Exam; 3 Hrs

Objective and outcome of course: Through this course student should be able to:

- Learn the basic concepts of nutrition and its constituents
- Analyse the importance, source and metabolism of carbohydrates, lipids and proteins
- Explore the enzymatic action, its importance and diagnostic enzymology
- Analyze the mechanism of hormone action and role of hormones in human body
- Understand the role of biochemistry in clinical perspective and normal values of clinical tests

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Nutrition** : calorific values, importance of nutrition calorific values, respiratory quotient (definition and its significance), energy requirement of a person (basal metabolic rate), factors affecting BMR, energy reqirement for various activities, balanced diet, recommended dietary allowances, nutritional disorders **Digestion and Absorption** : general characteristics of digestion and absorption, digestion and absorption of carbohydrates, proteins, lipids, disorders of digestion and absorption **Vitamins:** definition, classification according to solubility, Individual vitamins (A,B, C, D, E, K)-sources, coenzyme forms, functions, RDA, absorption, transport, deficiency, toxicity.	**14hrs**
UNIT-II	**Carbohydrate chemistry and metabolism** : definition, general classification with examples, structures, composition, sources, properties and functions, carbohydrate metabolism: glycolysis, citric acid cycle, glycogen metabolism(glycogenesis and glycogenolysis), gluconeogenesis, cori cycle, metabolic disorders, hormonal regulation of glucose, diabetes mellitus, glycosuria **Lipid chemistry and metabolism** : definition, general classification, properties and functions of fatty acids, essential fatty acids and their importance, lipoprotein (definition and classification), lipid Metabolism - introduction, lipolysis, oxidation of fatty acids,	**14 hrs**

	lipogenesis, ketone body formation (ketogenesis), sources and function Ketone bodies, utilization (ketolysis), ketosis, cholesterol metabolism, hypercholesterolemia and its effects	
UNIT-III	**Protein chemistry** : definition, classification, function of protiens **Amino Acid chemistry and metabolism** : definition, clasification, peptides (definition), peptide bonds, biologically important peptides, catabolism of amino acids-introduction, transamination, deamination, fate of ammonia, transport of ammonia, urea cycle. **Nucleotide and nucliec acid chemistry** : nucleotide composition, functions of free nucleotides in body, nucleic acid (DNA and RNA) chemistry, structure and functions of tRNA, rRNA, mRNA **Enzymes** : definiton, mechanism of enzyme action, active site, classification with examples, factors affecting enzyme activity, enzyme inhibition and significance,diagnostic enzymology **Hormone action** : definition, classification, mechanism of hormone action	**14 hrs**
UNIT-IV	**Acid-Base balance** : acids, bases, buffers, pH, buffer systems of the body, role of lungs and kidneys in acid base balance **Biochemistry of connective tissue** : introduction, various tissue proteins: collagen, elastin (structure and associated disorders) **Water balance** : water distribution in the body, regulation of water balance, water turnover **Electrolyte balance**: osmolarity, distribution of electrolytes, electrolyte balance **Clinical biochemistry** : normal levels of blood and urine constituents, relevance of blood and urine levels of glucose, urea, uric acid, creatinine, calcium, phosphates, pH, bicarbonate, liver function test, renal function test	**12hrs**

Course Outcomes

BPT1205.1	Understandingthebasicconceptsandprinciplesof Biochemistry.
BPT1205.2	Understandingmacronutrients, micronutrientsandroleofenzymesand hormones.
BPT1205.3	Identifyingappliedphysiologyofvariousbody systems.
BPT1205.4	Applyingthe knowledgeofbiochemical processesfor clinicaldiagnosis.

Recommended Books:1.BIOCHEMISTRY by U. SATYANARAYANA AND U. CHAKRAPANI

2. TEXTBOOK OF MEDICAL BIOCHEMISTRY by MN CHATTERJEA AND RANA SHINDE, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus.

SUBJECT TITLE: ENVIRONMENTAL STUDIES
SUBJECT CODE: BEVS1201

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
2	0	0	2

SEMESTER: II
CONTACT HOURS/WEEK: 2

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs
Objective and outcome of course: Through this course students should be able to

- **understand the current environmental issues and various ways of solving the same.**
- **gain the basic knowledge of environment and its various components.**
- **spread the environmental awareness among people.**
- **make the society understand about the need of saving the environment.**

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	Introduction and natural resources : Multidisciplinary nature of environmental studies, Scope and importance: Concept of sustainability and sustainable development, Land resources: Land degradation, soil erosion and desertification, Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations, Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water, Energy resources: Renewable and non renewable energy sources, use of alternate energy sources, growing energy needs, case studies Ecosystems : What is an ecosystem? structure and function of ecosystem, Energy flow in an ecosystem: food chains, food webs and ecological succession, Case studies of the following ecosystems : a)forest ecosystem b) grassland ecosystem c) desert ecosystem d) aquatic ecosystem	9hrs
UNIT-II	Biodiversity and conservation : Levels of biological diversity : genetic, species and ecosystem diversity, biogeographic zones of India, biodiversity patterns and global biodiversity hot spots, India as a mega diversity nation, endangered and endemic species of India, Threats to biodiversity: Habitat loss, poaching of wildlife, man- wildlife conflicts, biological invasions, Conservation of biodiversity: In-situ and ex-situ conservation of biodiversity, Ecosystem and biodiversity services: ecological, economic, social, ethical, aesthetic and Informational value	9hrs
UNIT-III	Environmental pollution : Environmental pollution: types, causes, effects and controls; Air, water, soil and noise pollution, Nuclear hazards and human health risks, Solid waste management: Control measures of urban and industrial waste, Pollution case studies, ill-effects of Fireworks	9hrs

	Environmental Policies & Practices : Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture	
UNIT-IV	**Human Communities and the Environment : Human population growth: Impacts on environment, human health and welfare, resettlement and rehabilitation of project affected persons; case studies, Disaster management : floods, earthquake, cyclones and landslides, Environmental movements : Chipko, silent valley, bishnois of Rajasthan, Environmental ethics: Role of Indian and other religions and cultures in environmental conservation**	**9hrs**

Course Outcomes

BEVS 1201.1	Understandingtheconceptsofecology.
BEVS 1201.2	Explainingnatural resources, environmental pollution, policies and Practices.
BEVS 1201.3	Identifyingthecauseandeffectrelationshipofenvironmentandhuman community
BEVS 1201.4	Creatingawarenessforsavingenvironment.

Recommended Books: 1. TEXT BOOK OF ENVIRONMENTAL STUDIES 2E by D. DAVE AND S. S. KATEWA, CENGAGE LEARNING
2. ENVIRONMENTAL STUDIES by BENNY JOSEPH, MCGRAW HILL EDUCATION
3. ENVIRONMENTAL STUDIES: FROM CRISIS TO CURE by R. RAJAGOPALAN, OXFORD UNIVERSITY PRESS

Instruction of Question Paper setter
The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: HUMAN ANATOMY LAB

SUBJECT CODE: BPT-1206

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	2	1

SEMESTER: II

CONTACT HOURS/WEEK: 6

Internal Assessment: 30

End Term Exam: 70

Duration of Exam; 3 Hrs

Course Outcomes :Through this course students should be able to

- **Demonstrate the osteology and myology of lower limb bones**
- **Describe the joints of human body and their functions**
- **Distinguish between anatomical structure of typical and atypical vertebrae**
- **Illustrate the anatomical position of various visceral organs in the body**
- **Identify the bones of cranium and face**
- **Recall the different structures seen in cerebrum and cerebellum**

List of Practicals / Experiments:

Sr. No	Contents	Contact Hours
Exp-I	Demonstration of osteology and myology of tibia, demonstration of osteology and myology of fibula	8hrs
II	Demonstration of osteology and myology of tibia. Demonstration of osteology and myology of fibula	8hrs
III	Demonstration of osteology of tarsals and metatarsals, Demonstration of myology of tarsals and metatarsals.	8hrs
IV	Demonstration of anatomy of hip joint, demonstration of anatomy of knee joint. Demonstration of anatomy of tibiofibular joint. Demonstration of anatomy of ankle joint. Demonstration of anatomy of joints of foot.	8hrs
V	Demonstration of osteology of lumbar vertebrae,	8hrs

	Demonstration of osteology of sacrum and coccyxdemonstration of greater/lesser pelvis and pelvic floor muscles **Demonstration of joints of pelvis: lumbosacral joint, sacrococcygeal joint, illiosacral joint ,pubic symphysis**	
VI	**demonstration of surface landmarks of anterior abdominal wall** **demonstration of nine regions of abdomen**	**8hrs**
VII	**demonstration of anatomy of stomach demonstration of anatomy of live** **demonstration of normaverticalis and frontalis demonstration of normalateralis and basalis**	**8hrs**
VIII	**Demonstration of anatomy of anterior ,middle and posterior cranial fossa** **Demonstration of osteology and myology of mandible**	**8hrs**
IX	**Demonstration of structures of eye ball and EO muscle actions** **Dmonstration of structures of tongue and external and internal muscle action**	**8hrs**
X	**Demonstration of osteology of typical cervical vertebrae and atypical cervical vertebrae.** **Demonstration of gross anatomy of cerebral and cerebellar hemispheres** **Demonstration of structures seen in saggital section of cerebral hemisphere**	**8hrs**

Course Outcomes

BPT1205.1	Describe the joints of human body and their functions.
BPT1206.2	Demonstrate the osteology and myology of lower limb bones
BPT1206.3	Distinguish between anatomical structure of typical and atypical vertebrae
BPT1206.4	Illustrate the anatomical position of various visceral organs in the body.

Recommend Books: 1. ESSENTIALS OF ANATOMY by INDERBIR SINGH, CBS PUBLISHERS & DISTRIBUTORS PVT. Ltd.2. CLINICAL ATLAS OF HUMAN ANATOMY by PETER H .ABRAHAMS, MOSBY (ELSEVIER)

SUBJECT TITLE: HUMAN PHYSIOLOGY LAB

SUBJECT CODE: BPT-1207

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	2	1

SEMESTER: II

CONTACT HOURS/WEEK: 2

Internal Assessment: 30

End Term Exam: 70

Duration of Exam; 3 H

Course Outcomes: Through this course student should be able to

- **Demonstrate various tests and outcome measures according to current best evidence in the field of physiotherapy**
- **Evaluate the functions of nervous system**
- **Analyze the effect of various exercises on different systems of body**
- **Examine the cranial nerves**
- **Test the visual acuity**
- **Illustrate the techniques of examination of superficial and deep reflexes**

List of Practicals / Experiments:

Sr. No	Contents	Contact Hours
EXP 1	Demonstration of examination of Superficial.	6hrs
II	Demonstration of examination of deep sensations.	6hrs
III	Demonstration of examination of combined cortical sensations.	6hrs
IV	Demonstration of examination of tone.	6hrs
V	Demonstration of examination of deep tendon reflexes.	6hrs
VI	Demonstration of examination of superficial reflexes.	6hrs
VII	Demonstration of dermatomes and myotomes.	6hrs
VIII	Demonstration of examination of co-ordination.	6hrs

IX	**Demonstration of examination of balance.**	**6hrs**
X	**Demonstration of cranial nerves.**	**6hrs**

Course Outcomes

BPT1207.1	Analyze the relationships within and between anatomical and physiological systems of the human body.
BPT1207.2	Extend basic knowledge of physiology in the field of physiotherapy.
BPT1207.3	Discuss the various physiological functions of body systems
BPT1207.4	Assess the normal functioning of various systems of the body

Recommended Books: TEXT BOOK OF PRACTICAL PHYSIOLOGY by GK PAL AND PRAVATI PAL, ORIENT LONGMAN

SUBJECT TITLE: EXERCISE THERAPY LAB

SUBJECT CODE: BPT-1208

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	3	1

SEMESTER: II

CONTACT HOURS/WEEK: 3

Internal Assessment: 30

End Term Exam: 70

Duration of Exam; 3 Hrs

Course Outcomes and objectives: Through this course students should be able to

- **Interpret the results of various therapeutic exercises.**
- **Understand the effects of therapeutic exercises in physiotherapy treatment.**
- **Demonstrate the application of therapeutic exercise in physiotherapy management**
- **Design the standardized protocol to clinical application of therapeutic exercise.**

List of Practicals / Experiments

Sr. No	Contents	Contact Hours
EXP 1	d) Demonstration of position of joints in various fundamental positions of body. e) Demonstration of various joint positions in derived positions from standing, lying and sitting. f) Demonstration of various joint positions in derived positions from kneeling and hanging.	6hrs
II	c) Demonstration of active movements in upper extremities. d) Demonstration of active movements in lower extremities.	6hrs
III	c) Demonstration of passive movements in upper extremities. d) Demonstration of passive movements in lower extremities.	6hrs
IV	d) Demonstration of techniques of manual muscle testing in upper extremities. e) Demonstration of techniques of manual muscle testing in lower extremities. f) Demonstration of techniques of manual muscle testing in trunk muscles.	6hrs
V	c) Demonstration of Goniometery in upper extremity. d) Demonstration of Goniometery in lower extremity joints.	6hrs
VI	b) Demonstration of Goniometery in Head and spine.	6hrs
VII	d) Demonstration of methods of strengthening in upper extremities. e) Demonstration of methods of strengthening in lower extremities. f) Demonstration of methods of strengthening in trunk muscles.	6hrs

VIII	**b) Demonstration of stretching techniques for upper extremities.**	**6hrs**
IX	**c) Demonstration of stretching techniques in lower extremities.** **d) Demonstration of stretching techniques for trunk.**	**6hrs**
X	**c) Demonstration of techniques of suspension therapy in upper extremities.** **d) Demonstration of techniques of suspension therapy in lower extremities.**	**6hrs**
XI	**b) Demonstration of Proprioceptive Neuromuscular Facilitation patterns and techniques.**	**6hrs**

Recommended books: 1.THERAPEUTIC EXERCISES FOUNDATIONS AND TECHNIQUES by CAROLYN KISNER, LYNN ALLEN CLOBY, F.A. DAVIS COMPANY

2. PRACTICAL EXERCISE THERAPY by MARGARET HOLLIS, BLACKWELL SCIENCE LTD.

3. THERAPEUTIC EXERCISES FOUNDATIONS AND TECHNIQUES by KISNER AND COLBY, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.

4. PROPRIOCEPTIVE NEUROMUSCULAR FACILITATION by VOSS ET AL, LIPPINCOTT WILLIAMS & WILKINS

5. PRINCIPLES OF EXERCISE THERAPY by DENA GARDINER, CB PUBLICATION

6. PRACTICAL EXERCISE THERAPY by MARGARET HOLLIS, BLACKWELL SCIENCE LTD.

7. PNF IN PRACTICE: AN ILLUSTRATED GUIDE by SUSAN S. ADLER , DOMINIEK BECKERS, MATH BUCK, SPRINGE

SUBJECT TITLE: ELECTROTHERAPY LAB

SUBJECT CODE: BPT 1209

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	2	1

SEMESTER: II

CONTACT HOURS/WEEK: 3

Internal Assessment: 30

End Term Exam: 70

Duration of Exam; 3 Hrs

Course Objectives and Outcomes: Through this course students should be able to

- **Apply knowledge of usage of various types of high frequency currents and its application.**
- **Demonstrate the knowledge regarding application of modalities in various conditions.**
- **Implement the knowledge about indications and contraindications of various modalities**
- **Explore about the recent advancement in electrotherapy.**

EXP.	TOPICS	HOURS
I (a) & (b)	Demonstration of low frequency currents and technique of application of TENS. Demonstration and technique of application of muscle stimulator.	8hrs
II	Demonstration of medium frequency currents and technique of application of IFT.	8hrs
III (a) (b) & (c)	Demonstration and technique of application of hydro collateral packs. Demonstration and technique of application of whirlpool bath, Fluidotherapy. Demonstration and technique of application of paraffin wax bath unit.	8hrs
IV	Demonstration and technique of application of Cryotherapy.	8hrs
V	Demonstration and technique of application of EMG and NCV.	8hrs

Text Books: 1. ELECTROTHERAPY EXPLAINED: PRINCIPLES AND PRACTICE by JOHN LOW, ALEX WARD, ANN REED, VAL ROBERTSON, BUTTERWORTH-HEINEMANN (ELSEVIER)

2. CLAYTON'S ELECTROTHERAPY by E BELLIS CLAYTON; NIGEL PALASTANGA; ANGELA FORSTER, PHILADELPHIA : LEA & FEBIGER

SUBJECT TITLE: PATHOLOGY

SUBJECT CODE: BPT2301

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
3	0	0	3

SEMESTER: III

CONTACT HOURS/WEEK:3

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs

Objective and outcome of course: Through this course student should be able to

- Learn the process of cell injury and adaptations
- Identify about causes of disease, basic responses of the body to injury and manifestations of disease.
- Understand the etiology and pathogenesis of different diseases in the human body

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Cell injury :** etiology and pathogenesis of normal cell structure, gangrene, necrosis, shock, haemorrhage **Inflammation and repair :** acute inflammation: features, causes, vascular and cellular events, chronic inflammation: Causes, Types, Classification nonspecific and granulomatous with examples **Immunopathology :** types of immune system, hypersensitivity and its types	**14hrs**
UNIT-II	**Growth disturbances and neoplasia :** atrophy, hypertrophy, hyperplasia, aplasia, hypoplasia, metaplasia, malformation, dysplasia, types, etiology and spread of tumors **Pathology of haematopoietic diseases :** rheumatic and coronary heart diseases, common congenital anamolies, anemia **Infectious disease :** bacterial disease, viral disease, fungal disease, parasitic disease, mycobacterial disease **Endocrine disorders :** pituitary gland, adrenal gland, thyroid gland, parathyroid	**14hrs**
UNIT-III	**Blood vessel and lymphatic disorder :** arteriosclerosis, atherosclerosis, vasculitis, aneurysms, common diseases of vein, disease of lymphatics tumor **Pathology of cardiovascular system :** heart failure, congenital heart disease, rheumatic fever, bacterial endocarditis **Pathology of respiratory infection :** pneumonia, bronchiectasis, chronic bronchitis, asthma	**14hrs**
UNIT-IV	**Pathology of bones, joints, muscles :** myasthenia gravis, osteoporosis, osteoarthritis, rheumatoid arthritis **Neuropathology :** tubercular meningitis, pyogenic meningitis, viral meningitis, encephalitis, cerebrovascular diseases **The female Genital Tract :** endometriosis, pelvic inflammatory disease **Pathology of skin :** scleroderma, leprosy, psoriasis	**12hrs**

Recommended Books:1. TEXT BOOK OF PATHOLOGY by HARSHMOHAN,, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.
2. ROBBINS PATHOLOGICAL BASIS OF DISEASE by KUMAR & ROBBIN W B SAUNDERS, ELSEVIER

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: MICROBIOLOGY

SUBJECT CODE: BPT2302

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
3	0	0	3

SEMESTER: III

CONTACT HOURS/WEEK: 3

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs

Objective and outcome of course: Through this course students should be able to

- Describe diversity of microorganisms, bacterial cell structure and function, microbial growth and metabolism
- Define different types of microorganisms playing an integral role in diseases
- Analyze various methodologies used in disease treatment and prevention

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**General microbiology :** definitions: infections, parasite, host, vector, fomite, contagious disease, infectious disease, epidemic, endemic, pandemic, zoonosis, epizootic, attack rate, asepsis, sterilization, disinfection, normal flora of the human body, routes of infection and spread endogenous and exogenous infections source at reservoir of infections, bacterial **Cell morphology:** shape, motility, arrangement, structures and virulence, essentials of bacterial growth requirements, sterilization, disinfection and universal precautions in relation to patient care and disease prevention, antimicrobials: interpretation of susceptibility tests, resistance spectrum of activity	**14hrs**
UNIT-II	**Immunology :** basic principles of immunity, immunobiology : lymphoid organs and tissue, antigen and antibody reactions with relevance to pathogenesis and serological diagnosis, types of immunity: humoral and cell mediated immunity, immunology of hypersensitivity, measuring immune functions (prabhjot mam)	**12hrs**
UNIT-III	**Bacteriology :** morphology and classification according to pathogenicity, mode of transmission and methods of prevention, staphylococci, streptococci and pneumococci, haemophilus, m.leprae. atypical mycobacteria, enterobacteriaceae, v. cholerae,campylobacters and helicobacter **Virology :** general properties: basic structure and board classification of viruses, pathogenesis and pathology of viral infections, immunity and prophylaxis of viral diseases, principles of laboratory diagnosis of viral diseases., hepatitis viruses, human immunodeficiency virus:AIDS	**14hrs**

UNIT-IV	**Mycology :** general properties of fungi, classification based on disease: superficial, subcutaneous, deep opportunistic infections, mycotoxins, systemic mycoses, general principles of fungal diagnosis, method of collection of samples **Clinical/Applied microbiology :** streptococcal infections: rheumatic fever and rheumatic heart disease, meningitis,tuberculosis, pyrexia of unknown origin, leprosy, sexually transmitted diseases, poliomyelitis, hepatitis, acute-respiratory infections, central nervous System infection, urinary tract infections	**14hrs**

Course Outcomes

BPT2302.1	Describe diversity of microorganisms, bacterial cell structure and function,
BPT2302.2	Describe microbial growth and metabolism
BPT2302.3	Define different types of microorganisms playing an integral role in diseases
BPT2302.4	Analyze various methodologies used in disease treatment and prevention.

Recommended Books: 1.ANANTHANARAYAN AND PANIKER'S TEXTBOOK OF MICROBIOLOGY by REBA KANUNGO, UNIVERSITIES PRESS PVT. LTD

2. ESSENTIALS OF MEDICAL MICROBIOLOGY by SASTRY APURBA SANKAR, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: BIOMECHANICS AND KINESIOLOGY-I

SUBJECT CODE: BPT2303

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
4	0	0	4

SEMESTER: III

CONTACT HOURS/WEEK: 3

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs

Objective of course: Through this course student should be able to

- To develop an insight to the basic principles of biomechanical analysis
- To make the students understand about the analysis of forces acting on various joints
- To enhance the critical analysis of applying and integrating the analysis of forces on diagnosing various disorders

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Basic concepts in biomechanics :** location of motion, Kinetics and kinematics, types of motion, location of motion direction, direction of motion, magnitude of motion	

	Force analysis :newtons law of inertia, newtons law of acceleration, Objects in motion newtons law of inertia and acceleration, force of friction, concurrent forces, anatomical pulleys, compression and distraction, parallel force systems, levers, torque, mechanical advantage of work, moment arm of force, Force components, linear equilibrium, rotational equilibrium	**12hrs**
UNIT-II	**Human joints design :**Synarthroses and diarthroses, Joint motion arthrokinematics and osteokinematics, Demonstration of locomotor activity on force plate **Connective tissue and Joint structure and function :** properties of specific tissues, properties of bone, properties of tendons, properties of cartilage, viscoelastic properties, Structure of connective tissues, general properties of connective tissue, mechanical behaviour, stress and strain load deformation **Muscle structure and function :** motor unit, Elements of muscle structure and composition of muscle fiber, Muscle function muscle tension, classification of muscles, factors affecting muscle function	**14hrs**
UNIT-III	**Shoulder complex :** Components of shoulder complex, scapulothoracic joint, strenoclavicular joint, Acromioclavicular joint, glenohumeral joint Integrated function of shoulder complex : Sternoclavicular and acromioclavicular contributions, Scapulothoracic and glenohumeral contributions, Structural dysfunction and muscles of elevation and depression **Structure and function of elbow joint and radioulnar joints :** Structure and function of elbow joint and radioulnar joints articulating surfaces, Axis of motion, Range of motion muscle action, ligaments muscles and stability, effects of immobilisation and injury of elbow **Wrist and hand complex :**Prehension grip, power grip, precision handling, Structure and function of wrist and hand	**14hrs**
UNIT-IV	**Vertebral column :** structure and function of cervical region, structure and function of lumbar region, structure and function of thoracic region, structure and function of sacral region, General structure and function, Muscles of vertebral column, general effects of aging and injury	**14hrs**

Course Outcomes

BPT2303.1	Understandingtheconceptsandprinciplesof biomechanics
BPT2303.2	Analyzingtheapplicationofconceptsandprinciplesofbiomechanicsin Musculoskeletalfunctionand dysfunction.
BPT2303.3	Applyingconceptsofanatomyandmechanicstothejointmotion,gait Andposture .
BPT2303.4	Recalling the knowledge of human anatomy and fundamentals of exercise Therapy

Recommended Books: 1. JOINT STRUCTURE AND FUNCTION- A COMPREHENSIVE ANALYSIS by CYNTHIA C NORKIN, F.A. DAVIS COMPANY

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: BIOMECHANICS AND KINESIOLOGY-I LAB
SUBJECT CODE: BPT2306

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	3	1.5

SEMESTER: III
CONTACT HOURS/WEEK: 3

Internal Assessment: 30
End Term Exam: 70
Duration of Exam; 3 Hrs
Objectives of Course: Through this course students should be able to

- To develope awareness about how the body works at a fundamental level
- To create awareness how biomechanics is useful in improving performance in sports
- To enhance the knowledge of biomechanics of all joints of the body

List of Practicals / Experiments

Sr. No	Contents	Contact Hours
EXP 1	Demonstrate and explain types, location, direction and magnitude of motion.	4 hrs
EXP 2	Demonstrate and explain newtons laws, force of friction, force of gravity and anatomical pulleys.	4 hrs
EXP 3	Demonstrate and explain lever system, it's mechanical advantage and mechanical disadvantage.	4 hrs
EXP 4	Demonstrate and explain structure and properties of various connective tissues.	4 hrs
EXP 5	Demonstrate and explain human joint design and joint motion :osteokinematics and arthrokinematics.	4 hrs
EXP 6	Demonstrate and explain basic muscle structure and muscle function.	4 hrs
EXP 7	Demonstrate and explain structure and function of shoulder complex.	4 hrs
EXP 8	Demonstrate and explain structure of elbow joint, mobility and stability of elbow joint and effect of immobilization and injury on elbow complex.	4 hrs
EXP 9	Demonstrate and explain structure of hand and prehension.	4 hrs
EXP 10	Demonstrate and explain structure and function of wrist joint.	4 hrs
EXP 11	Demonstrate and explain structure and function of cervical spine.	4 hrs
EXP 12	Demonstrate and explain structure and function of thoracic spine.	4 hrs
EXP 13	Demonstrate and explain structure and function of lumbar spine.	4 hrs
EXP 14	Demonstrate and explain structure and function of sacral spine.	4 hrs

Course Outcomes

BPT2304.1	Describing all anatomical structures from a regional perspective.
BPT2304.2	Identifying muscles, bones, bony prominences joints, along with surface landmarks.
BPT2304.3	Demonstrating movements of joints.
BPT2304.4	Applying the knowledge of palpation of nerves and arteries

Recommended Books:JOINT STRUCTURE AND FUNCTION- A COMPREHENSIVE ANALYSIS by CYNTHIA C NORKIN, F.A. DAVIS

SUBJECT TITLE: PHARMACOLOGY-I
SUBJECT CODE: BPT2305

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
4	0	0	4

SEMESTER: III
CONTACT HOURS/WEEK: 3

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs

Objective and outcome of course: Through this course students should be able to

- Describe various mechanisms of drug and disease interactions
- Discuss the various systems of classification and naming of drugs
- Describe the routes of drug administration and various forms of drug preparations

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**General pharmacology :** introduction, definition and classification of drugs, source of drugs, routes of drug administration, distribution of drugs, metabolism and excretion of drug, pharmacokinetics, pharmacodynamics, factors modifying drug response, adverse effects **Drugs acting on ANS :** general considerations - the sympathetic and parasympathetic system, receptors, somatic nervous system, cholinergic and anti- cholinergic drugs, adrenergic and adrenergic blocking drugs, peripheral muscle relaxants	**12hrs**
UNIT-II	**Neuropharmacology :** sedative and hypnotic drugs: barbiturates, benzodiazepines, antianxiety drugs: benzodiazepines, other anxiolytics, drug used in treatment of mood disorders: monoamine oxidase inhibitors, tricyclic, antidepressants, atypical antidepressants, antipsychotic drugs, drugs used in treatment of parkinson's disease, antiepileptic drugs, spasticity and skeletel muscle relaxants **Drugs acting on inflammatory/immune diseases :** non- narcotic analgesic and nonsteroidal anti-inflammatory drugs: acetaminophen, NSAIDs, aspirin, non aspirine NSAIDs, drug interactions with NSAIDs, Glucocorticoids: Pharmacological uses of glucocorticoids, adverse effects, physiologic uses glucocorticoids, drugs used in treatment of arthritic disease: rheumatoid arthrities, osteoarthrities, gout, drug used in the treatment of neuromuscular immune/inflammmatory diseases; myasthena gravis, Idiopathic Inflammatory myopathies, systemic lupus erythmatosus, scleroderma, demyelinating disease	**14hrs**
UNIT-III	**Cardiopulmonary pharmacology :** drugs used in the treatment of heart failure: digitalis, diuretics, vasodialators, ACE inhibitors, antihypertensive drugs: diuretics, beta blockers , calcium channel blockers, ACE inhibitors, central acting alpha agonists, peripheral alpha antagonists, direct acting vasodialators, antiarrhythmic drugs, respiratory pharmacology: obstructive airway diseases, drugs used in treatment of obstructive airway diseases, respiratory pharmacology:allergic rhinitis	**14hrs**
UNIT-IV	**Drugs acting on inflammatory/immune diseases :** non- narcotic analgesic and nonsteroidal anti-inflammatory drugs: acetaminophen, NSAIDs, aspirin, non aspirine NSAIDs, drug interactions with NSAIDs, Glucocorticoids:	

	Pharmacological uses of glucocorticoids, adverse effects, physiologic uses glucocorticoids, drugs used in treatment of arthritic disease: rheumatoid arthrities, osteoarthrities, gout, drug used in the treatment of neuromuscular immune/inflammmatory diseases; myasthena gravis, Idiopathic Inflammatory myopathies, systemic lupus erythmatosus, scleroderma, demyelinating disease **Digestion and metabolism :** gastrointestinal pharmacology: peptic ulcers disease, constipation, diarrhoea, drug used in treatment of diabetes mellitus: insulin, oral hypoglycaemic **Antimicrobial drugs :** antimicrobial drugs:general considerations, antitubercular drugs, antileprotic drugs, antifungal drugs, antimalarial drugs, antiamoebic and other antiprotozoal drugs **Geriatrics :** pharmacology and the geriatrics effects of special concern in the elderly, dementia,postural hypotension	**14hrs**

Course Outcomes

BPT2305.1	Describingthe basicpharmacologyofcommonlyuseddrugs.
BPT2305.2	Understandingthe physiological effects and side effectsof drugs. "
BPT2305.3	Analyzingtheimportanceofdrugsintheoveralltreatmentincluding physiotherapy.
BPT2305.4	Analyzingtheimportanceofdrugsintheoveralltreatmentincluding physiotherapy. Understandingthe physiological effects and side effectsof drugs.

Recommended Books: 1. PHARMACOLOGICAL BASIS OF THERAPEUTICS by GOODMAN AND GILMAN, MACMILLAN
2. TEXTBOOK OF PHARMACOLOGY FOR PHYSIOTHERAPISTS by PADMAJA UDAYAKUMAR, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: FIRST AID

SUBJECT CODE: BPT2306

SEMESTER: III

CONTACT HOURS/WEEK: 2

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
4	0	0	2

Internal Assessment: 40

End Term Exam: 60

Duration of Exam; 3 Hrs

Objective of course: Through this course student should be able to

- To learn how to become a professional first aider
- To review the various common conditions and its first aid procedures
- To learn how to provide the Cardio pulmonary resuscitation

Contents of Syllabus

Sr. No	Contents	Contact Hours
UNIT-I	**Becoming first aider** : what is a first aider?, protection from infection, dealing with casuality, use of medication **First-Aid Basics** : don't panic, gathering medical information, universal precaution, proper training **on the road** : first step of a first responder, useful kit **Emergency Response** : history of CPR, ABC of first aid, basic CPR, signs of heart attack, swallowing foreign objects, managing shock **The unconscious casuality**: breathing and circulation, life saving priorities, unconscious adult, unconscious child, unconscious infant.	9hrs
UNIT-II	**Managing an incident** : action at emergency, traffic incident, electrical incident, water incident, major incident **Assessing causality**: assessing the sick and injured, mechanism of injury, primary survey, monitoring vital signs **Outdoor events**: animal, human and insect bites, insect sings, poison ivy, oak and sumac, dehydration, heat emergencies, jellyfish strings **Serious incident** : bleeding, internal bleeding, penetrating trauma, spinal injury, stroke, poisoning, near – drowning	9hrs

UNIT-III	**Preventive Measures** : an ounce of prevention, childproofing your home, protecting the elderly **common in-home incident** : cut, puncture wound, diabetic emergencies, dental injuries **common conditions** : fever, seizures, fainting, sore throat, broken nose, nose bleed, panic attack	**9 hrs**
UNIT-IV	**Respiratory problem** : hypoxia, choking adult, choking child, choking infant, airway obstruction, inhalation fumes **wound and circulation** : shock, bruising, eye wound, nosebleed, knocked out adult tooth, scalp and head wounds, amputation **other events** : burns, electrical injury, head injury and trauma, asthma attack, abdominal pain	**9 hrs**

Course Outcomes

BPT2306.1	Understanding the basic principles and concepts of First Aid along with Emergency care in various situations.
BPT2306.2	Demonstrating principles and concept of body mechanics, nutrition, care of instruments in hospitals, environmental safety and bedside
BPT2306.3	Applyingtheconceptsoffirstaidmanagementinvariousemergencyandcasualtysituations.
BPT2306.4	Creating awareness for saving environment

Recommended Books: 1. FIRST AID by COLLINS GEM, HARPERCOLLINS PUBLISHERS

2. EVERYTHING FIRST AID BOOK by NADINE SAUNDERS, ADAMS MEDIA

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus .

SUBJECT TITLE: SOCIOLOGY

SUBJECT CODE: BPT2307

SEMESTER: III

CONTACT HOURS/WEEK: 2

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
4	0	0	2

Internal Assessment: 40

End Term Exam: 60

Duration of Exam; 3 Hrs

Objective and outcome of course: Through this course students should be able to

• Follow the basic concepts and principles of socialization.

• Integrate social stigmas of the subjects while assessing and planning treatment without hindering their cultural diversity.

• Ingrain various social factors affecting family in rural and urban communities and their Impact on physiotherapy practice.

• Exploring the social factors and to provide remedial measures to various social issues.

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Introduction to Sociology:** Definition and scope of sociology, methods of sociological investigations by case studies, social survey, questionnaire, interviews and opinion poll methods, importance of it study with special reference to health care professionals, application of knowledge of sociology to physiotherapy **Socialization and social system:** Primary secondary and anticipatory socialization, agencies of socialization, socialization in hospitals, socialization of rehabilitation of clients, role of physiotherapist in Indian society, nature of socialization **Social groups** : Definition and concepts of social groups, influence of formal and informal groups on health and sickness, role of primary and secondary groups in hospital and rehabilitation setups	**9hrs**
UNIT-II	**Family:** Definition of family, functions of types of family, changing family patterns, influence of family on individual health, family and nutrition, effects of sickness in family, psychosomatic illness, importance of family to physiotherapy **Community** : Health hazards of ruralities, health hazards of tribal community, health hazards of urbanities, features of rural community, features of urban community	**9hrs**

UNIT-III	**Culture and health:** Concept of health, concept of culture, culture and health relationship, culture and health disorders **Social stratification:** Definition of social stratification, types, caste system, difference between class and caste **Social change** : Introduction to social changes, factors of social changes, human adaptation and social change, social change and stress, social change and deviance, social change and health programme, role of social planning in improvement of health and rehabilitation	**9hrs**
UNIT-IV	**Social problems:** Population explosion, poverty and unemployment, beggary, juvenile delinquency, prostitution, alocoholism, problems of women in employment, geriatric problems, problems of underprivileged **Social security:** Introduction to social security, social legislation in relation to the disabled **Social work** : Introduction to social work, nature and scope of social work, factors affecting social work, principles and characteristics of social work, role of medical social worker	**9hrs**

Recommended Books:1. SOCIOLOGY AND HEALTH FOR PHYSIOTHERAPISTS by 1. NIRAJ PANDIT, BI PUBLICATIONS

2. SOCIOLOGY OF INDIAN SOCIETY by C N SHANKAR RAO, S. CHAND & COMPANY

3. TEXTBOOK OF SOCIOLOGY FOR PHYSIOTHERAPY STUDENTS by KP NEERAJA, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus .

SUBJECT TITLE: MEDICAL TERMINOLOGY AND RECORD KEEPING

SUBJECT CODE: BPT 2401

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
6	0	0	3

SEMESTER: IV

CONTACT HOURS/WEEK: 3

Internal Assessment: 40

End Term Exam: 60

Duration of Exam; 3 Hrs

Objective and outcome of course: Through this course students should be able to

- Define basic terminologies related to health care and physiotherapy
- Enumerate different word elements related to various body systems
- Identify basic medical abbreviations and symbols related to the field of physiotherapy
- Describe the utilization of different terminologies in healthcare systems
- Categorize different aspects of medical records system
- Interpret medical and physiotherapy reports across different healthcare delivery systems

Contents of Syllabus:

Sr. No	Contents	Contact
UNIT-I	**Origin and derivation of medical terms :** defining and building medical terms, pronunciation guidelines, medical word elements **Word roots, prefixes and suffixes :** suffix linking and suffix types, prefix linking and prefix types **Combining forms :** conventions for combined morphemes, formation of plurals **Basic terminology in health care and physiotherapy :** diagnostic, symptomatic and related terms, diagnostic and therapeutic procedures **Formation of medical terms** : utilization of roots, suffixes, prefixes, and combining roots **Abbreviations and symbols :** interpret basic medical abbreviations/symbols	**14hrs**
UNIT-II	**Integumentary system and musculoskeletal system :** anatomy and physiology key terms, utilization of diagnostic, surgical, symptomatic and procedural terms and abbreviations related to the integumentary system and musculoskeletal system, skin, accessory organs of the skin and related disorders, bones, joints, muscles and related disorders, connecting body systems- integumentary system and musculoskeletal system, medical word elements related to integumentary and musculoskeletal system	**14hrs**
UNIT-III	**Respiratory system and cardiovascular system :** anatomy and physiology key terms, utilization of diagnostic, surgical, symptomatic and procedural terms and abbreviations related to the respiratory system and cardiovascular system, disorders related to respiratory and cardiovascular systems, connecting body systems- respiratory system and cardiovascular system, medical word elements related to respiratory system and cardiovascular system	**14hrs**

UNIT-IV	**Nervous system and endocrine system :** anatomy and physiology key terms, utilization of diagnostic, surgical, symptomatic and procedural terms and abbreviations related to the nervous system and endocrine system, disorders related to nervous system and endocrine systems, connecting body systems-nervous system and endocrine system, medical word elements related to nervous system and endocrine system **Interpretation of medical records/reports :** medical records activities, consultation notes, pathological reports, radiology reports, special tests reports, surgical/operative reports, physiotherapy consultation and procedural reports, charts notes and SOAP notes, discharge summary.	**12hrs**

Course Outcomes

BPT2401.1	Define basic terminologies related to health care and physiotherapy
BPT2401.2	Enumerate different word elements related to various body systems
BPT2401.3	Identify basic medical abbreviations and symbols related to the field of physiotherapy
BPT2401.4	Interpret medical and physiotherapy reports across different healthcare delivery

Recommended Books:MEDICAL TERMINOLOGY SYSTEMS by BARBARA A. GYLYS, MARY ELLEN WEDDING, F.A. DAVIS COMPANY

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: PHARMACOLOGYII

SUBJECT CODE: BPT2402

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
3	0	0	3

SEMESTER: IV

CONTACT HOURS/WEEK: 3

Internal Assessment: 40

End Term Exam: 60

Duration of Exam; 3 Hrs

Objective of course: Through this course students should be able to

- Describe various mechanisms of drug and disease interactions
- Discuss the various systems of classification and naming of drugs
- Describe the routes of drug administration and various forms of drug preparations

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**General pharmacology :** introduction, definition and classification of drugs, source of drugs, routes of drug administration, distribution of drugs, metabolism and excretion of drug, pharmacokinetics, pharmacodynamics, factors modifying drug response, adverse effects **Drugs acting on ANS :** general considerations - the sympathetic and parasympathetic system, receptors, somatic nervous system, cholinergic and anti- cholinergic drugs, adrenergic and adrenergic blocking drugs, peripheral muscle relaxants	**12hrs**
UNIT-II	**Neuropharmacology :** sedative and hypnotic drugs: barbiturates, benzodiazepines, antianxiety drugs: benzodiazepines, other anxiolytics, drug used in treatment of mood disorders: monoamine oxidase inhibitors, tricyclic, antidepressants, atypical antidepressants, antipsychotic drugs, drugs used in treatment of parkinson's disease, antiepileptic drugs, spasticity and skeletel muscle relaxants **Drugs acting on inflammatory/immune diseases :** non- narcotic analgesic and nonsteroidal anti-inflammatory drugs: acetaminophen, NSAIDs, aspirin, non aspirine NSAIDs, drug interactions with NSAIDs, Glucocorticoids: Pharmacological uses of glucocorticoids, adverse effects, physiologic uses glucocorticoids, drugs used in treatment of arthritic disease: rheumatoid arthrities, osteoarthrities, gout, drug used in the treatment of neuromuscular immune/inflammmatory diseases; myasthena gravis, Idiopathic Inflammatory myopathies, systemic lupus erythmatosus, scleroderma, demyelinating disease	**14hrs**
UNIT-III	**Cardiopulmonary pharmacology :** drugs used in the treatment of heart failure: digitalis, diuretics, vasodialators, ACE inhibitors, antihypertensive drugs: diuretics, beta blockers , calcium channel blockers, ACE inhibitors, central acting alpha agonists, peripheral alpha antagonists, direct acting vasodialators, antiarrhythmic drugs, respiratory pharmacology: obstructive airway diseases, drugs used in treatment of obstructive airway diseases, respiratory pharmacology:allergic rhinitis	**14hrs**
UNIT-IV	**Drugs acting on inflammatory/immune diseases :** non- narcotic analgesic and nonsteroidal anti-inflammatory drugs: acetaminophen, NSAIDs, aspirin, non aspirine NSAIDs, drug interactions with NSAIDs, Glucocorticoids: Pharmacological uses of glucocorticoids, adverse effects, physiologic uses glucocorticoids, drugs used in treatment of arthritic disease: rheumatoid arthrities, osteoarthrities, gout, drug used in the treatment of neuromuscular immune/inflammmatory diseases; myasthena gravis, Idiopathic Inflammatory myopathies, systemic lupus erythmatosus, scleroderma, demyelinating disease **Digestion and metabolism :** gastrointestinal pharmacology: peptic ulcers disease, constipation, diarrhoea, drug used in treatment of diabetes mellitus: insulin, oral hypoglycaemic **Antimicrobial drugs :** antimicrobial drugs:general considerations, antitubercular drugs, antileprotic drugs, antifungal drugs, antimalarial drugs, antiamoebic and other antiprotozoal drugs	**14hrs**

	Geriatrics : pharmacology and the geriatrics effects of special concern in the elderly, dementia,postural hypotension	

Course Outcomes

BPT2402.1	Describingthe basicpharmacologyofcommonlyuseddrugs.
BPT2402.2	Understandingthe physiological effects and side effectsof drugs. "
BPT2402.3	Analyzingtheimportanceofdrugsintheoveralltreatmentincluding physiotherapy.
BPT2402.4	Analyzingtheimportanceofdrugsintheoveralltreatmentincluding physiotherapy. Understandingthe physiological effects and side effectsof drugs.

Recommended Books: 1. PHARMACOLOGICAL BASIS OF THERAPEUTICS by GOODMAN AND GILMAN, MACMILLAN

2. TEXTBOOK OF PHARMACOLOGY FOR PHYSIOTHERAPISTS by PADMAJA UDAYAKUMAR, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: GENERAL MEDICINE

SUBJECT CODE: BPT2403

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
4	0	0	4

SEMESTER: IV

CONTACT HOURS/WEEK: 4

Internal Assessment: 40

End Term Exam: 60

Duration of Exam; 3 Hrs

Objective of course: Through this course students should be able to

- Understand the etio-pathogenesis and clinical manifestations of various diseases
- Describe the clinical course and differential diagnosis of various diseases
- Apply the management options available for various diseases

Contents of Syllabus:

Sr. No	Contents	Contact Hours

UNIT-I	**Infections :** effects of infection on the body, pathology, source and spread of infection, vaccinations, generalized infections, rashes and infection, food poisoning and gastroenteritis UTI, sexually transmitted diseases HIV and AIDS **Poisoning :** clinical manifestations, management, common agents in poisoning, pharmaceutical agents, drugs of misuse, chemical pesticides	**12hrs**
UNIT-II	**Hematology disorders :** examination and clinical manifestations of blood disorders, etiology, clinical manifestations, investigations, diagnosis, complications and management, anemia and hemophilia, complications due to repeated hemorrhages and therapy **Integumentary disorders :** examination and clinical manifestations of skin diseases, etiology, clinical manifestations, investigations, diagnosis, complications and management, leprosy and psoriasis, pigmentary anomalies, vasomotor disorders and dermatitis, coccal and fungal infections, parasitic and viral infections	**14hrs**
UNIT-III	**Nutrition and metabolic disorders :** assessment, nutritional and energy requirements, etiology and clinical manifestations, investigations and diagnosis, complications and management, protein energy malnutrition, obesity and its related disorders, benefits of weight loss **Endocrine disorders :** common presenting symptoms of endocrine disorders, common classical disease presentations, etiology and clinical manifestations, investigations and diagnosis, complications and management, diabetes mellitus and related disorders **Gastrointestinal disorders :** etiology and clinical manifestations, investigations and diagnosis, complications and management, oesophagitis and achlasiacardia, carcinoma of esophagus and GI bleeding, peptic ulcer disease and carcinoma of stomach, pancreatitis and malabsorption syndrome, ulcerative colitis and peritonitis, infections of alimentary tract, liver diseases like viral hepatitis and Wilson's Disease, alpha1-antitrypsin deficiency and tumors of the liver, gall stones and cholecystitis	**14hrs**
UNIT-IV	**Pediatrics disorders :** LBW infants and congenital abnormalities, perinatal problems and developmental delay, complications and management, cerebral palsy-etiology and clinical manifestations, complications and its management, epilepsies and its types, investigations and diagnosis, recognizing developmental delay and common causes of delay, orthopedic and neuromuscular disorders in childhood-, clinical manifestations and management, sensory disorders problems resulting from loss of vision and hearing, learning and behavioral problems- hyperactivity autism and challenging behaviors, educational delay and the clumsy child **Psychiatric disorders :** classifications and etiology, clinical manifestations and management strategies used in psychiatry, modalities of psychiatric management, psychiatric illness and physiotherapy, etiology and clinical manifestations, investigations and diagnosis, complications and management, anxiety and neurosis, depression and obsessive compulsive neurosis, psychosis maniac-depressive psychosis and post traumatic stress disorder,	**14hrs**

	psychosomatic reactions, stress and health and theories of stress illness, drug dependence and alcoholism, somatoform and dissociate disorders - conversion reactions somatization, dissociate amnesia and dissociate fugue, personality disorders, child psychiatry disorders, attention deficit syndrome and behavioral disorders, geriatric psychiatry	

Course Outcomes

BPT2403.1	Describe the influence of social and environmental factors on the health of the individual and society
BPT2403.2	Describing the basic pharmacology of commonly used drugs.
BPT2403.3	Design the methods to rehabilitate patients with various disorders
BPT2403.4	Analyze the methods of preventing and managing common medical conditions

Recommended Books: DAVIDSON'S PRINCIPLES AND PRACTICE OF MEDICINE by STUART H. RALSTON, BRIAN R. WALKER, NICKI R. COLLEDGE., ELSEVIER

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: GENERAL SURGERY

SUBJECT CODE: BPT2404

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
4	0	0	4

SEMESTER: IV

CONTACT HOURS/WEEK: 4

Internal Assessment: 40

End Term Exam: 60

Duration of Exam; 3 Hrs

Objective and outcome of course: Through this course students should be able to

- Understand basic principles of general surgery
- Recognize the clinical manifestations of various surgical conditions
- Design the surgical management of various surgical conditions

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**General topics in surgery :** wound healing- basic process involved, basic phases, clinical management, factors affecting wound healing, scars- types and treatment, fluid, electrolytes and acid-base balance, hemorrhage shock, hemostasis- components, hemostatic disorders, factors affecting bleeding during surgery, transfusion therapy in surgery, blood components and complications of transfusion, surgical infections, general postoperative complications and its management **Basic procedures in surgery :** reasons for surgery, types of anesthesia and its effects on the patient, types of incisions, clips, ligatures and sutures, general thoracic procedures, radiologic diagnostic procedures, endoscopy – types, biopsy – uses and types, overview of drainage systems and tubes used in surgery	**14hrs**
UNIT-II	**Burns and plastic surgery :** burns-definition, classification and causes, clinical features and pathological changes, complications, prevention and management, skin grafting- types and grafting procedures, survival of skin graft, flaps – types and uses of flaps	**12hrs**
UNIT-III	**Gastrointestinal and urogenital surgeries :** definition, indication, incision, physiological changes, complications following common operations, cholecystectomy, colostomy, ileostomy, gastrectomy and hernias, appendicectomy, nephrectomy and prostectomy **Surgical oncology :** cancer – definition and types, clinical manifestations of cancer, staging of cancer, surgical procedures involved in the management of cancer	**14hrs**
UNIT-IV	**ENT and Ophthalmology** : ENT- common problems of ear, otitis media, otosclerosis, functional achonia and deafness management, facial palsy- classification, medical and surgical management of LMN type of facial palsy,	**14hrs**

	ophthalmology- surgical management of ophthalmologic conditions, refraction errors, conjunctivitis, glaucoma, corneal ulcer, iritis and cataract, retinitis, detachment of retina, defects of extra-ocular muscles	

Course Outcomes

BPT2404.1	Understand basic principles of general surgery
BPT2404.2	Recognize the clinical manifestations of various surgical conditions
BPT2404.3	Design the surgical management of various surgical conditions
BPT2404.4	Summarizing the concepts of abnormalities and diseases of human Psychology

Recommended Books: 1. A CONCISE TEXTBOOK OF SURGERY by DR. S. DAS, S. DAS PUBLICATIONS

2. BAILEY & LOVE'S SHORT PRACTICE OF SURGERY by NORMAN WILLIAMS, CHRISTOPHER BULSTRODE, P RONAN O'CONNELL, CRC PRESS

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: BIOMECHANICS AND KINESIOLOGY-II

SUBJECT CODE: BPT2407

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
3	0	0	3

SEMESTER: IV

CONTACT HOURS/WEEK: 3

Internal Assessment: 40

End Term Exam: 60

Duration of Exam; 3 Hrs

Objective of course: Through this course students should be able to

- Learn the principles of biomechanics in lower limb
- Analyze the forces acting on joints of lower limb
- Analyze posture to diagnose various disorders

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Structure of Hip joint** : General features of the hip joint including the articulating surfaces of the pelvis and the femur, Articular congruence, Hip joint capsule and ligaments, Hip joint musculature, Angle of inclination and angle of torsion, Structural adaptations to weight bearing **Function of Hip joint** : Motion of articular surfaces, Coordinated motion of femur, pelvis and lumbar spine, Pelvic motion - anterior posterior pelvic tilting, Lateral pelvic tilting, Pelvic rotation, Rotation between pelvis, Lumbar pelvic rhythm **Hip joint forces and muscle function** : Bilateral and unilateral stance, Reduction of muscle forces in unilateral stance **Hip joint pathology** : Arthrosis, Fracture, Bony abnormalities of the femur	**12hrs**
UNIT-II	**Structure and function of Tibiofemoral joint** : Articular surfaces of tibiofemoral joint, Capsule and ligaments of tibiofemoral joint, Tibiofemoral joint function and stabilizers, Function of menisci and muscle function, Locking and unlocking, Action of quadriceps in an open kinematic chain with that in a closed kineramatic chain **Structure and function of Patellofemoral joint** : Articular surfaces and motion of patella, Forces on the patellofemoral joint in full flexion with full extension,Patellofemoral joint stress and joint stability, Effect of injury and disease on tibiofemoral and patellofemoral joint	**14hrs**
UNIT-III	**Structure and function of ankle complex** : articular surfaces of ankle joint, ligaments and extrinsic muscles of ankle joint, structure and function of subtalar joint, ligaments and muscles of subtalar joint **Structure and function of foot complex** : transverse tarsal joint structure and function, tarsometatarsal joint structure and function, metatarsophalangeal Joint,Structure and function, interphalangeal Joints, plantar arches, intrinsic musculature of foot	**14hrs**

UNIT-IV	**Posture** : static and dynamic posture, kinetics and kinematics of posture, effects of gravity and the location of the gravity line in the sagittal plane in optimal posture, analysis of posture with respect to the optimal alignment of joints in the anteroposterior and lateral views, position of hip knee and ankle joints in optimal erect posture, postural deviations, effect of the postural deviations on body structure ligaments joints and muscles **Analysis of posture** : optimal posture, analysis of standing posture, effects of various factors on posture **Gait** : kinematics of Gait, kinetics of gait, kinetics and kinematics of trunk and upper extremity, stair and running gait, effects of various factors on gait, abnormal gaits	**14hrs**

Course Outcomes

BPT2407.1	To enhance the critical analysis of applying and integrating the analysis of forces on diagnosing various disorders
BPT2407.2	Understanding the concepts and principles of biomechanics
BPT2407.3	Analyzing the application of concepts and principles of biomechanics in musculoskeletal function and dysfunction.
BPT2407.4	Applying concepts of anatomy and mechanics to the joint motion, gait and posture

Recommended Books: 1. JOINT STRUCTURE AND FUNCTION- A COMPREHENSIVE ANALYSIS by CYNTHIA C NORKIN, F.A. DAVIS COMPANY

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: BIOMECHANICS AND KINESIOLOGY-II LAB

SUBJECT CODE: BPT2408

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	3	1.5

SEMESTER: IV

CONTACT HOURS/WEEK: 3

Internal Assessment: 30

End Term Exam: 70

Duration of Exam; 3 Hrs

Course Objectives: Through this course students should be able to

- Analyze the Bio-mechanical aspect of Lower Limb Joints
- Extend the knowledge to correspond applied aspects of Bio-mechanics with Patient's findings
- Predict various abnormal deviations of posture and gait from normal parameters.

Sr. No	List of Practical's / Experiments:	Contact Hours
Exp 1	**Hip joint** • demonstration of structure and functions of hip joint • demonstration of hip joint forces and muscle function in unilateral and bilateral stance	**3 hrs**
Exp 2	**Knee joint** • demonstration of kinematic and kinetics of tibiofemoral joint and to assess the Q angle of knee • demonstration of the kinematic and kinetics of patella on femoral condyle during knee movements	**3 hrs**
Exp 3	**Ankle complex** • demonstration of arthrokinematics and osteokinematics of ankle joint • demonstration of functions of ankle joint	**3hrs**
Exp 4	**Foot complex** • demonstration of structure and functions of transverse tarsal joint • demonstration of structure and function of tarsometatarsal and metatarsophalangeal joint	**3hrs**
Exp 5	**Posture** • demonstration of assessment of optimal posture deviations from normal posture and effects of abnormal posture on human body • demonstration of kinematics and kinetics of posture	**3hrs**
Exp 6	**Gait** • demonstration of kinematics and kinetics of gait cycle • demonstration of the role of upper extremity and trunk during gait and effect of lower extremity dysfunctions on gait	**3hrs**

Course Outcomes

BPT2408.1	Identifying gait parameters, abnormal gait and abnormal posture of various body systems.
BPT2408.2	Demonstratingmovementanalysisandmuscleinsufficiencies
BPT2408.3	Applyingtheconcepts ofaxisandplanes of anatomicalstructures
BPT2408.4	To make the students understand about the analysis of forces acting on various joints.

Recommended Books: 1. JOINT STRUCTURE AND FUNCTION- A COMPREHENSIVE ANALYSIS by CYNTHIA C NORKIN, F.A. DAVIS COMPANY

SUBJECT TITLE: PHYSIOTHERAPY IN MEDICAL AND SURGICAL CONDITIONS
SUBJECT CODE: BPT3505

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
3	0	0	3

SEMESTER: V
CONTACT HOURS/WEEK: 3

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs
Objective of course: Through this course students should be able to
• Learn the physiotherapy management in general medical and surgical conditions
• Analyze the role of Physiotherapy in Cancer care and Pain management
• Understand physiotherapy management in various systemic disorder

Sr. No	Contents	Contact Hours
UNIT-I	**Physiotherapy management in inflammation, healing and repair** : Acute inflammation, chronic inflammation and edema, acute sports injuries, accelerating healing process, introduction to modalities used in promoting healing, examination, evaluation and physiotherapy intervention of wounds	**14hrs**
UNIT-II	**Physiotherapy management of systemic and metabolic disorder :** Diabetes mellitus, hypertension, osteoporosis, obesity, metabolic syndrome, rickets, osteomalacia, scurvy, systemic lupus erythromatous, fibromyalgia, hyper and hypo thyroidism, osteogenesisimperfecta, marfan's syndrome, AIDS	**12hrs**
UNIT-III	**Physiotherapy management of Integumentary conditions :** Psoriasis, acne, leucoderma, alopecia, leprosy, syphillis, herpes, dermatomyositis, gangrene, pressure sores and ulcers, burns and plastic surgery, care of skin grafts and flaps **Physiotherapy management of general surgical conditions :** Common abdominal surgeries, appendectomy, colecystectomy, cystectomy, colostomy, prostectomy, nephrectomy	**14hrs**
UNIT-IV	**Physiotherapy management in transplant medicine :** Transplant of kidney and liver **Physiotherapy management in psychiatric disorders :** Principles, dementia, depression, alzhiemer's, anxiety, schizophrenia, attention deficit disorder, stress Physiotherapy management of hematological disorder : hemophilia, thalasemia, anaemia	**14hrs**

Course Outcomes

BPT3505.1	Learn the physiotherapy management in general medical and surgical conditions
BPT3505.2	• Analyze the role of Physiotherapy in Cancer care and Pain management
BPT3505.3	• Understand physiotherapy management in various systemic disorder
BPT3505.4	Applyingtheknowledgeofvariousdisease/surgicalconditionsduringassessmentofpatient.

Recommended Books: 1.TIDY'S PHYSIOTHERAPY by STUART B. PORTER, CHURCHILL LIVINGSTONE
2. CASH TEXTBOOK OF GENERAL MEDICAL AND SURGICAL CONDITIONS FOR PHYSIOTHERAPISTS by P. A. DOWNIE, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.
Instruction of Question Paper setter: The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: ORTHOPEDICS-I
SUBJECT CODE BPT3501

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
3	0	0	3

SEMESTER: V
CONTACT HOURS/WEEK: 3

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs

Objective and outcome of course: Through this course students should be able to

- Understandthe conceptsof orthopedicdiagnosisand tools to analysedisorders
- Understandthe basic rulesof managementof orthopedicdisorders
- Analysethe differentsoft tissueinjuriesand injuriesto peripheralnerves
- Evaluate the injuries of various musculoskeletal disorders and fractures and effectively manage them
- Enumerate the principles and procedures of amputation and various orthopedic surgeries

Sr. No	Contents	Contact Hours
UNIT-I	**Diagnosis in orthopedics :** history, examination, neurological examination, physical variations and deformities, examining infants and children, diagnostic imaging, blood tests, synovial fluid analysis, bone biopsy. **Fractures :** definition, classification of fractures, fracture healing, complications of fractures, management. **Subluxation and dislocation :** classification, complications and treatment.	**12hrs**
UNIT-II	**Injuries of the shoulder, upper arm and elbow :** fracture of clavicle, AC joint injuries, shoulder dislocation, fracture proximal humerus, fracture shaft of humerus, supracondylar fracture of humerus, elbow dislocation, subluxation of radial head, side swipe injury of the elbow. **Injuries of forearm and wrist :** fractures of radius and ulna, Monteggia fracture, Galeazzi fracture, Colle's fracture, Barton's fracture, scaphoid fracture, chauffeur fracture. **Hand Injuries :** metacarpal fractures, Bennett's fracture-dislocation, carpo-metacarpal injuries, Pilon fractures of the middle phalanx.	**14hrs**
UNIT-III	**Injuries of spine and pelvic complex :** pathophysiology of spine injuries, mechanism of injury, principles of diagnosis and initial management, cervical spine injuries, thoracolumbar injuries, fracture of rib cage, neural injuries, fracture of pelvis. **Injuries of hip and femur :** dislocation of hip, fractures of femoral neck, Intertrochanteric fractures, subtrochanteric fractures, femoral shaft fractures, supracondylar fractures of femur. **Injuries of knee and leg :** fractured tibial spine, dislocation of knee, patella fracture, dislocation of patella, tibial plateau fracture, fractures of tibia and fibula, fracture of tibia. **Injuries of ankle and foot :**malleolar fractures of the ankle, Pilon fractures, injuries of talus, fractures of the calcaneum, march fracture, fractured toes, Jone's fracture, Maisonneuve's fracture.	**14hrs**
UNIT-IV	**Soft tissue injuries :** sprain, strain, contusion, tendinitis, tenosynovitis, tendinosis, bursitis, ligament injuries of knee, meniscal injuries of knee, lateral ankle sprain, wrist sprain, quadriceps and hamstring strain, quadriceps, gluteal, calf, deltoid contusions, achilles tendon rupture, rotator cuff muscle tear, PASTA lesion, biceps tendon injury. **Peripheral nerve injuries :** pathology, classification of nerve injuries, clinical features, assessment, principles of management, brachial plexus injuries, axillary nerve injury, radial nerve, ulnar nerve, median nerve, femoral nerve, sciatic nerve, peroneal nerve, tibial nerve.	**14hrs**

	Amputation: definition, level(upper and lower limb), indications, contraindications. **OrthopaedicSurgeries :** arthrodesis, arthroplasty, osteotomy, spinal stabilization.	

Course Outcomes

BPT3501.1	Understandthe conceptsof orthopedicdiagnosisand tools to analyzedisorders
BPT3501.2	Understandthe basic rulesof management of orthopedicdisorders
BPT3501.3	Analyzethe differentsoft tissueinjuriesand injuriesto peripheralnerves
BPT3501.4	Evaluate the injuries of various musculoskeletal disorders and fractures and effectively manage them

Recommended Books: 1. ESSENTIAL ORTHOPAEDICS by J MAHESHWARI, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.
2. APLEY'S CONCISE SYSTEM OF ORTHOPAEDICS AND FRACTURES by LOUIS SOLOMON, SELVADURAI NAYAGAM, DAVID J. WARWICK,, HODDER ARNOLD PUBLICATION

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: NEUROLOGY-I
SUBJECT CODE: BPT3503

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
3	0	0	3

SEMESTER: V
CONTACT HOURS/WEEK: 3

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs

Objective of course: Through this course students should be able to
• Relate the neuro-anatomical structures and its functions relevant to the clinical manifestation of neurological disorders
• Apply basic neurological examination procedures relevant to the neurological disorders
• Describe the conservative medical and surgical management to the specific neurological disorders

Contents of Syllabus:

Sr. No	Contents	Contact Hours
I	**Introduction, clinical features, pathophysiology, etiology and impairments of STROKE.** **Introduction, clinical features, pathophysiology and impairments in** traumatic brain injury and Spinal cord injury.	**12hrs**

II	**Demyelinating and degenerating disorders of nervous system : Introduction, clinical features, pathophysiology and impairments in** multiple sclerosis, parkinsonism, transverse myelitis, ADEM disease, Guillain – Bare syndrome, motor neuron disease(ALS)	**12hrs**
III	**Infectious disorders of the nervous system:Introduction, clinical features, pathophysiology and impairments in** meningitis, encephalitis, tuberculosis infection of brain and spine, poliomyelitis.	**12hrs**
IV	**Congenital and developmental disorders of nervous system :** **Introduction, clinical features, pathophysiology and impairments** incerebral palsy, autism, Down's syndrome, spina bifida, hydrocephalus	**12hrs**

Course Outcomes

BPT3503.1	Relate the neuro-anatomical structures and its functions relevant to the clinical manifestation of neurological disorders
BPT3503.2	Apply basic neurological examination procedures relevant to the neurological disorders
BPT3503.3	Describe the conservative medical and surgical management to the specific neurological disorders
BPT3503.4	Summarizingtheknowledgeofvariousneurologicaldiseaseconditions; Theiridentificationandmanagement.

Recommended Books: 1. NEUROLOGY AND NEUROSURGERY ILLUSTRATED by KENNETH LINDSAY, IAN BONE, GERAINT FULLER, CHURCHILL LIVINGSTONE

2. BICKERSTAFF'S NEUROLOGICAL EXAMINATION IN CLINICAL PRACTICE by KAMESHWAR PRASAD, RAVI YADAV, JOHN SPILLANE, WILEY

3. ADAMS AND VICTOR'S PRINCIPLES OF NEUROLOGY by ALLAN H. ROPPER, MARTIN SAMUALES, MC GRAW HILL

4. CLINICAL NEUROANATOMY by RICHARD S. SNELL, WOLTERS KLUWER

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: PHYSIOTHERAPY IN MEDICAL AND SURGICAL CONDITIONS LAB
SUBJECT CODE: BPT3506

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	2	1

SEMESTER: V
CONTACT HOURS/WEEK: 2

Internal Assessment: 30
End Term Exam: 70
Duration of Exam; 3 Hrs

Course Objectives: Through this course students should be able to

- Explore, assess and plan physiotherapy management of general medical and surgical conditions
- Understand the role of exercise therapy in systemic and metabolic disorders
- Analyze the physiotherapeutic approach to cancer patients and pain management

List of Practicals / Experiments:

Sr. No	Contents	Contact Hours
EXP 1	Demonstrate and explain physiotherapy assessment in general medical and surgical conditions.	4 hrs
EXP 2	Demonstrate and explain physiotherapy management in inflammation, healing and repair.	4 hrs
EXP 3	Demonstrate and explain physiotherapy management in various systemic conditions and metabolic disorders.	4 hrs
EXP 4	Demonstrate and explain physiotherapy management of Integumentory conditions.	4 hrs
EXP 5	Demonstrate and explain physiotherapy management for burns and pressure sores.	4 hrs
EXP 6	Demonstrate and explain assessment for various surgical conditions and physiotherapy management after abdominal surgeries.	4 hrs
EXP 7	Demonstrate and explain pre and postoperative physiotherapy assessment and management of patients with kidney and liver transplant.	4 hrs
EXP 8	Demonstrate and explain physiotherapy management of cancer patients.	4 hrs
EXP 9	Demonstrate and explain physiotherapy assessment and management of psychiatric patients.	4 hrs
EXP 10	Demonstrate and explain physiotherapy management for various hematological conditions.	4 hrs

Course Outcomes

BPT 3506.1	Describing the influence of social and environmental factors on health of individual and society
BPT 3506.2	Analyzing the methods of preventing and managing common conditions
BPT 3506.3	Designing the methods to rehabilitate patients with various disorders
BPT 3506.4	Interpreting the principles of upper limb and lower limb prosthesis, orthotics and splints

Recommended books: 1. TIDY'S PHYSIOTHERAPY by STAURT PORTER, CHURCHILL LIVINGSTONE
2. CASH'S TEXTBOOK OF GENERAL MEDICAL AND SURGICAL CONDITIONS FOR PHYSIOTHERAPISTS by JOAN E. CASH, P.A. DOWNIE, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.
3. PHYSICAL REHABILITATION by SUSAN B O SULLIVAN, THOMAS J SCHMITZ, F.A. DAVIS COMPAN

SUBJECT TITLE: COMMUNITY MEDICINE AND REHABILITATION
SUBJECT CODE: BPT3507

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
3	0	0	3

SEMESTER: V
CONTACT HOURS/WEEK: 2

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs
Objective of course: Through this course students should be able to
• Describe the influence of social and environmental factors on the health of the individual and society
• Analyze the methods of preventing and managing common conditions
• Design the methods to rehabilitate patients with various disorders
• Interpret the principal of upper limb and lower limb prosthesis
Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Health and Disease :** concepts, dimensions and indications of health, concept of well-being, spectrum and determinants of Health, Concept and natural history of Disease, concepts of disease control and prevention, modes of Intervention, Population Medicine, The role of socio-economic and cultural environment in health and disease. **Epidemiology, definition and scope :** Principles of epidemiology and epidemiological methods, components and aims, basic measurements, methods, uses of Epidemiology, infectious disease epidemiology, dynamics and modes of disease transmission, host defenses and Immunizing agents, hazards of immunization, disease prevention and control,, disinfection. Screening for disease, concept of screening, aims and objectives, uses and types of screening.	**9hrs**
UNIT-II	**Epidemiology of communicable disease :** respiratory infections, intestinal infections, arthropodborne infections, zoonoses, surface infections, hospital acquired infections, epidemiology of chronic non-communicable diseases and conditions like Cardio vascular diseases: Coronary heart disease, Hypertension, Stroke, Rheumatic heart disease, Cancer, Diabetes, 0besity, Blindness, Accidents and Injuries	**9hrs**
UNIT-III	**Public health administration :** an overview of the health administration set up at Central and state levels, The national health programme-highlighting the role of social, economic and cultural factors in the implementation of the national programmes, health problems of vulnerable groups- pregnant and lactating women, infants and pre-school children, occupational groups Health programmes in India : vector borne disease control programme, national leprosy eradication programme, national tuberculosis programme, national AIDS control programme, national programme for control of blindness, iodine deficiency disorders (IDD) programm, universal Immunisationprogramme, reproductive and child health programme, national cancer control programme, national mental health programme, national diabetes control programme, national family welfare programme, national sanitation and water supply programme, minimum needs programme **Mental Health :** characteristics of a mentally healthy person, types of mental illness, causes of mental ill health, prevention, mental health services, alcohol and drug dependence, emphasis on community aspects of mental	**9hrs**

	health, role of Physiotherapist in mental health problems such as mental retardation **Health Education :** concepts, aims and objectives, approaches to health education, models of health education, contents of health education, principles of health education, practice of health education	
UNIT-IV	**Principles of U.L. Prosthetics and Orthotics :** definitions of various terminologies in prosthetics, various materials used in prosthetics, components of prosthesis in general, historical development in upper extremity prosthetics, upper extremity components of prosthesis, grasp patterns, grasp forces and mechanical replacement of hand function, general principles of orthosis, various materials used in orthotics, indications & complications of orthoses **Principles of L.L. Prosthetics and Orthotics :** historical development in lower extremity prosthetics, lower extremity components of prosthesis, socket and suspension system, syme's Prosthesis, PTB prosthesis, fitting and alignment technique, calipers, new inventions in the field of orthosis& prosthesis **Spinal orthosis :** types of Spinal orthosis, milwaukee brace, lumbosacral orthosis, splints	**9hrs**

Course Outcomes

BPT3507.1	Learn the physiotherapy management in general medical and surgical conditions
BPT3507.2	• Analyze the role of Physiotherapy in Cancer care and Pain management
BPT3507.3	• Understand physiotherapy management in various systemic disorder
BPT3507.4	Applyingtheknowledgeofvariousdisease/surgicalconditionsduringassessment ofpatient.

Recommended Books: 1.TEXTBOOK OF REHABILITAION BY S SUNDER, .by S SUNDER, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.

2. PHYSICAL REHABILITATION by SUSAN B. O'SULLIVAN, F.A. DAVIS COMPANY

3. ORTHOTICS IN REHABILITATION SPLINTING THE HAND AND BODY by MCKEE PAT, F.A. DAVIS COMPANY

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: COMMUNITY MEDICINE AND REHABILITATION LAB
SUBJECT CODE: BPT3508

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	2	1

SEMESTER: V
CONTACT HOURS/WEEK: 1

Course Objectives: Through this course student should be able to

- interpret the aims and objectives of
- rehabilitation
- Design the rehabilitation protocol of patients suffering from various diseases.
- Validate the use of ADL activity and assistive devices
- Comprehend application and function of upper limb and lower limb orthosis and prosthesis

S.No.	LIST OF PRACTICALS / EXPERIMENTS	Hours
EXP1.	**Activity of daily living equipments** : To study about the basic equipments of ADL's for rehabilitation of diferently abled	4 Hours
EXP2.	**Assistive and Adaptive devices :** To study about the assistive and adaptive devices used for rehabilitation of diferently abled.	4 Hours
EXP3.	**Basic transfer activity :** To study about the basic transfer activities from bed and chair to floor	4 Hours
EXP4.	**Dressing activity :** To study the basic techniques and modifications in dressing activity for differently abled people	4 Hours
EXP5.	**Wheel Chair transfer :**To study the to and fro wheelchair transfer techniques. **Wheel chair Manoeuver 1 :** To study the forward , backward and sideways propelling of the wheelchair. **Wheel chair Manoeuver 2 :** To study the wheelie and hurdle clearance using wheelchair	4 Hours
EXP6.	**Hand rehabilitation :** To study the techniques of hand rehabilitation and their clinical application.	4 Hours
EXP7.	**Psychiatry assessment :** To study the assessment of psychiatric disorders.	4 Hours
EXP8.	**Hand rehabilitation :** To study the techniques of hand rehabilitation and their clinical application.	4 Hours

Course Outcomes

BPT3508.1	Through this course students should be able to interpret the aims and objectives of rehabilitation
BPT3508.2	Comprehend application and function of upper limb and lower limb orthosis and prosthesis
BPT3508.3	Design the rehabilitation protocol of patients suffering from various diseases
BPT3507.4	Validate the use of ADL activity and assistive devices

RECOMMENDED BOOKS: 1. PREVENTIVE AND COMMUNITY MEDICINE by BRIAN MACMAHOR, DUNCAN.
2. PHYSICAL REHABILITATION by SUSAN B. O'SULLIVAN, THOMAS J. SCHMITZ, F.A. DAVIS COMPAN
3. TEXTBOOK OF REHABILITAION by S SUNDER, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD

.

SUBJECT TITLE: ORTHOPEDICS-I LAB
SUBJECT CODE BPT3502

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	2	1

SEMESTER: V
CONTACT HOURS/WEEK: 3

Internal Assessment: 30
End Term Exam: 70
Duration of Exam; 3 Hrs
Objective and outcome of course: Through this course students should be able to

- Understand the concepts of orthopedic diagnosis and tools to analyse disorders
- Understand the basic rules of management of orthopedic disorders
- Evaluate the injuries of various musculoskeletal disorders and fractures and effectively manage them
- Analyse the different soft tissue injuries
- Enumerate the principles and procedures of assessment and management of an amputee patient.

Contents of Syllabus:

Sr. No	Contents	Contact Hours
EXP 1	**Demonstrate and explain in detail about Orthopedic examination of patient.**	4 hrs
EXP 2	**Demonstrate orthopedic assessment and management of various injuries and fractures of shoulder, upper arm and elbow complex :** fracture of clavicle, AC joint injuries, shoulder dislocation, fracture of proximal humerus, fracture of shaft of humerus, supracondylar fracture of humerus, elbow dislocation, subluxation of radial head, side swipe injury of the elbow.	
EXP 3	**Demonstrate orthopedic assessment and management of various injuries and fractures of forearm and wrist complex :**fractures of radius and ulna, Monteggia fracture, Galeazzi fracture, Colle's fracture, Barton's fracture, scaphoid fracture, chauffeur fracture.	4 hrs
EXP 4	**Demonstrate orthopedic assessment and management of various injuries and fractures of hand :**metacarpal fractures, Bennett's fracture-dislocation, carpo- metacarpal injuries, Pilon fractures of the middle phalanx.	4 hrs
EXP 5	**Demonstrate orthopedic assessment and management of various injuries and fractures of spine and pelvic complex :**cervical spine injuries, thoracolumbar injuries, fracture of rib cage, neural injuries, fracture of pelvis.	4 hrs
EXP 6	**Demonstrate orthopedic assessment and management of various injuries and fractures of hip and femur :**dislocation of hip, fractures of femoral neck, Intertrochanteric fractures, subtrochanteric fractures, femoral shaft fractures, supracondylar fractures of femur.	4 hrs

EXP 7	**Demonstrate orthopedic assessment and management of various injuries and fractures of knee and leg :**fractured tibial spine, dislocation of knee, patella fracture, dislocation of patella, tibial plateau fracture, fractures of tibia and fibula, fracture of tibia.	**4 hrs**
EXP 8	**Demonstrate orthopedic assessment and management of various injuries and fractures of ankle and foot :**malleolar fractures of the ankle, Pilon fractures, injuries of talus, fractures of the calcaneum, march fracture, fractured toes, Jone's fracture, Maisonneuve's fracture.	**4 hrs**
EXP 9	**Demonstrate orthopedic assessment and management of various soft tissue injuries :** sprain, strain, contusion, tendinitis, tenosynovitis, tendinosis, bursitis, ligament injuries of knee, meniscal injuries of knee, lateral ligament of ankle, wrist sprain, quadriceps and hamstring strain, quadriceps, gluteal, calf, deltoid contusions, achilles tendon rupture, rotator cuff muscle tear, PASTA lesion, biceps tendon injury.	**4 hrs**
EXP 10	**Demonstrate and explain assessment and management of an amputee patient.**	**4 hrs**

Recommended Books:

1. Essential orthopaedics by j maheshwari, jaypeebrothers medical publishers pvt.ltd.
2. Apley's concise system of orthopaedics and fractures by louissolomon, selvadurainayagam, david j. warwick,, hodderarnold publication

SUBJECT TITLE: CLINICAL NEUROLOGY-I LAB
SUBJECT CODE: BPT3504

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	**0**	**2**	**1**

SEMESTER: V
CONTACT HOURS/WEEK: 3

Internal Assessment: 30
End Term Exam: 70
Duration of Exam; 3 Hrs
Objective and outcome of course: Through this course students should be able to

• Relate the neuro-anatomical structures and its functions relevant to the clinical manifestation of neurological disorders
• Apply basic neurological examination procedures relevant to the neurological disorders
• Describe the conservative medical and surgical management to the specific neurological disorders

Contents of Syllabus:

Sr. No	Contents	Contact Hours
EXPERIMENT-I	**DEMONSTRATION OF SUBJECTIVE EXAMINATION OF PATIENT WITH cerebrovascular CONDITION.** .	**8hrs**

II	**Demonstration of examination of objective examination of patient with cerebrovascular condition**. Examination of tone. Examination of reflexes.	**8hrs**
III	**Examination of balance and coordination.**	**8hrs**
IV	**Demonstration of different diagnostic tools.** imaging studies, electrophysiological studies, CSF analysis, muscle biopsy, blood reports.	
IV	**Demonstration of examination of patients with Congenital and developmental disorders of nervous system :** cerebral palsy, autism, Down's syndrome, congenital spinal anomalies, hydrocephalus	**8hrs**
V	**Examination of Infectious disorders of the nervous system :** meningitis, encephalitis, lyme disease, HIV infection of brain, syphilis, rabies, tuberculosis infection of brain and spine, poliomyelitis	**8hrs**

Recommended Books: 1. NEUROLOGY AND NEUROSURGERY ILLUSTRATED by KENNETH LINDSAY, IAN BONE, GERAINT FULLER, CHURCHILL LIVINGSTONE

2. BICKERSTAFF'S NEUROLOGICAL EXAMINATION IN CLINICAL PRACTICE by KAMESHWAR PRASAD, RAVI YADAV, JOHN SPILLANE, WILEY

3. ADAMS AND VICTOR'S PRINCIPLES OF NEUROLOGY by ALLAN H. ROPPER, MARTIN SAMUALES, MC GRAW HILL

4. CLINICAL NEUROANATOMY by RICHARD S. SNELL, WOLTERS KLUWER

SUBJECT TITLE: ORTHOPEDICS-II
SUBJECT CODE: BPT3601

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
3	0	0	3

SEMESTER: VI
CONTACT HOURS/WEEK: 3

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs

Objective of course: Through this course students should be able to

- Identify the infective, inflammatory and degenerative diseases.
- Define regional conditions of upper limb
- Review various conditions of lower limb
- Discuss various conditions of spine
- Outline the regional deformities
- Understandabout varioustumorsand geneticdisorders
- Understandvariousrheumatologicalailmentsand metabolicdisorders

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Infections :** Osteomyelitis(Acute, Chronic), Broodi's Abscess, TB of Spine, Hip, Knee, Shoulder, Elbow, Leprosy **Inflammation and degenerative conditions :** still's disease, Charcot's joint, Haemophylitic arthritis.	**14hrs**
UNIT-II	**Regional conditions of Shoulder, Elbow, Hand and wrist :** adhesive capsulitis, Rotator cuff tendinitis, supraspinatus tendinitis, infraspinatus tendinitis, bicipital tendinitis, subacromial bursitis, tennis elbow, golfer's elbow, olecranon bursitis, triceps tendinitis, de quervian tenosynovitis, ganglion, trigger finger and thumb, mallet finger, carpel tunnel syndrome, dupuytren's contracture **Regional conditions in Spine. :** PIVD, spinal stenosis, cervical and lumbar spondylosis, spondylolisthesis, lumbago/lumbosacral strain, sacralisation, lumbarisation, coccydinea, hemivertebra, scoliosis	**14hrs**
UNIT-III	**Regional conditions of Pelvic, Hip, Knee and Ankle :** IT band syndrome, piriformis syndrome, trochantric bursitis, osteochondritisdissecans, patellofemoral pain syndrome, plantar fascitis/calcaneal spur, tarsal tunnel syndrome, achillis tendinitis, metatarsalgia, morton's neuroma.	**14hrs**
UNIT-IV	**Deformities :** CTEV, CDH, torticolis, flat foot, vertical talus, lordosis, kyphosis, upper cross syndrome, lower cross syndrome, arthrogryposis multiplex congenita, osteogenesisimperfecta, cervical rib, genu valgum, genu varum, genu recurvatum, coxavara, coxavalga, hammer toe, metatarsalgia **Rheumatic disorders :** osteoarthritis, rheumatoid arthritis, systemic lupus erythematosus, spondyloarthropathies, fibromyalgia Crystal deposition disorders : gout, pseudogout, calcium phosphate crystal deposition disease **Metabolic and endocrine disorders :** osteoporosis, rickets, osteomalacia, hyperparathyroidism, scurvy, Paget's disease, hyperpituitarism, cushing's syndrome **Tumours :** classification, clinical presentation, staging of bone tumours, differential diagnosis, principle of management, non ossifying fibroma, osteoid osteoma, osteoblastoma, chondroma, osteochondroma, chondrosarcoma, osteosarcoma, reticulum cell sarcoma, multiple myeloma **Genetic disorders, skeletal dysplasias and malformations** : Marfan's syndrome, osteogenesisimperfecta, neurofibromatosis, down's syndrome, radio-ulnar synostosis, congenital short femur, congenital tibial bowing	**14hrs**

Course Outcomes

BPT3601.1	Identifying the infective, inflammatory and degenerative diseases.
BPT3601.2	Discussing various conditions of spine
BPT3601.3	Defining various regional conditions of upper limb
BPT3601.4	Reviewing various conditions of lower limb

Recommended Books: 1.APLEY'S SYSTEM OF ORTHOPAEDICS AND FRACTURES by LOUIS SOLOMON, HODDER ARNOLDPUBLICATION
2. ESSENTIALS OF ORTHOPAEDICS AND APPLIED PHYSIOTHERAPY by JAYANT JOSHI PRAKASH KOTWAL, ELSEVIER
3. ESSENTIALS OF ORTHOPAEDICS FOR PHYSIOTHERAPISTS by JOHN EBNEZAR, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.
4. ESSENTIAL ORTHOPAEDICS by J MAHESHWARI, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: NEUROLOGY-II
SUBJECT CODE: BPT 3603

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
3	0	0	3

SEMESTER: VI
CONTACT HOURS/WEEK: 3

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs
Objective of course: Through this course students should be able to
• Explain the clinical background, assessment and medical management of various neurological disorders
• Demonstrate the assessment skills relevant to the various neurological disorders
• Analyze the differential diagnosis and medical management of various neurological disorders
Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Disorders of the cerebellum& basal ganglia:definition, etiology, pathophysiology, classification, clinical signs and symptoms, investigation & differential diagnosis of:** Cerebellar infarction, Cerebellar hemorrhage, Tumors of the cerebellum, cerebellar degeneration, Arnold chairi malformation, Dandy Walker Malformation, Fried Reich's ataxia, Hereditary Cerebellar Ataxia. Involuntary movements- Dystonia, Athetosis, Chorea, Hemiballismus etc.	**12hrs**
UNIT-II	**Peripheral neuropathies :definition, etiology, pathophysiology, classification, clinical signs and symptoms, investigation, differential diagnosis**, management of polyneuropathies, hereditary motor sensory neuropathy, autonomic neuropathy, amyloid neuropathy	**12hrs**
UNIT-III	**Peripheral nerve injuries in the upper extremity & Lower extremities :definition, etiology, pathophysiology, classification, clinical signs and symptoms, investigation & differential diagnosis** of brachial plexus injury, axillary nerve injury, musculocutaneous nerve injury, radial	**12hrs**

	nerve injury, median nerve injury, ulnar nerve injury, common entrapment neuropathies in the upper extremity Lumbosacral plexus, sciatic nerve injury, femoral nerve injury, obturator nerve injury, tibial nerve injury, common peroneal nerve injury, common entrapment neuropathies in the lower extremity	
UNIT-IV	**Disorders of the muscles and neuromuscular junction:** definition, etiology, pathophysiology, classification, clinical signs and symptoms, investigation, differential diagnosis of muscular dystrophies, polymyositis, dermatomyositis, spinal muscular atrophy, myasthenia gravis, lambert Eaton syndrome.	**12hrs**

Course Outcomes

BPT3603.1	Assessment and management of regional conditions of upper limb and lower limb
BPT3603.2	Assessment and management of various deformities of upper limb and lower limb
BPT3603.3	Assessment and management of metabolic and endocrine disorders
BPT3603.4	Examination and management of Genetic disorders and skeletal dysplasias

Recommended Books: 1. NEUROLOGY AND NEUROSURGERY ILLUSTRATED by KENNETH W LINDSAY, CHURCHILL LIVINGSTONE

2. BRAIN DISEASE OF NERVOUS SYSTEM by DONAGH MICHAEL, OXFORD UNIVERSITY PRESS

3. ADAMS VICTOR'S PRINCIPLES OF NEUROLOGY by ASLLON H. ROPPER, M.G.Hills

4. BRAIN AND BANNISTER'S CLINICAL NEUROLOGY by SIR ROGER BANNISTER, OXFORD UNIVERSITY PRESS

3. BICKERSTAFF'S NEUROLOGICAL EXAMINATION IN CLINICAL PRACTICE by JOHN SPILLANE, BLACKWELL PUBLISHING

5. DEJONG'S THE NEUROLOGICAL EXAMINATION by CAMPBELL, LIPPINCOTT WILLIAMS & WILKINS

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: ORTHOPEDIC PHYSIOTHERAPY-I
SUBJECT CODE: BPT3605

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
3	0	0	3

SEMESTER: VI
CONTACT HOURS/WEEK: 3

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs

Objective of course: Through this course students should be able to
- Identify the various orthopedic ailments in upper and lower limbs
- Justify the role of physiotherapist in emergency care
- Describe the physiotherapy management for soft tissue injuries

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Introduction to physiotherapy in orthopedics and traumatology :** clinical examination of an orthopedic patient, radiological techniques in orthopedics, role of physiotherapy in orthopedics, define rehabilitation, principles of rehabilitation, inpatient and outpatient rehabilitation, role of physiotherapist in emergency care.	**12hrs**
UNIT-II	**Physiotherapy assessment and management of upper limb injuries :** fracture of clavicle, fracture of scapula, neck of humerus fracture, shaft of humerus fracture, dislocation and subluxation of acromioclavicular joint, dislocation of shoulder, supracondylar fracture of humerus, dislocation of elbow joint, radial head fracture, olecranon fracture, fracture both bones of forearm, Monteggia fracture, Galeazzi fracture, Smith fracture, Barton's fracture, Colles fracture, scaphoid fracture, Bennet's fracture, Rolando's fracture, carpometacarpal dislocations.	**14hrs**
UNIT-III	**Physiotherapy assessment and management of lower limb injuries :** neck of femur fracture, subtrochanteric fracture, trochanteric fracture, dislocation of hip joint, shaft of femur fracture, supracondylar fracture of femur, proximal tibial and fibula fracture, Pilon fracture, ankle fracture, calcaneum fracture, talus fracture, Jone's fracture, march fracture, lisfranc injuries, ankle dislocation.	**14hrs**
UNIT-IV	**Physiotherapy assessment and management of soft tissue injuries nerve injuries and congenital disorders :** sprain, strain, bursitis, torticollis, tendon injuries, peripheral nerve injuries, sprengel deformity, congenital dislocation of hip, congenital talipesequinovarus **Physiotherapy assessment and management of degenerative diseases metabolic bone diseases and bone tumours :**periarthritis, osteoarthritis, gouty arthritis, rheumatoid arthritis, rickets, osteomalacia, bone tumors.	**14hrs**

Course Outcomes

BPT3606.1	Demonstrating various immobilization techniques followed by orthopedic injuries
BPT3606.2	Differentiating the soft tissue injuries by using appropriate special tests
BPT3606.3	Interpreting the results obtained from orthopedic physiotherapy examination
BPT3606.4	Teaching proper self exercises to prevent complications of immobilization

Recommended Books: 1. ESSENTIALS OF ORTHOPAEDICS FOR PHYSIOTHERAPIST by JOHN EBNEZAR, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.
2. ESSENTIALS OF ORTHOPEDICS AND APPLIED PHYSIOTHERAPY by JAYANT JOSHI AND PRAKASH KOTWAL, ELSEVIER

SUBJECT TITLE: NEURO PHYSIOTHERAPY-I
SUBJECT CODE: BPT3607

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
3	0	0	3

SEMESTER: VI
CONTACT HOURS/WEEK: 3

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 hrs

Objective of course: Through this course students should be able to

- Identify the appropriate neurological examination procedures used in central nervous system disorders
- Apply the various assessment principles in the central nervous system disorders
- Formulate the physical therapy diagnosis for various neurological diseases
- Analyze the various physiotherapy treatment techniques used in central nervous system disorders
- Evaluate the effectiveness of various treatment technique used in central nervous system disorders
- Justify the application of various physiotherapy treatment techniques used in central nervous system disorders

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Strategies to improve motor functions & sensory functions. Physiotherapy management in cerebrovascular accidents- STROKE, TBI and SCI.**	**12hrs**
UNIT-II	**Physiotherapy management in Demyelinating and degenerating disorders of nervous system :** multiple sclerosis, parkinsonism, ALS, transverse myelitis, ADEM disease, Guillain – Bare syndrome, motor neuron disease	**14hrs**
UNIT-III	**Physiotherapy management in Congenital and developmental disorders of nervous system :** cerebral palsy, autism, Down's syndrome, spina bifida, hydrocephalus	**14hrs**

UNIT-IV	**Physiotherapy management in Infectious disorders of the nervous system :** meningitis, encephalitis, tuberculosis infection of brain and spine, poliomyelitis.	**12hrs**

Course Outcomes

BPT3607.1	Explain the clinical background, assessment and medical management of various neurological disorders
BPT3607.2	Demonstrate the assessment skills relevant to the various neurological disorders
BPT3607.3	Analyze the differential diagnosis and medical management of various neurological disorders
BPT3607.4	Analyze the differential diagnosis and medical management of various neurological disorders

Recommended Books: 1. CASH'S TEXTBOOK OF NEUROLOGY FOR PHYSIOTHERAPISTS by PATRICIA A. DOWNIE, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.
2. PHYSICAL REHABILITATION by SUSAN B. O'SULLIVAN, THOMAS J. SCHMITZ, F.A. DAVIS COMPANY
3. NEUROLOGICAL REHABILITATION by DARCY ANN UMPHRED, MOSBY (ELSEVIER)

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: ORTHOPEDICS-II LAB
SUBJECT CODE: BPT 3602

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	2	1

SEMESTER: VI
CONTACT HOURS/WEEK: 3

Internal Assessment: 30
End Term Exam: 70
Duration of Exam; 3 Hrs
Objective of course:
Through this course students should be able to

- Identify the infective, inflammatory and degenerative diseases.
- Define regional conditions of upper limb
- Review various conditions of lower limb
- Discuss various conditions of spine
- Outline the regional deformities

Contents of Syllabus

Sr. No	Contents	Contact Hours

EXP I	**ASSESSMENT AND MANAGEMENT OF REGIONAL CONDITIONS OF SHOULDER:** adhesive capsulitis, Rotator cuff injury, supraspinatus tendinitis, infraspinatus tendinitis, bicipital tendinitis, subacromial bursitis	**4hrs**
EXP II	**ASSESSMENT AND MANAGEMENT OF REGIONAL CONDITIONS OF ELBOW:** tennis elbow, golfer's elbow, olecranon bursitis, triceps tendinitis,	**4hrs**
EXP III	**ASSESSMENT AND MANAGEMENT OF REGIONAL CONDITIONS OF HAND AND WRIST:** De quervian tenosynovitis, ganglion, trigger finger and thumb, mallet finger, Carpel tunnel syndrome, Dupuytren's contracture	**4hrs**
EXP IV	**ASSESSMENT AND MANAGEMENT OF REGIONAL CONDITIONS OF SPINE:** PIVD, spinal stenosis, cervical and lumbar spondylosis, spondylolisthesis, lumbago/lumbosacral strain, sacralisation, lumbarisation, coccydinea, hemivertebra, scoliosis	**4hrs**
EXP V	**ASSESSMENT AND MANAGEMENT OF REGIONAL CONDITIONS OF PELVIC AND HIP**: IT Band Syndrome, Piriformis Syndrome, trochantric bursitis, osteochondritisdissecans.	**4hrs**
EXP VI	**ASSESSMENT AND MANAGEMENT OF REGIONAL CONDITIONS OF KNEE, ANKLE AND FOOT** patellofemoral pain syndrome, plantar fasciitis, calcaneal spur, tarsal tunnel syndrome, achillis tendinitis, metatarsalgia, morton's neuroma	**4hrs**
EXP VII	**ASSESSMENT AND MANAGEMENT OF DEFORMITIES :** CTEV, CDH, torticolis, flat foot, vertical talus, lordosis, kyphosis, upper cross syndrome, lower cross syndrome, arthrogryposis multiplex congenita, osteogenesisimperfecta, cervical rib, genu valgum, genu varum, genu recurvatum, coxavara, coxavalga, hammer toe, metatarsalgia.	**4hrs**
EXP VIII	**ASSESSMENT AND MANAGEMENT OF METABOLIC AND ENDOCRINE DISORDERS :** osteoporosis, rickets, osteomalacia, hyperparathyroidism, scurvy, Paget's disease, hyperpituitarism, cushing's syndrome	**4hrs**
EXP IX	**Examination And Management of Genetic disorders, skeletal dysplasias and malformations :** Marfan's syndrome, osteogenesisimperfecta, neurofibromatosis, down's syndrome, radio-ulnar synostosis, congenital short femur, congenital tibial bowing	**4hrs**

BPT3602.1	Identifying various orthopedic ailments in upper and lower limbs
BPT3602.2	Describing the physiotherapy management for soft tissue injuries
BPT3602.3	Justifying the role of physiotherapist in emergency care
BPT3602.4	Analyzing various degenerative diseases of bones and their physiotherapy management

Recommended Books:

1. ESSENTIALS OF ORTHOPAEDICS FOR PHYSIOTHERAPIST by JOHN EBNEZAR, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.

2. ESSENTIALS OF ORTHOPEDICS AND APPLIED PHYSIOTHERAPY by JAYANT JOSHI AND PRAKASH KOTWAL, ELSEVIER

SUBJECT TITLE: NEUROLOGY-II LAB
SUBJECT CODE: BPT 3604

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	2	1

SEMESTER: VI
CONTACT HOURS/WEEK: 3

Internal Assessment: 30
End Term Exam: 70
Duration of Exam; 3 Hrs
Objective of course: Through this course students should be able to
• Explain the clinical background, assessment and medical management of various neurological disorders
• Demonstrate the assessment skills relevant to the various neurological disorders
• Analyze the differential diagnosis and medical management of various neurological disorders
Contents of Syllabus:

Sr. No	Contents	Contact Hours
EXP-I	Examination of patient suffering from stroke. Demonstration of ischemic and hemorrhagic stroke features and relation to area affected.	4hrs
EXP-II	Examination of patient suffering from BG pathology. Demonstration of features of parkinsonism patient. Examination of patient with different cerebellar pathologies.	4hrs
EXP-III	Examination of patient having neuromuscular junction disorders. Demonstration and examination of muscular dystrophy patients & lambert Eaton syndrome.	4hrs
EXP-IV	Examination of patient with motor neuron diseases. Demonstration and examination of ALS.	8hrs
EXP-V	Examination of infectious brain diseases such as meningitis, encephalitis.	4hrs
EXP VI	Examination of peripheral nerve injury patients. UE & LE nerve injuries.	8hrs

Course Outcomes

BPT3604.1	Explain the clinical background, assessment and medical management of various neurological disorders
BPT3604.2	Construct the rehab programme for post- operative orthopedic patients
BPT3604.3	Demonstrate the assessment skills relevant to the various neurological disorders
BPT3604.4	Modify the physiotherapy procedure according to the degrees of orthopedic injuries

Recommended Books: 1. NEUROLOGY AND NEUROSURGERY ILLUSTRATED by KENNETH W LINDSAY, CHURCHILL LIVINGSTONE
2.NEUROLOGICAL REHABILIOTATION BY SUSAN O SULLIVAN
BRAIN DISEASE OF NERVOUS SYSTEM by DONAGH MICHAEL, OXFORD UNIVERSITY PRESS
3. ADAMS VICTOR'S PRINCIPLES OF NEUROLOGY by ASLLON H. ROPPER, M.G.Hills
4. BRAIN AND BANNISTER'S CLINICAL NEUROLOGY by SIR ROGER BANNISTER, OXFORD UNIVERSITY PRESS 3. BICKERSTAFF'S NEUROLOGICAL EXAMINATION IN CLINICAL PRACTICE by JOHN SPILLANE, BLACKWELL PUBLISHING

5. DEJONG'S THE NEUROLOGICAL EXAMINATION by CAMPBELL, LIPPINCOTT WILLIAMS & WILKINS

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve shorts questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: ORTHOPEDIC PHYSIOTHERAPY-I LABORATORY
SUBJECT CODE: BPT-3606

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	2	1

SEMESTER: VI
CONTACT HOURS/WEEK: 2

Duration of Exam; 3 Hrs
Internal Assessment: 30
End Term Exam: 70

Course outcomes and Objectives : Through this course students should be able to

- Demonstrate the various immobilization techniques followed by orthopedic injuries
- Interpret the results obtain from various orthopedic physiotherapy examination
- Teach the proper self exercises to prevent complications of immobilization
- Construct the rehab programme for post- operative orthopedic patients
- Differentiate the soft tissue injuries by using appropriate special tests
- Modify the physiotherapy procedure according to the degrees of orthopedic injuries

List of Practicals / Experiments:

Sr. No	Contents	Contact Hours
EXP 1	Demonstrate and explain special tests of shoulder joint.	4 hrs
EXP 2	Demonstrate and explain special tests of elbow joint, wrist and hand complex.	4 hrs
EXP 3	Demonstrate and explain special tests of cervical spine and thoracic spine.	4 hrs
EXP 4	Demonstrate and explain special tests of lumbar spine and sacral spine.	4 hrs
EXP 5	Demonstrate and explain special tests of hip joint and knee joint.	4 hrs
EXP 6	Demonstrate and explain special tests of ankle and foot complex.	4 hrs
EXP 7	Demonstrate and explain physiotherapy assessment and management of fractures of shoulder and elbow complex.	4 hrs
EXP 8	Demonstrate and explain physiotherapy assessment and management of fractures of wrist and hand complex.	4 hrs
EXP 9	Demonstrate and explain physiotherapy assessment and management of fractures of hip and knee complex.	4 hrs
EXP 10	Demonstrate and explain physiotherapy assessment and management of fractures of ankle and foot complex.	4 hrs
EXP 11	Demonstrate and explain physiotherapy assessment and management of an osteoarthritis patient.	4 hrs

RECOMMENDED BOOKS:1. PRACTICAL ORTHOPEDICS by JOHN EBNEZER, I. K. INTERNATIONAL PUBLISHING HOUSE

2. ORTHOPEDIC PHYSICAL ASSESSMENT by DAVID J.MAGEE, SAUNDERS (ELSEVIER)

3. TREATMENT AND REHABILITATION OF FRACTURES, S HOPPENFIELD, VASANTHA LM;LIPPINCOTT WILLIAM AND WILKINS.

SUBJECT TITLE: NEURO PHYSIOTHERAPY-I LAB
SUBJECT CODE: BPT3608

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	2	1

SEMESTER: VI
CONTACT HOURS/WEEK: 2

Internal Assessment: 30
End Term Exam: 70
Duration of Exam; 3 Hrs

Course Outcomes: Through this course students should be able to:

- Identify the appropriate neurological examination procedures used in central nervous system disorders
- Associate the skills of neurological examination in physiotherapy practice
- Define the use of technology in neurological assessment and diagnosis
- Analyze the methods of differential diagnosis in disorders of nervous system
- Evaluate the neurological assessment in planning physiotherapy treatment for neurological disorders
- Justify the basic knowledge of physiotherapy treatment in neurological disorders

Sr. No	Contents	Contact Hours
Exp-I	Demonstrate various preparatory exercises before loco motor training.	6
II	Demonstration of various loco motor training exercises. Demonstrate strategies to improve postural control and functional mobility.	6
III	Demonstrate strategies to improve sensory and motor functions. Strategies to improve aerobic functions.	6
IV	Demonstration and examination of various primary and secondary impairments and their physiotherapy management.	6
V	Physiotherapy management strategies in stroke and TBI patients.	6
VI	Physiotherapy management strategies in SCI patients	6
VII	Physiotherapy management strategies in parkinsonism.	6
VIII	Physiotherapy management strategies in motor neuron diseases like ALS.	6
IX	Physiotherapy management strategies in Cerebral palsy, autism and down syndrome.	6
X	Physiotherapy management strategies in demyelinating and degenerative disorders such as MS and GBS.	6

Course Outcomes

BPT3608.1	Associating the skills of neurological examination in physiotherapy practice
BPT3608.2	Defining the use of technology in neurological assessment and diagnosis
BPT3608.3	Analyzing the methods of differential diagnosis in disorders of nervous system
BPT3608.4	Evaluating neurological assessment in planning physiotherapy treatment for neurological disorders

Recommended Books: 1. CASH'S TEXTBOOK OF NEUROLOGY FOR PHYSIOTHERAPIST (ENGLISH) 4TH EDITION by P. A. DOWNIE, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.
2. DEJONG'S THE NEUROLOGICAL EXAMINATION by WILLIAM W. CAMBELL, WOLTERS KLUWER
3. PHYSICAL MANAGEMENT FOR NEUROLOGICAL CONDITIONS by MARIA STOKES, ELSEVIER
4. PERIPHERAL NERVE AND MUSCLE DISEASE by JEFFREY A. COHEN, JUSTIN MOWCHUN AND JON GRUDEM, OXFORD UNIVERSITY PRESS
5. NEUROLOGICAL EXAMINATION MADE EASY by GERAINT FULLER, CHURCHILL LIVINGSTONE
6. PATHOPHYSIOLOGY OF MOTOR SYSTEM by CHRISTOPHER M. FREDERICKS, F.A. DAVIS COMPANY

SUBJECT TITLE: ORTHOPEDIC PHYSIOTHERAPY-II
SUBJECT CODE: BPT4701

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
3	1	0	4

SEMESTER: VII
CONTACT HOURS/WEEK: 3

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs
Objective of course: Through this course students should be able to
•Distinguish the level of knowledge and skills to choose specific physiotherapeutic techniques
• Plan various rehabilitation approach to orthopedic conditions and critical care.
•Execute the management of injuries and regional conditions with recent orthopedic techniques
• Integrate the current research into the planning of orthopedic rehabilitation

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Physiotherapy assessment and management of regional conditions of Shoulder, elbow, wrist and hand complex :** adhesive capsulitis, Rotator cuff tendinitis, supraspinatus tendinitis, infraspinatus tendinitis, bicipital tendinitis, subacromial bursitis, tennis elbow, golfer's elbow, olecranon bursitis, triceps tendinitis, de quervian tenosynovitis, ganglion, trigger finger and thumb, mallet finger, carpel tunnel syndrome, dupuytren's contracture.	**12hrs**
UNIT-II	**Physiotherapy assessment and management of regional conditions of Pelvic, Hip, Knee and Ankle complex :** IT band syndrome, piriformis syndrome, trochantric bursitis, osteochondritisdissecans, patellofemoral pain syndrome, plantar fascitis/calcaneal spur, tarsal tunnel syndrome, achillis tendinitis, metatarsalgia, morton's neuroma.	

		14hrs
UNIT-III	**Physiotherapy assessment and management of injuries around spine and pelvis:** fractures of cervical spine , relevant anatomy, thoracolumbar injuries, classification of pelvic fractures and management. **Physiotherapy assessment and management of regional conditions in Spine. :** PIVD, spinal stenosis, cervical and lumbar spondylosis, spondylolisthesis, lumbago/lumbosacral strain, sacralisation, lumbarisation, coccydinea, hemivertebra, Low back ache, scoliosis, ankylosing spondylitis.	**14hrs**
UNIT-IV	**Physiotherapy assessment and management of various Deformities :**torticolis, flat foot, vertical talus, lordosis, kyphosis, upper cross syndrome, lower cross syndrome, arthrogryposis multiplex congenita, osteogenesisimperfecta, cervical rib, genu valgum, genu varum, genu recurvatum, coxavara, coxavalga, hammer toe, metatarsalgia	**14hrs**

Course Outcomes

BPT4701.1	Distinguish the level of knowledge and skills to choose specific physiotherapeutic techniques
BPT4701.2	Plan various rehabilitation approach to orthopedic conditions and critical care.
BPT4701.3	Execute the management of injuries and regional conditions with recent orthopedic techniques
BPT4701.4	Integrate the current research into the planning of orthopedic rehabilitation

Recommended Books: 1. ESSENTIALS OF ORTHOPEDICS AND APPLIED PHYSIOTHERAPY by DR PRAKASH KOTWAL , JAYANT JOSHI, ELSEVIER

2. CASH'S TEXTBOOK OF ORTHOPAEDICS AND RHEUMATOLOGY FOR PHYSIOTHERAPISTS by JOAN E. CASH , PATRICIA A. DOWNIE, MOSBY, MOSBY (ELSEVIER)

3. TREATMENT AND REHABILITATION OF FRACTURES, S HOPPENFIELD, VASANTHA LM;LIPPINCOTT WILLIAM AND WILKINS.

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve multiple choice questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: NEURO PHYSIOTHERAPY-II
SUBJECT CODE: BPT4703

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
3	0	0	3

SEMESTER: VII
CONTACT HOURS/WEEK: 3

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs
Objective of course: Through this course students should be able to:
• Know the peripheral nerve injuries and physiotherapy management for the injury.
•Identify deficits of neural recruitment underlying various movement and sensory disorders.
• Understand the neuromuscular junction disorders and design physiotherapy management
•Distinguish between infectious diseases and associate their physiotherapy management with clinical features.
• Learn examination of muscular dystrophies and neuromuscular junction disorders.

Contents of Syllabus:

Sr. No	Contents	Contact Hours
I	**Physiotherapy management in peripheral nerve injuries of upper and lower limbs.**	**14hrs**
II	**Physiotherapy management of brachial plexus injury, lumbosacral plexus injury.**	**12hrs**
III	**Examination and physiotherapy management of diabetic neuropathy.**	**12hrs**
IV	**Examination and physiotherapy management of polyneuropathies, spina bifida and encephalomyelitis.**	**14hrs**

Course Outcomes

BPT4703.1	Know the peripheral nerve injuries and physiotherapy management for the injury.
BPT4703.2	Identify deficits of neural recruitment underlying various movement and sensory disorders.
BPT4703.3	Understand the neuromuscular junction disorders and design physiotherapy management
BPT4703.4	Distinguish between infectious diseases and associate their physiotherapy management with clinical features.

Recommended Books: 1. CASH'S TEXTBOOK OF NEUROLOGY FOR PHYSIOTHERAPIST (ENGLISH) 4TH EDITION by P. A. DOWNIE, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.
2. DEJONG'S THE NEUROLOGICAL EXAMINATION by WILLIAM W. CAMBELL, WOLTERS KLUWER
3. PHYSICAL MANAGEMENT FOR NEUROLOGICAL CONDITIONS by MARIA STOKES, ELSEVIER
4. PERIPHERAL NERVE AND MUSCLE DISEASE by JEFFREY A. COHEN, JUSTIN MOWCHUN AND JON GRUDEM, OXFORD UNIVERSITY PRESS
5. NEUROLOGICAL EXAMINATION MADE EASY by GERAINT FULLER, CHURCHILL LIVINGSTONE
6. PATHOPHYSIOLOGY OF MOTOR SYSTEM by CHRISTOPHER M. FREDERICKS, F.A. DAVIS COMPANY

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus.

SUBJECT TITLE: CARDIOPULMONARY PHYSIOTHERAPY
SUBJECT CODE: BPT4705

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
3	0	0	3

SEMESTER: VII
CONTACT HOURS/WEEK: 3

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs
Objective of course: Through this course students should be able to

- Evaluate the cardiopulmonary patients with various scales and grading of assessment
- Demonstrate the steps involved in secretion mobilization using various hands on techniques
- Implement the different types of breathing techniques according to patient's conditions
- Describe the various modes of mechanical ventilators
- List out different types of cardiopulmonary equipment used in intensive care unit
- Discuss the comprehensive procedures involves in post surgical rehabilitation cardiopulmonary patients

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Cardiopulmonary physical therapy assessment :** history, chief complainants, subjective assessment, objective assessment, clinical findings, scales and gradings in cardiopulmonary assessment, goal setting and plan of care	**12hrs**
UNIT-II	**Cardiopulmonary physical therapy and Intensive care unit :** monitors, mechanical ventilator and its mode, oxygentheapy, suctioning, basic and advance life support devices and procedures **Cardiopulmonary physical therapy techniques involves in chest clearance :** humidification and nebulisation, chest wall mobilisation, breathing exercises, postural drainage, percussion, vibration, shaking and rib springing, ACBT and autogenic drainage, mechanical aids - PEP flutter and acapella, coughing and huffing **Cardiopulmonary physical therapy techniques to decrease the work of breathing :** positioning, breathing re-education and breathing control techniques, respiratory muscle weakness and training, mechanical aids - Intermittant Positive Pressure Breething (IPPB), Continues Possititive Airway Pressure (CPAP), Bilevel Positive Airway Pressure(BiPAP)	**14hrs**
UNIT-III	**Cardiopulmonary physical therapy for pulmonary conditions :** obstructive pulmonary conditions, restrictive pulmonary conditions, post surgical conditions, pulmonary rehabilitation in chronic pulmonary patients	**14hrs**

UNIT-IV	**Cardiopulmonary physical therapy for cardiovascular conditions :** non surgical cardiac conditions, post surgical cardiac conditions, peripheral vascular diseases management, cardiac rehabilitation for post cardiac transplantation, post CABG and myocardial infraction	**14hrs**

Course Outcomes

BPT4705.1	Evaluate the cardiopulmonary patients with various scales and grading of assessment
BPT4705.2	Demonstrate the steps involved in secretion mobilization using various hands on techniques
BPT4705.3	Describe the various modes of mechanical ventilators and list out different types of cardiopulmonary equipment used in intensive care unit
BPT4705.4	Discuss the comprehensive procedures involves in post-surgical rehabilitation cardiopulmonary patients

Recommended Books: 1. CARDIOVASCULAR AND PULMONARY PHYSICAL THERAPY by DONNA FROWNFELTER, ELIZABETH DEAN, ELSEVIER
2. ESSENTIALS OF CARDIOPULMONARY PHYSICAL THERAPY by ELLEN HILLEGASS, ELSEVIER
3. TIDY'S PHYSIOTHERAPY by STUART PORTER, ELSEVIER
4. CARDIORESPIRATORY PHYSIOTHERAPY: ADULTS AND PAEDIATRICS by ELEANOR MAIN,LINDA DENEHY, ELSEVIER

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: RESEARCH METHODOLOGY AND BIOSTATISTICS
SUBJECT CODE: BPT4707

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
3	0	0	4

SEMESTER: VII
CONTACT HOURS/WEEK: 3

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs
Objective of course: Through this course students should be able to
- Describe the importance of research in physiotherapy and rehabilitation sciences
- Review the moral principle of ethics in research
- Construct research problem and research question
- Analyze various types of experimental and non-experimental research designs
- Apply biostatistics in physiotherapy research
- Relate the various correlation analyses and tests of significance

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Introduction to research methodology :** definition, reasons for developing rehabilitation research, barriers to research, research process, types of research, research methods versus methodology **Defining the research problem :** necessity of defining research problem, technique involved in defining research problem	

	Research ethics : importance of ethics in research, ethical issues in human subjects research, moral principles of action, informed consent, research codes of ethics, research risks **Research fundamentals :** sampling, variables, measurement in research, levels of measurement, measurement reliability, measurement validity, research validity	**14hrs**
UNIT-II	**Research design :** definition, need of research design, feature of features of good research design, features of good research design **Experimental research design :** true experimental research designs, and quasi experimental research designs **Non experimental research :** definition, classification, descriptive non experimental designs, exploratory non experimental designs, analytical non experimental designs **Scientific writing :** definition, types of research articles, style manuals, citation styles, institutional review board, research proposal process, structure of research proposal, different steps in research writing, structure of thesis, preparation of abstracts, preparing for publication Introduction to evidence based practice : definition, ways of knowing, evidence based practice model, steps in evidence based process, critically appraised topics	**14hrs**
UNIT-III	**Introduction to biostatistics :** definition, and role in physiotherapy **Descriptive statistics and measures of variability** : frequency distributions, normal distribution, measures of central tendency, measures of variability **Statistical inference :** sampling distributions, standard error, confidence intervals, hypothesis testing, errors in hypothesis testing **Comparison of group means :** t-test, ANOVA, multiple comparison tests	**12hrs**
UNIT-IV	**Non parametric tests of significance :** Mann-Whitney U test, Wilcoxon signed- ranks test, Kruskal-Wallis one-way analysis of variance by ranks, Chi square statistic **Correlation and regression analysis :** scatter plots, Pearson product-moment, coefficient of correlation, Spearman rank correlation coefficient, linear regression line, analysis of covariance (ANCOVA) **Statistical measures of reliability :**Intraclass correlation coefficient (ICC), standard error of measurement, Kappa	**14hrs**

Course Outcomes

BPT4707.1	Apply basic cardiopulmonary physiotherapy techniques to prevent the chest complications in ICU patients.
BPT4707.2	Manage the post-surgical pain from the surgical site with appropriate physiotherapy modalities and precaution techniques
BPT4707.3	Demonstrate various cardiopulmonary breathing techniques to improve ventilation of the patient
BPT4707.4	Construct the rehabilitation programme for chronic cardiopulmonary patients

Recommended Books: 1. REHABILITATION RESEARCH: PRINCIPLES AND APPLICATIONS by RUSSELL CARTER AND JAY LUBINSKY, ELSEVIER
2. FOUNDATIONS OF CLINICAL RESEARCH: APPLICATIONS TO PRACTICE by LESLIE GROSS PORTNEY AND MARY P. WATKINS, F.A. DAVIS COMPANY

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: ORTHOPEDIC PHYSIOTHERAPY-II LAB
SUBJECT CODE: BPT4702

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	2	1

SEMESTER: VII
CONTACT HOURS/WEEK: 2

Internal Marks 30
External Marks 70
Duration of Exam; 3 Hr

Course Outcomes:

Through this course students should be able to

- Evaluate patients and physiotherapy management of regional deformities of upper limb and lower limb
- Evaluate patients and physiotherapy management of fractures and regional deformities of spine
- Evaluate the patient pre and post operative procedures for various conditions
- Understand the various regional musculoskeletal conditions and plan a suitable management

List OfPracticals/ Experiments

S.No.	CONTENTS	Hours
EXP1.	**Demonstrate and explain physiotherapy assessment and management of regional conditions of shoulder complex :**adhesive capsulitis, Rotator cuff injury, supraspinatus tendinitis, infraspinatus tendinitis, bicipital tendinitis, subacromial bursitis.	4hrs
EXP2.	**Demonstrate and explain physiotherapy assessment and management of regional conditions of elbow complex :**tennis elbow, golfer's elbow, olecranon bursitis, triceps tendinitis.	4hrs
EXP3.	**Demonstrate and explain physiotherapy assessment and management of regional conditions of wrist and hand complex :**De quervian tenosynovitis, ganglion, trigger finger and thumb, mallet finger, Carpel tunnel syndrome, Dupuytren's contracture.	4hrs
EXP4.	**Demonstrate and explain physiotherapy assessment and management of injuries and fractures around cervical spine.**	4hrs
EXP5.	**Demonstrate and explain physiotherapy assessment and management of injuries and fractures around thoracolumbar spine and rib cage.**	4hrs
EXP6.	**Demonstrate and explain physiotherapy assessment and management of regional conditions of spine :**PIVD, spinal stenosis, cervical and lumbar spondylosis, spondylolisthesis, lumbago/lumbosacral strain, sacralisation, lumbarisation, coccydinea, hemivertebra, scoliosis.	4hrs

EXP7.	**Demonstrate and explain physiotherapy assessment and management of regional conditions of pelvic and hip :**IT Band Syndrome, Piriformis Syndrome, trochantric bursitis, osteochondritisdissecans.	4hrs
EXP8.	**Demonstrate and explain physiotherapy assessment and management of regional conditions of knee, ankle and foot :**patellofemoral pain syndrome, plantar fasciitis, calcaneal spur, tarsal tunnel syndrome, achillis tendinitis, metatarsalgia, morton's neuroma.	4hrs
EXP9.	**Demonstrate and explain physiotherapy assessment and management of various deformities :**torticolis, flat foot, vertical talus, lordosis, kyphosis, upper cross syndrome, lower cross syndrome, arthrogryposis multiplex congenita, osteogenesisimperfecta, cervical rib, genu valgum, genu varum, genu recurvatum, coxavara, coxavalga, hammer toe, metatarsalgia.	4hrs

Course Outcomes

BPT4702.1	Distinguish the level of knowledge and skills to choose specific physiotherapeutic techniques
BPT4702.2	Plan various rehabilitation approach to orthopedic conditions and critical care.
BPT4702.3	Execute the management of injuries and regional conditions with recent orthopedic techniques
BPT4702.4	Integrate the current research into the planning of orthopedic rehabilitation

RECOMMENDED BOOKS:

1. PRACTICAL ORTHOPEDICS by JOHN EBNEZER, I. K. INTERNATIONAL PUBLISHING HOUSE
2. ORTHOPEDIC PHYSICAL ASSESSMENT by DAVID J.MAGEE, SAUNDERS (ELSEVIER).
3. TREATMENT AND REHABILITATION OF FRACTURES, S HOPPENFIELD, VASANTHA LM;LIPPINCOTT WILLIAM AND WILKINS.

SUBJECT TITLE: NEUROLOGY PHYSIOTHERAPY-II LAB
SUBJECT CODE: BPT4704

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	2	1

SEMESTER: VII
CONTACT HOURS/WEEK: 2

Internal Marks 30
External Marks 70
Duration of Exam; 3 Hrs

Course Objectives: Through this course students will understand and learn:

- **Different approaches to be used in neurological patients.**
- **Examination and management f various neurological issues or disorders.**
- **Enhance analytical skills in diagnosis of neurological patient.**

Practicals list:

EXP.	TOPICS	HOURS
I	**Demonstration of traditional approaches in neurological physiotherapy- demonstration of Bobath and Brunstormtechniques**	8hrs
II	**Demonstration of proprioceptive neuromuscular facilitation techniques and Rood's techniques.**	8hrs
III	**Demonstration of contemporary approaches in neurological physiotherapy- demonstration of motor relearning program technique**	8hrs
IV	**Demonstration of bilateral arm training and body weight supported treadmill training.**	8hrs
V	**Demonstration of Body weight supported treadmill training and CIMT.**	8hrs

Course Outcomes

BPT4704.1	Know the peripheral nerve injuries and physiotherapy management for the injury.
BPT4704.2	Identify deficits of neural recruitment underlying various movement and sensory disorders.
BPT4704.3	Understand the neuromuscular junction disorders and design physiotherapy management
BPT4704.4	Distinguish between infectious diseases and associate their physiotherapy management with clinical features.

Recommended Books:1. NEUROLOGICAL REHABILITATION: OPTIMIZING MOTOR PERFORMANCE by CARR & SHEPHERD, BUTTERWORTH-HEINEMANN (ELSEVIER)
2. CASH'S TEXTBOOK OF NEUROLOGY FOR PHYSIOTHERAPISTS by PATRICIA A. DOWNIE, JAYPEE BROTHERS MEDICAL PUBLISH

SUBJECT TITLE: CARDIOPULMONARY PHYSIOTHERAPY LAB
SUBJECT CODE: BPT4706

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	2	1

SEMESTER: VIII
CONTACT HOURS/WEEK: 2

Internal: 30
External 70
Duration of Exam; 3 Hrs

Course Objectives: Through this course students should be able to

- Interpret the patient's severity of the problems with various outcome measures
- Establish the optimal therapeutic position for the treatment of cardiopulmonary patients
- Apply basic cardiopulmonary physiotherapy techniques to prevent the chest complications in ICU patients.

List of Practicals / Experiments:

Sr. No	Contents	Contact Hours
EXP 1	Demonstrate and explain physiotherapy assessment of cardiopulmonary patient.	4 hrs
EXP 2	Demonstrate and explain scales and gradings in cardiopulmonary assessment.	4 hrs
EXP 3	**Demonstrate and explain physiotherapy techniques to decrease the work of breathing:** breathing control techniques, respiratory muscle weakness and training.	4 hrs
EXP 4	**Demonstrate and explain mechanical aids used to decrease the work of breathing :**IPPB, CPAP and BiPAP.	4 hrs
EXP 5	**Demonstrate and explain physiotherapy techniques used to clear secretions :**mobilisation breathing exercises and postural drainage.	4 hrs
EXP 6	**Demonstrate and explain manual techniques used to clear secretions :**ACBT autogenic drainage and cough.	4 hrs
EXP 7	**Demonstrate and explain cardiopulmonary physical therapy and intensive care unit :**monitors, ventilator and accessories.	4 hrs
EXP 8	Demonstrate and explain suctioning and oxygen therapy.	4 hrs
EXP 9	**Demonstrate and explain cardiopulmonary physical therapy for pulmonary conditions :**obstructive conditions, restrictive conditions and post surgical conditions.	4 hrs
EXP 10	Demonstrate and explain rehabilitation of cardiovascular patients and pulmonary patients.	4 hrs
EXP 11	Demonstrate and explain cardiopulmonary physiotherapy management for non surgical cardiac conditions.	4 hrs
EXP 12	Demonstrate and explain cardiopulmonary physiotherapy management for post surgical cardiac conditions.	4 hrs
EXP 13	Demonstrate and explain cardiopulmonary physiotherapy management for peripheral vascular diseases.	4 hrs

Course Outcomes

BPT4706.1	Apply basic cardiopulmonary physiotherapy techniques to prevent the chest complications in ICU patients.
BPT4706.2	Manage the post-surgical pain from the surgical site with appropriate physiotherapy modalities and precaution techniques
BPT4706.3	Demonstrate various cardiopulmonary breathing techniques to improve ventilation of the patient
BPT4706.4	Construct the rehabilitation programme for chronic cardiopulmonary patients

Recommended books: 1. CASH TEXTBOOK OF CHEST HEART AND VASCULAR DISORDERS FOR PHYSIOTHERAPISTS by PATRACIA A. DOWNIE, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD
2. PRINCIPLES AND PRACTICES OF CARDIOPULMONARY PHYSICAL THERAPY by FROWN FELTER, MOSBY

SUBJECT TITLE: MANAGEMENT AND ETHICAL ISSUES IN PHYSIOTHERAPY
SUBJECT CODE: BPT4807

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
2	0	0	2

SEMESTER: VIII
CONTACT HOURS/WEEK: 2

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs
Objective of course: Through this course students should be able to
•Analyze current information on health care, social philosophy and public policy in physitherapy practice
• Enumerate factors that affect the standards of physiotherapy practice
• Identify the entrepreneurship ideas in physiotherapy practice
• Describe the principles of healthcare management and administration
•Distinguish between principle of management and administration in physiotherapy practice
• Classify different levels of an organization and its importance in healthcare management work setting

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Managing, Communicating, Strategizing, Planning, and Decision Making :** Leading, Managing, and Supervision, Communicating With Skill, Strategic Planning, Organizing for Business Success, Management and Decision Making, Strategies for Health Services, Performance Improvement **Hospital Management and Financial Awareness :** Hospital Organization, Regulatory bodies, Economic Principles, Accounting and Financing, Entrepreneurship: Physiotherapist Practice Ownership	**9hrs**
UNIT-II	**Human Resources, Marketing, Selling and self-management :** Preparing for the first job, Construction of a new physiotherapy department, Management of physiotherapy department, Marketing Basics, Selling part of the marketing process, Budgeting **Physiotherapy practice :** Physiotherapy profession, History of physiotherapy, Definition of physiotherapy, Code of ethics, Code of professional conduct, Rules of professional conduct and scope of practice, Relationship with patient and medical professionals, Documentation, confidentiality and responsibility, Major ethical issues in physiotherapy practice	**9hrs**

UNIT-III	**Legal aspects related to rehabilitation :** Medico legal terminology, Medico legal cases, Workman compensation act, Consumer protection act, Laws related to disabilities, ICF, Law protection from malpractice claim	**9hrs**
UNIT-IV	**Regulatory bodies governing physiotherapy practice :** Role of International Health agencies :WHO, WCPT & APTA, Functioning of the World Confederation of Physical therapy (W.C.P.T and its various branches), Difference between scientific association (Professional body) and statutory body, Constitution and functions of the Indian association of Physiotherapists (IAP), Role of various State councils, Professional and government licensing accreditation and education standards	**9hrs**

Course Objectives

BPT4807.1	Analyzing current information on health care, social philosophy and public policy in physiotherapy practice
BPT4807.2	Identifying the entrepreneurship ideas in physiotherapy practice
BPT4807.3	Distinguish between principle of management and administration in physiotherapy practice
BPT4807.4	Classify different levels of an organization and its importance in healthcare management work setting

Recommended Books: 1. MANAGERIAL SUPERVISORY PRINCIPLE ON PHYSIOTHERAPY by LARY NOSSE, LIPPINCOTT WILLIAMS & WILKINS

2. ETHICAL ISSUES IN MANAGEMENT by A. KUMAR, K.M. JOSHI, B.J. JAGANI, COMMONWEALTH PUBLISHERS

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: OBSTETRICS AND GYNAECOLOGY

SUBJECT CODE: BPT4805

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
3	0	0	3

SEMESTER: VIII

CONTACT HOURS/WEEK: 2

Internal Assessment: 40

End Term Exam: 60

Duration of Exam; 3 Hrs

Objective of course: Through this course students should be able to

- Describe the anatomical and physiological importance in studying Female Reproductive System
- Apply the various physiotherapy assessment techniques used in gynaecological conditions
- Practice physiotherapy assessment techniques used in obstetric conditions
- Interpret the various complications of pregnancy and labour
- Extend the physiotherapy skills in the management of gynaecological conditions
- Analyze the effectiveness of various treatment protocols used in antenatal and postnatal period

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Review of anatomy :** pelvis, pelvic floor muscles, abdominal muscles, female reproductive tract, breast **Assessment :** history, examination, diagnostic procedure Physiology of pregnancy : physiology of menstruation, pregnancy and fetal development, physical and physiological changes of pregnancy **Diagnosis of pregnancy:** signs and symptoms of three trimesters of pregnancy, preconception care and tests done in preconception stage.	**9hrs**
UNIT-II	**Complications of pregnancy :** ectopic pregnancy, pre-eclamptictoxaemia and eclampsia, antepartum haemorrhage, placenta praevia, intrauterine growth retardation, multiple pregnancies, polyhydraaminos, oligohydroaminos, fibroids, placental abruption, hyperemesis gravidae, sacroiliac dysfunction, osteitis pubis, nerve compression syndromes, circulatory disorders, abortion, musculoskeletal disorders, medical termination of pregnancy	**9hrs**
UNIT-III	**Labour :** mechanism and stages of labour, complications of labour, interventions and PT management in labour **Perpeurium :** management, complications, definition **Antenatal period :** antenatal care and screening, antenatal classes, nutrition during pregnancy, exercise and pregnancy **Postnatal period :** postnatal care, postnatal exercises, postnatal problems	**9hrs**
UNIT-IV	**Common gynaecological conditions and their management :** infections, cysts and new growth, endometriosis, disorders of menstruation, uterine prolapse, stress incontinence, hormonal disorders of females-obesity and female hormones, sterility, malnutrition and deficiencies in females, menopause and its effect on emotions and musculoskeletal system **Gynaecological surgeries and PT management :** hysterectomy, oophrectomy, salpingectomy, myomectomy, caesarean section, colporrhaphy, dilatation and curettage, laproscopy and colposopy, carcinoma of female reproductive organs, mastectomy	**9hrs**

Course Objectives

BPT4805.1	Describe the anatomical and physiological importance in studying Female Reproductive System
BPT4805.2	Applying various physiotherapy assessment techniques used in gynaecological conditions
BPT4805.3	Interpreting various complications of pregnancy and labour
BPT4805.4	Extending physiotherapy skills in management of gynaecological conditions

Recommended Books: 1. PHYSIOTHERAPY IN OBSTETRIC AND GYNAECOLOGY by MARGARET POLDEN JILL MANTLE, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT.LTD.
2. DC DUTTA'S TEXTBOOK OF OBSTETRICS by HIRALAL KONAR, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: PAEDIATRICS AND GERIATRICS PHYSIOTHERAPY
SUBJECT CODE: BPT4803

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
3	0	0	3

SEMESTER: VIII
CONTACT HOURS/WEEK: 2

Internal Assessment: 40
End Term Exam: 60
Duration of Exam; 3 Hrs
Objective and outcome of course: Through this course students should be able to

- Analyze the growth and development of a child
- Describe the physiological response of ageing on body
- Interpret the signs and symptoms of paediatric and geriatric disorders
- Identify the need for specialized assessment
- Outline the principles of paediatric and geriatric rehabilitation
- Develop the efficient exercise protocol for paediatrics and geriatrics group of population

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Growth and development of a child :** development of gross motor functions, development of fine motor function, assessment and testing of infant and child development, neonatal screening in ICU **Congenital musculoskeletal disorders :**arthrogryposis multiplex congenita, infantile botulism, osteogenesis imperfect **Congenital cardiopulmonary disorders :** atrial septal defect, ventricular septal defect, tetralogy of fallot, acute paediatric respiratory distress syndrome, bronchiectasis, bronchial asthma, pneumonia Genetic disorders : down syndrome, mental retardation, muscular dystrophy **Neurological disorders :** cerebral palsy, developmental delay, spina bifida	**9hrs**
UNIT-II	**Paediatric Rehabilitation :** positioning and handling, general physical therapy goals, interventions to foster head and neck control, interventions to foster trunk control, adaptive equipments for positioning and mobility, physical therapy for children with cardiopulmonary disorder **Advanced approaches :** principles and application of treatment approaches of neurodevelopmental therapy (NDT), vojta approach, sensory integration therapy, constraint induced movement therapy, behaviour modification techniques	**9hrs**
UNIT-III	**Physiological response to ageing :** theories of ageing, features of normal ageing on musculoskeletal system, cardiovascular system, nervous system, respiratory system, special senses **Principles of geriatric assessment :** history, functional status, mental status, emotional status, exercise prescription in arthritis, osteoporosis, diabetes, physical examination to measure impaired joint mobility, muscle performance, motor control, posture, aerobic capacity and gait	**9hrs**
UNIT-IV	**Exercise and physical activity for older adults :** slippery slope of ageing, types of exercises, exercise prescription, role of physical activity Principles of geriatric rehabilitation : goal setting, stretching exercises, aerobic exercises, orthotics and gait training, physical therapy in different settings of acute care in skilled nursing homes, home based rehabilitation, outpatient settings, electrotherapeutic modalities as a therapeutic intervention, strengthening exercises, range of motion exercises **Falls and its prevention in elderly :** balance and postural control, interventions, balance and gait changes, examination, evaluation of fall and outcome measures Environmental design for geriatrics : general principles of	**9hrs**

	design, sensory changes relationship to functional ability within the environment	

Course Objectives

BPT4803.1	Analyzing the growth and development of a child and physiological response of ageing on body
BPT4803.2	Interpreting the signs and symptoms of paediatric and geriatric disorders
BPT4803.3	Developing the efficient exercise protocol for paediatrics and geriatrics group of population
BPT4803.4	Outlining the principles of paediatric and geriatric rehabilitation

Recommended Books: 1. PEDIATRIC PHYSICAL THERAPY by JAN S. TECKLIN, LIPPINCOTT WILLIAMS & WILKINS

2. GERIATRIC PHYSICAL THERAPY by ANDREW A. GUCCIONE, ELSEVIER

3. ESSENTIAL PAEDIATRICS by O.P. GHAI, CBS PUBLISHERS & DISTRIBUTORS PVT. LTD.

4. OCCUPATIONAL THERAPY FOR PHYSICAL DYSFUNCTION by CATHERINE A. TROMBLY LATHAM, LIPPINCOTT WILLIAMS & WILKINS

Instruction of Question Paper setter

The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: SPORTS PHYSIOTHERAPY

SUBJECT CODE: BPT4801

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
3	0	0	3

SEMESTER: VIII

CONTACT HOURS/WEEK: 2

Internal Assessment: 40

End Term Exam: 60

Duration of Exam; 3 Hrs

Objective of course: Through this course students should be able to

- Demonstrate the level of knowledge and skills to choose appropriate physiotherapy techniques in sports rehabilitation
- Integrate the current research into the planning of sports rehabilitation
- Describe sports assessment and rehabilitation
- Discuss the principles of nutrition and exercise on body composition and athletic performance
- Administer the rehabilitation protocols for treatment of an athlete
- Analyze information at an advanced level to plan, implement and evaluate specialized sports physiotherapy practice

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Introduction to sports and rehabilitation :** types of sports, indoor and outdoor sports surfaces, sports clothing and footwear, doping in sports, eating disorders, principles of sports rehabilitation	

	Assessment and evaluation : evaluation of physical fitness, pre-participation physical evaluation, musculoskeletal screening, body composition assessment **Principles of training and conditioning :** physiological principles of conditioning, muscle conditioning, types of training aerobic and anaerobic training, environmental considerations for exercise	**9hrs**
UNIT-II	**Diet and nutrition :** carbohydrate loading, glycemic index, nutritional recommendations in various sports, optimal nutrition for physical performance, pre game meal	**9hrs**
UNIT-III	**Principles of Injury prevention :** warm up, stretching, taping and bracing, protective equipments, appropriate surface, appropriate training methods **Rehabilitation and therapeutic exercises :** goals and objectives of rehabilitation in sports, stages of rehabilitation, functional rehabilitation, therapeutic exercise, dynamic exercises, plyometric exercises, isokinetic exercises, kinetic chain exercises, agility and balance training	**9hrs**
UNIT-IV	**Sports trauma :** classification of sports injuries, common acute and overuse injuries, sport specific injuries of upper and lower limb, contact and non contact sports injuries, overtraining syndrome, tired athlete, chronic fatigue syndrome	**9hrs**

Course Objectives

BPT4801.1	Demonstrate the level of knowledge and skills to choose appropriate physiotherapy techniques in sports rehabilitation
BPT4801.2	Discuss the principles of nutrition and exercise on body composition and athletic performance
BPT4801.3	Administer the rehabilitation protocols for treatment of an athlete
BPT4801.4	Integrate the current research into the planning of sports rehabilitation

Recommended Books: 1. CLINICAL SPORTS MEDICINE by BRUKNER & KHAN, McGraw Hill Professional
2. EXERCISE PHYSIOLOGY: NUTRITION, ENERGY AND HUMAN PERFORMANCE by WILLIAM D. MCARDLE, FRANK L. KATCH, VICTOR L. KATCH, PHILADELPHIA, LIPPIN COTT WILLIAMS & WILKINS
3. ATHLETIC INJURIES AND REHABILITATION by DAVID J MAGEE, W B SAUNDERS (ELSEVIER)

Instruction of Question Paper sette: The question paper will consist of three sections: A, B & C. Sections A will consist of twelve short questions carrying one mark each from all over the syllabus of concerned paper. Section B will have six questions of four marks each and section C consists of three questions of eight marks each from the respective sections of the syllabus

SUBJECT TITLE: OBSTETRICS AND GYNAECOLOGY LABORATORY
SUBJECT CODE: BPT4806

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	2	1

SEMESTER: VIII
CONTACT HOURS/WEEK: 2 **Internal:30**
External:70
Duration of Exam; 3 Hrs

Course Objectives: Through this course students should be able to

- Explain the anatomy and physiology of female reproductive system by using models
- Demonstrate the various assessment and treatment skills used in gynaecological conditions
- Apply various assessment and treatment techniques in gynaecological conditions
- Frame the physiotherapy management for the gynaecological conditions
- Analyze the treatment protocols used in antenatal and postnatal care
- Design the exercise prescription for antenatal and postnatal care

List of Practicals / Experiments:

EXP	**Review of anatomy and assessment** • detailed anatomy of female reproductive system • general assessment of obstetrics and gynecological conditions	**4HRS**
EXP	**Physiology of pregnancy and diagnosis** • diagnostic approaches for pregnancy • assessment of physiological changes during pregnancy	**4HRS**
EXP	**Postnatal period** • physiotherapy assessment and management of post natal period	
EXP	**Complications of pregnancy** • assessment and management of complications of pregnancy **Labour** • physiotherapy management during labour	**4HRS**
EXP	**Antenatal period** • physiotherapy assessment and management of antenatal period	**4HRS**

Course Outcomes

BPT4806.1	Describe the anatomical and physiological importance in studying Female Reproductive System
BPT4806.2	Applying various physiotherapy assessment techniques used in gynaecological conditions
BPT4806.3	Interpreting various complications of pregnancy and labour
BPT4806.4	Extending physiotherapy skills in management of gynaecological conditions

Recommended Books: 1. PHYSIOTHERAPY IN OBSTETRICS AND GYNAECOLOGY by MARGARET POLDEN , JILL MANTLE, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT.LTD.

2. TEXTBOOK OF OBSTETRICS by D C DUTTA, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD

SUBJECT TITLE: SPORTS PHYSIOTHERAPY LABORATORY
SUBJECT CODE: BPT4802

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	2	1

SEMESTER: VIII
CONTACT HOURS/WEEK: 2

Duration of Exam; 3 Hrs
Internal Marks 30
External Marks 70

Course Objectives: Through this course students should be able to:

- Demonstrate the level of knowledge and skills to choose appropriate physiotherapy techniques in sports rehabilitation
- Describe sports assessment and rehabilitation
- Formulate rehabilitation protocol based on evidence based practice

List of Practicals / Experiments:

EXP 1	**Demonstration of Pre-Participation Physical Evaluation of athlete.**	**4 HRS**
EXP 2	**Demonstration of tests for Flexibility and Balance.**	**4 HRS**
EXP 3	**Demonstration of tests for Agility, Power and Speed.**	**4 HRS**
EXP 4	**Demonstration of Assessment of Body Composition of athlete.**	**4 HRS**
EXP 5	**Demonstration of Agility training, Balance training and Plyometric training.**	**4 HRS**
EXP 6	**Demonstration of Assessment and Rehabilitation of sports injuries of Shoulder and Elbow.**	**4 HRS**
EXP 7	**Demonstration of Assessment and Rehabilitation of sports injuries of Wrist and Hand.**	**4 HRS**
EXP 8	**Demonstration of Assessment and Rehabilitation of sports injuries of Spine.**	**4 HRS**
EXP 9	**Demonstration of Assessment and Rehabilitation of sports injuries of Pelvis, Hip and Knee.**	**4 HRS**
EXP 10	**Demonstration of Assessment and Rehabilitation of sports injuries of ankle and foot.**	**4 HRS**

Course Outcomes

BPT4802.1	Describe sports assessment and rehabilitation
BPT4802.2	Formulate rehabilitation protocol based on evidence based practice
BPT4802.3	Applying biomechanical principles in treating sports injuries
BPT4802.4	Discover sporting skills through different sports training

Recommended Books: CLINICAL SPORTS MEDICINE: INJURIES, VOL. 1 by BRUKNER & KHAN'S, M.G.Hills

SUBJECT TITLE: PAEDIATRICS AND GERIATRICS PHYSIOTHERAPY LAB
SUBJECT CODE: BPT4804

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	2	1

SEMESTER: VIII
CONTACT HOURS/WEEK: 3

Duration of Exam; 3 Hrs
Internal Marks 30
External Marks 70

Course Objectives: Through thiscourse students should be able to
•Interpret the findings of assessment to reach at the diagnosis for various paediatric and geriatric conditions
• Construct the physical therapy programme for common paediatric and geriatric disorders
• Formulate the exercise programme to decrease the fall risk in elderly
•Demonstrate the various physiotherapy assessment and treatment techniques used in paediatric and geriatric disorders
• Apply various advanced approaches used for paediatric rehabilitation
• Show the positioning and handling skills used for paediatric group of population

List of Practicals / Experiments:

Sr. No	Contents	Contact Hours
EXP 1	Demonstrate and explain assessment and testing of an infant and child.	4 hrs
EXP 2	Demonstrate and explain neonatal screening in ICU.	4 hrs
EXP 3	Demonstrate and explain positioning and handling skills for an infant.	4 hrs
EXP 4	Demonstrate and explain interventions to foster head, neck and trunk control.	4 hrs
EXP 5	Demonstrate and explain physical therapy techniques for cardiopulmonary disorders in child and neonate.	4 hrs
EXP 6	Demonstrate and explain treatment approaches of neurodevelopmental therapy, Vojta therapy and sensory integration therapy on a child.	4 hrs

EXP 7	Demonstrate and explain comprehensive geriatric assessment.	4 hrs
EXP 8	Design the exercises prescription for arthritis, osteoporosis and diabetes patients.	4 hrs
EXP 9	Demonstrate and explain physical therapy techniques in different settings for various geriatric conditions	4 hrs
EXP 10	Demonstrate and explain gait training techniques using various mobility aids used in elderly.	4 hrs
EXP 11	Demonstrate and explain evaluation techniques to assess fall risk in elderly.	4 hrs
EXP 12	Demonstrate and explain intervention techniques to decrease fall risk in elderly.	4 hrs

Course outcomes

BPT4804.1	Analyzing the growth and development of a child and physiological response of ageing on body
BPT4804.2	Interpreting the signs and symptoms of paediatric and geriatric disorders
BPT4804.3	Developing the efficient exercise protocol for paediatrics and geriatrics group of population
BPT4804.4	Outlining the principles of paediatric and geriatric rehabilitation

Recommended Books:1. NEUROLOGIC INTERVENTIONS FOR PHYSICAL THERAPY by SUZZANE TINK MARTIN, ELSEVIER

2. PHYSICAL MANAGEMENT IN NEUROLOGICAL REHABILITATION by MARIA STOKES, ELSEVIER

3. GERIATRIC PHYSICAL THERAPY by ANDREW A. GUCCIONE, ELSEVIER

4. PEDIATRIC PHYSICAL THERAPY by JAN S. TECKLIN, LIPPINCOTT WILLIAMS & WILKINS