SCHEME & SYLLABUS

(Choice Based Credit System)

for

B.P.T

(w.e.f. Session 2018-2021)

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 centre 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	**F**uture 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	BPT101
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

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

SECTION 5

Curriculum / Scheme with Examination Grading Scheme

SEMESTER WISE SUMMARY OF THE PROGRAMME: BPT

S. No.	Semester	No. of Contact Hours	Marks	Credits
1.	I	29	1000	23
2.	II	26	900	21
3.	III	30	900	25.5
4.	IV	33	900	28.5
5.	V	36	900	24
6.	VI	36	900	24
7.	VII	34	900	23
8.	VIII	35	800	23
	Total	259	7200	192

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
45-49	C	5	Average
40-44	P	4	Fail
0-39	F	0	Fail
ABSENT	AB	0	Fail

Percentage Calculation: CGPA *10

Semester Wise Scheme

Contact Hours: 29

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-I	4	0	0	4.0	16	---	24	60	100	3
2	BPT1102	HUMAN ANATOMY-I LAB	0	0	6	3.0	----	30	----	70	100	3
3	BPT1103	HUMAN PHYSIOLOGY-I	4	0	0	4.0	16	---	24	60	100	3
4	BPT1104	HUMAN PHYSIOLOGY-I LAB	0	0	2	1.0	---	30	----	70	100	3
5	BPT1105	BIOCHEMISTRY	3	0	0	3.0	16	---	24	60	100	3
6	BPT1106	BIOCHEMISTRY LAB	0	0	2	1.0	---	30	---	70	100	3
7	BPT1107	PROGRAM ELECTIVE -I	2	0	0	2.0	16	---	24	60	100	3
8	BPT1108	COMMUNICATION SKILL**	2	0	0	2.0	16	---	24	60	100	3
9	BPT1109	COMMUNICATION SKILL LAB**	0	0	2	1.0	---	30	---	70	100	3
10	BPT1110	SOCIOLOGY	2	0	0	2.0	16	---	24	60	100	3
	Total		17	0	12	23.0					1000	

L	T	P	CWA	LWA	MTE	ETE	EPE
Lecture	Tutorial	Practical	Class work Assessment	Lab Work Assessment	Mid Term Exam	End Term Exam	End Prac. Exam

***Elective Subject:** other students of the university can opt this subject. ****Open Elective:** can be selected from the list present on university website department

Program Elective-I	**FIRST AID**
	STRESS MANAGMENT

Credits: 21.0
Contact hours: 26

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-II	4	0	0	4.0	16	---	24	60	100	3
2	BPT1202	HUMAN ANATOMY-II LAB	0	0	6	3.0	---	30	----	70	100	3
3	BPT1203	HUMAN PHYSIOLOGY-II	4	0	0	4.0	16	---	24	60	100	3
4	BPT1204	HUMAN PHYSIOLOGY-II LAB	0	0	2	1.0	---	30	---	70	100	3
5	BPT1205	COMPUTER APPLICATION	2	0	0	2.0	16	---	24	60	100	3
6	BPT1206	COMPUTER APPLICATION LAB	0	0	2	1.0	---	30	---	70	100	3
7	BPT1207	PROGRAM ELECTIVE-II	2	0	0	2.0	16	---	24	60	100	3
8	BPT1208	GENERAL AND CLINICAL PSYCHOLOGY	2	0	0	2.0	16	---	24	60	100	3
9	BPT1209	ENVIORNMENTAL STUDIES**	2	0	0	2.0	16	---	24	60	100	3
	Total		16	0	10	21.0					900	

L	T	P	CWA	LWA	MTE	ETE	EPE
Lecture	Tutorial	Practical	Class work Assessment	Lab Work Assessment	Mid Term Exam	End Term Exam	End Prac. Exam

***Elective Subject:** other students of the university can opt this subject. ****Open Elective:** can be selected from the list present on university website department

Program Elective-II	**MEDICAL TERMINOLOGY AND RECORD KEEPING**
	TIME MANAGMENT

Credits: 25.5
Contact hours: 30

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	EXERCISE THERAPY-I	4	0	0	4.0	16	---	24	60	100	3
2	BPT 2302	EXERCISE THERAPY-I LAB	0	0	3	1.5	---	30	---	70	100	3
3	BPT 2303	ELECTROTHERAPY-I	4	0	0	4.0	16	---	24	60	100	3
4	BPT 2304	ELECTROTHERAPY-I LAB	0	0	3	1.5	---	30	----	70	100	3
5	BPT 2305	BIOMECHANICS AND KINESIOLOGY-I	4	0	0	4.0	16	---	24	60	100	3
6	BPT 2306	BIOMECHANICS AND KINESIOLOGY-I LAB	0	0	3	1.5	---	30	---	70	100	3
7	BPT 2307	PATHOLOGY	3	0	0	3.0	16	---	24	60	100	3
8	BPT 2308	MICROBIOLOGY	3	0	0	3.0	16	---	24	60	100	3
9	BPT 2309	PHARMACOLOGY-I	3	0	0	3.0	16	---	24	60	100	3
	Total		21	0	9	25.5					900	

L	T	P	CWA	LWA	MTE	ETE	EPE
Lecture	Tutorial	Practical	Class work Assessment	Lab Work Assessment	Mid Term Exam	End Term Exam	End Prac. Exam

Credits: 28.5
Contact hours: 33

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	BPT 2401	EXERCISE THERAPY-II	4	0	0	4.0	16	---	24	60	100	3
2	BPT 2402	EXERCISE THERAPY-II LAB	0	0	3	1.5	----	30	---	70	100	3
3	BPT 2403	ELECTROTHERAPY-II	4	0	0	4.0	16	---	24	60	100	3
4	BPT 2404	ELECTROTHERAPY-II LAB	0	0	3	1.5	---	30	---	70	100	3
5	BPT 2405	BIOMECHANICS AND KINESIOLOGY-II	4	0	0	4.0	16	---	24	60	100	3
6	BPT 2406	BIOMECHANICS AND KINESIOLOGY-II LAB	0	0	3	1.5	----	30	---	70	100	3
7	BPT 2407	GENERAL MEDICINE	4	0	0	4.0	16	---	24	60	100	3
8	BPT 2408	GENERAL SURGERY	4	0	0	4.0	16	---	24	100	100	3
9	BPT 2409	PHARMACOLOGY-II	4	0	0	4.0	16	----	24	60	100	3
	Total		24	0	9	28.5					900	

L	T	P	CWA	LWA	MTE	ETE	EPE
Lecture	Tutorial	Practical	Class work Assessment	Lab Work Assessment	Mid Term Exam	End Term Exam	End Prac. Exam

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	BPT 3501	ORTHOPAEDICS-I	3	0	0	3.0	16	---	24	60	100	3
2	BPT 3502	ORTHOPAEDICS-I LAB	0	0	2	1.0	---	30	----	70	100	3
3	BPT 3503	NEUROLOGY-I	3	0	0	3.0	16	---	24	100	100	3
4	BPT 3504	NEUROLOGY-I LAB	0	0	2	1.0	---	30	----	70	100	3
5	BPT 3505	PHYSIOTHERAPY IN MEDICAL AND SURGICAL CONDITIONS	3	0	0	3.0	16	---	24	100	100	3
6	BPT 3506	PHYSIOTHERAPY IN MEDICAL AND SURGICAL CONDITIONS LAB	0	0	2	1.0	----	30	----	70	100	3
7	BPT 3507	COMMUNITY MEDICINE AND REHABILITATION	3	0	0	3.0	16	---	24	60	100	3
8	BPT 3508	COMMUNITY MEDICINE AND REHABILITATION LAB	0	0	2	1.0	---	30	---	70	100	3
9	BPT 3509	CLINICALS-I	0	0	16	8.0	---	---	---	100	100	3
Total			12	0	24	24.0					900	

L	T	P	CWA	LWA	MTE	ETE	EPE
Lecture	Tutorial	Practical	Class work Assessment	Lab Work Assessment	Mid Term Exam	End Term Exam	End Prac. Exam

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	BPT 3601	ORTHOPAEDICS-II	3	0	0	3.0	16	---	24	60	100	3
2	BPT 3602	ORTHOPAEDICS-II LAB	0	0	2	1.0	---	30	---	70	100	3
3	BPT 3603	NEUROLOGY-II	3	0	0	3.0	16	---	24	60	100	3
4	BPT 3604	NEUROLOGY-II LAB	0	0	2	1.0	---	30	---	70	100	3
5	BPT 3605	ORTHOPAEDIC PHYSIOTHERAPY-I	3	0	0	3.0	16	---	24	60	100	3
6	BPT 3606	ORTHOPAEDIC PHYSIOTHERAPY-I LAB	0	0	2	1.0	---	30	---	70	100	3
7	BPT 3607	NEUROLOGY PHYSIOTHERAPY-I	3	0	0	3.0	16	---	24	60	100	3
8	BPT 3608	NEUROLOGY PHYSIOTHERAPY-I LAB	0	0	2	1.0	---	30	---	70	100	3
9	BPT 3609	CLINICALS-II	0	0	16	8.0	---	---	---	100	100	3
	Total		12	0	24	24.0					900	

L	T	P	CWA	LWA	MTE	ETE	EPE
Lecture	Tutorial	Practical	Class work Assessment	Lab Work Assessment	Mid Term Exam	End Term Exam	End Prac. Exam

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	BPT 4701	ORTHOPAEDIC PHYSIOTHERAPY-II	3	0	0	3.0	16	---	24	60	100	3
2	BPT 4702	ORTHOPAEDIC PHYSIOTHERAPY-II LAB	0	0	2	1.0	---	30	---	70	100	3
3	BPT 4703	NEUROLOGY PHYSIOTHERAPY-II	3	0	0	3.0	16	---	24	60	100	3
4	BPT 4704	NEURO LOGY PHYSIOTHERAPY-II LAB	0	0	2	1.0	---	30	---	70	100	3
5	BPT 4705	CARDIOPULMONARY PHYSIOTHERAPY	3	0	0	3.0	16	---	24	60	100	3
6	BPT 4706	CARDIOPULMONARY PHYSIOTHERAPY LAB	0	0	2	1.0	---	30	---	70	100	3
7	BPT 4707	RESEARCH METHODOLOGY AND BIOSTATISTICS	3	0	0	3.0	16	---	24	60	100	3
8	BPT 4708	CLINICALS-III	0	0	16	8.0	---	---	---	100	100	3
	TOTAL		12	0	22	23.0						

L	T	P	CWA	LWA	MTE	ETE	EPE
Lecture	Tutorial	Practical	Class work Assessment	Lab Work Assessment	Mid Term Exam	End Term Exam	End Prac. Exam

Credits: 23.5
Contact hours: 35

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	2	1.0	---	---	---	100	100	3
9	BPT 4809	CLINICALS-IV	0	0	16	8.0	---	---	---	100	100	3
	Total		11	0	24	23.0						

L	T	P	CWA	LWA	MTE	ETE	EPE
Lecture	Tutorial	Practical	Class work Assessment	Lab Work Assessment	Mid Term Exam	End Term Exam	End Prac. Exam

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-I
SUBJECT CODE: BPT1101
SEMESTER: I
CONTACT HOURS/WEEK: 4

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
4	0	0	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,	18 hrs

	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.	
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 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 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: HUMAN PHYSIOLOGY-I
SUBJECT CODE: BPT1103
SEMESTER: I
CONTACT HOURS/WEEK: 4

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
4	0	0	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 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 **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, arterial pulse	18 hrs

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, dyspnoea, 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

BPT1103.1	Understanding the general physiology of the body.
BPT1103.2	Explaining normal functioning and interaction of all the organ systems.
BPT1103.3	Identifying applied physiology of various body systems..
BPT1103.4	Analyzing the response of various body systems to physiological and pathological stress.

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 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: 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 of course: Through this course students 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	UnderstandingthebasicconceptsandprinciplesofBiochemistry.
BPT1105.2	Understandingmacronutrients, micronutrientsandroleofenzymesand hormones.
BPT1105.3	Identifyingappliedphysiologyofvariousbody systems.
BPT1105.4	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 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: FIRST AID
SUBJECT CODE: BPT1107
SEMESTER: I
CONTACT HOURS/WEEK: 2

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

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

Objective of course: Through this course students 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

BPT1107.1	Understanding the basic principles and concepts of First Aid alongwith Emergency care in various situations.
BPT1107.2	Demonstrating principles and concepts of bodymechanics, nutrition,care of instruments in hospitals, environmental safety and bedside
BPT1107.3	Applying the concepts of firsta id management in various emergency and casualty situations.
BPT1107.4	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 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: SOCIOLOGY

SUBJECT CODE: BPT1110

SEMESTER: I

CONTACT HOURS/WEEK: 2

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

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

Objective 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**

Course Outcomes

BPT1110.1	Integrate social stigmas of the subjects while assessing and planning treatment without hindering their cultural diversity.
BPT1110.2	Ingrain various social factors affecting family in rural and urban communities and their impact on physiotherapy practice.
BPT1110.3	Exploring the social factors and to provide remedial measures to various social issues.
BPT1110.4	Follow the basic concepts and principles of socialization.

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 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: HUMAN ANATOMY-- I LABORATORY

SUBJECT CODE: BPT-1102

SEMESTER: I
CONTACT HOURS/WEEK: 2

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

Duration of Exam; 3 Hrs

Course Objectives: Through this course students 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

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

BPT1102.1	Describingallanatomicalstructuresfromaregionalperspective.
BPT1102.2	Identifyingmuscles,bones,bonyprominencesjoints,alongwithsurface Landmarks.

BPT1102.3	Demonstratingmovementsofjoints.
BPT1102.4	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. LTD.

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: HUMAN PHYSIOLOGY-I LABORATORY

SUBJECT CODE: BPT-1104
SEMESTER: I
CONTACT HOURS/WEEK: 2

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

Duration of Exam; 3 Hrs

Course Objectives: Through this course students should be able to

• Examine the pulse rate, blood pressure and various haematological 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.	4hrs
II	Demonstration of RBC count	4hrs
III	Demonstration of WBC count	4hrs
IV	Demonstration of ESR and PCV	4hrs
V	Demonstration of bleeding time and clotting time	4hrs
VI	Demonstration of blood groups	4hrs
VII	Demonstration of blood pressure and pulse	4hrs

VIII	**Demonstration of auscultation of heart sounds**	**4hrs**
IX	**Demonstration of auscultation of lung sounds.**	**4hrs**
X	**Demonstration of pulmonary function test and spirometry.**	**4hrs**

Course Outcomes

BPT1104.1	Understandingthegeneralphysiologyofthebody.
BPT1104.2	Explainingnormal functioning andinteractionofallthe organsystems.
BPT1104.3	Identifyingappliedphysiologyofvariousbody systems..
BPT1104.4	Analyzing the response of various body systems to physiological and pathological stress.

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

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: BIOCHEMISTRY LABORATORY
SUBJECT CODE: BPT-1106
SEMESTER: I
CONTACT HOURS/WEEK: 1

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

Duration of Exam; 3 Hrs

Course Objectives: Through this course students should be able to

• Understand practical application of various biochemistry tests

• Learn about the clinical relevance of various biochemical tests

• Learn about the precautions to be taken while conducting various biochemical tests

List of Practical's / Experiments:

Sr. No	Contents	Contact Hours
1	**Carbohydrates** **• Qualitative Identification of carbohydrates in unknown sample**	4hrs

II	**Identification of carbohydrates** **• Molisch and Benedicts test**	**4hrs**
III	**Polysaccharides** **• Qualitative Identification of polysaccharides in unknown sample**	**4hrs**
IV	**Identification of polysaccharides** **• Iodine and seliwanoffs test**	**4hrs**
V	**Blood total proteins** **• Quantitative Estimation of total proteins in serum sample**	**4hrs**
VI	**Identification of proteins** **• Biuret test and lead sulphide test**	**4hrs**
VII	**Aromatic amino acids** **• Qualitative Identification of aromatic amino acids in unknown sample**	**4hrs**
VIII	**Lipids** **• Qualitative identification of lipids in unknown sample**	**4hrs**
IX	**Identification of lipids** **• Glycerol and acrolein test**	**4hrs**
X	**Blood cholesterol** **• Quantitative estimation of cholesterol in serum sample** **Blood Glucose** **• Estimation of glucose in blood** **pH** **• Estimation of the ph of given sample**	**4hrs**

Course Outcomes

BPT1106.1	UnderstandingthebasicconceptsandprinciplesofBiochemistry.
BPT1106.2	Understandingmacronutrients, micronutrientsandroleofenzymesand hormones.
BPT1106.3	Identifyingappliedphysiologyofvariousbody systems.
BPT1106.4	Applyingthe knowledgeofbiochemical processesfor clinicaldiagnosis.

Recommended Books:

1. PRACTICAL BIOCHEMISTRY FOR STUDENTS by VK MALHOTRA, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.
2. PRACTICAL BIOCHEMISTRY by R C GUPTA AND S BHARGAVA, CBS PUBLISHERS & DISTRIBUTORS PVT. LTD

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: HUMAN ANATOMY-II
SUBJECT CODE: BPT 1201
SEMESTER: II
CONTACT HOURS/WEEK: 4

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

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

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

- Extend the knowledge of basic anatomy of lower limb and its clinical aspect
- Analyze the anatomy and applied aspects of joints of lower limb and soft tissues
- Outline the anatomy and clinical aspect of visceral organs of abdomen
- Identify the bony landmarks and functions of skull and neck

Contents of Syllabus:

Sr. No	Contents	Contact Hours
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 **Abdominal cavity and Peritoneum :** nine regions of abdomen,peritoneum , types of peritoneum,peritoneal folds,greater and lesser omentum	**18hrs**
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,neuroglial cells,reflex arc,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 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: HUMAN PHYSIOLOGY-II
SUBJECT CODE: BPT 1203
SEMESTER: II
CONTACT HOURS/WEEK: 4

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
4	0	0	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.
- Extend basic knowledge of physiology in the field of physiotherapy
- Discuss the various physiological functions of body systems
- 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 appartus, renal circulation **Mechanism of Urine Formation :** glomerular filtration rate, tubular re-absorption & secretion **Mechanism of concentrating and diluting the Urine :** counter-current mechanism, applied physiollogy **Acidification of Urine and acid-base Balance :** removal of hydrogen ion and acidification of urine, acid-base balance **Micturition :** mechanism of micturition, micturition reflex	**18hrs**

	Skin and temperature regulation : structure and functions of skin, regulation of body temperature	
UNIT-II	**Introduction to nervous system :** organisation 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 **Somatosensory and somatomotor system :** somatosensory system, somatomotor system **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**
UNIT-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**
UNIT-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

BPT1203.1	Analyze the relationships within and between anatomical and physiological systems of the human body.
BPT1203.2	Extend basic knowledge of physiology in the field of physiotherapy.
BPT1203.3	Discuss the various physiological functions of body systems
BPT1203.4	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 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: GENERAL AND CLINICAL PSYCHOLOGY

SUBJECT CODE: BPT 1208
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 students should be able to

• Describe the various stages of growth and development and role of hereditary in psychological development.

•Discuss the various personality traits and help the individuals to inculcate those patterns in their behavior.

• Interpret the various levels of emotional analysis and stress management.

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Introduction to Psychology : Schools:** Structuralism, functionalism, behaviorism, Psychoanalysis, Methods: Introspection, observation, **inventory and experimental method., Branches:** pure psychology and applied psychology, Psychology and physiotherapy **Growth and Development : Life span:** Different stages of development Infancy, childhood, adolescence, adulthood, middle age, old age., Heredity and environment: role of heredity and environment in physical and psychological development, "Nature v/s Nurture controversy" **Sensation, attention and perception :** Sensation: Over view of Vision, Hearing, Olfactory, Gustatory and Cutaneous sensation, movement, equilibrium and visceral sense., Attention: Types of attention, Determinants of attention (subjective determinants and objective determinants)., **Perception:** Gestalt principles of organization of perception (principle of figure ground and principles of grouping), factors influencing perception (past experience and context)., Illusion and hallucination: different types	**14hrs**
UNIT-II	**Motivation :** Motivation cycle (need, drive, incentive, reward)., Classification of motives., Abraham Maslow's theory of need hierarchy	**14hrs**

	Frustration and conflict : Frustration: sources of frustration., Conflict: types of conflict., Management of frustration and conflict **Emotions :** Three levels of analysis of emotion (physiological level, subjective state, and overt behavior), Theories of emotion, Stress and management of stress.	
UNIT-III	**Intelligence :** Theories of intelligence., Distribution of intelligence, Assessment of intelligence **Thinking :** Reasoning: deductive and inductive reasoning, Problem solving: rules in problem solving (algorithm and heuristic), Creative thinking: steps in creative thinking, traits of creative people **Learning : Factors effecting learning, Theories of learning:** trial and error learning, classical conditioning, Operant conditioning, insight learning, social learning theory, The effective ways to learn: Massed/Spaced, Whole/Part, Recitation/Reading, Serial/Free recall, Incidental/Intentional learning, Knowledge of results, association, organization, and mnemonic methods.	**14hrs**
UNIT-IV	**Personality :** Approaches to personality: type & trait, behavioristic, psychoanalytic and humanistic approach., Personality assessment: observation, situational test, questionnaire, rating scale, interview, and projective techniques, Defense Mechanisms: denial of reality, rationalization, projection, reaction formation, identification, repression, regression, intellectualization, undoing, introjection, acting out. **Social psychology :** Leadership: Different types of leaders. Different theoretical approaches to leadership., Attitude: development of attitude. Change of attitude. **Clinical psychology :** abnormal behavior assessment, clinical judgement and psychotherpy, self-management methods, physiotherapist patient interaction, aggression, self imaging, stress management, Group therapy, Body awareness ,child and geriatric clinical psycology	**12hrs**

Course Outcomes

BPT1208.1	Understanding the necessity of computer in our daily life.
BPT1208.2	Explaining basic components of computer and operating systems.
BPT1208.3	Devices, network types and topologies.
BPT1208.4	Demonstrating the concepts for Microsoft office, problem solving

Recommended Books: 1. INTRODUCTION TO PSYCHOLOGY by CLIFFORD T. MORGAN, RICHARD A KING, JOHN R WEISZ ,JOHN SCHOPLER, MC GRAW HIL

2. MUNN'S INTRODUCTION TO PSYCHOLOGY by L.DODGE FERNALD, PETER S. FERNALD, AITBS PUBLISHERS INDIA

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: MEDICAL TERMINOLOGY AND RECORD KEEPING

SUBJECT CODE: BPT 1207
SEMESTER: II
CONTACT HOURS/WEEK: 3

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

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

Objective 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 Hours
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	**14hrs**

	system, medical word elements related to respiratory system and cardiovascular system	
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

BPT1207.1	Define basic terminologies related to health care and physiotherapy
BPT1207.2	Enumerate different word elements related to various body systems
BPT1207.3	Identify basic medical abbreviations and symbols related to the field of physiotherapy
BPT1207.4	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 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: ENVIRONMENTAL STUDIES
SUBJECT CODE: BPT 1209
SEMESTER: II
CONTACT HOURS/WEEK: 2

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

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 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 **Environmental Policies & Practices :** Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture	**9hrs**
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	**9hrs**

	movements : Chipko, silent valley, bishnois of Rajasthan, Environmental ethics: Role of Indian and other religions and cultures in environmental conservation	

Course Outcomes

BPT1209.1	Understandingtheconceptsofecology.
BPT1209.2	Explainingnatural resources, environmental pollution, policies and Practices.
BPT1209.3	Identifyingthecauseandeffectrelationshipofenvironmentandhuman community
BPT1209.4	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

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SUBJECT TITLE: HUMAN ANATOMY-II LABORATORY

SUBJECT CODE: BPT-1202
SEMESTER: II
CONTACT HOURS/WEEK: 6

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

Duration of Exam; 3 Hrs

Objectives of the Course Through this course student would be able to
Demonstrate osteology and myology of bones
Demonstrate movements in the body
Analyse planes and axis of movements and joint motion

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, Demonstration of osteology of sacrum and coccyx demonstration of greater/lesser pelvis and pelvic floor muscles Demonstration of joints of pelvis: lumbosacral joint, sacrococcygeal joint, illiosacral joint ,pubic symphysis	8hrs
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.	8hrs

	Demonstration of gross anatomy of cerebral and cerebellar hemispheres **Demonstration of structures seen in saggital section of cerebral hemisphere**	

Course Outcomes

BPT1202.1	Describe the joints of human body and their functions.
BPT1202.2	Demonstrate the osteology and myology of lower limb bones
BPT1202.3	Distinguish between anatomical structure of typical and atypical vertebrae
BPT1202.4	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-II LABORATORY

SUBJECT CODE: BPT-1204
SEMESTER: II
CONTACT HOURS/WEEK: 2

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

Duration of Exam; 3 hrs

Course Objectives- Through this course student should be able to

- Learn basics and advances of Physiology
- Would learn to do basics of physiological tests
- Would be able to performExamination of reflexes

Sr. No	Contents	Contact Hours
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

BPT1204.1	Analyze the relationships within and between anatomical and physiological systems of the human body.
BPT1204.2	Extend basic knowledge of physiology in the field of physiotherapy.
BPT1204.3	Discuss the various physiological functions of body systems
BPT1204.4	Assess the normal functioning of various systems of the body

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

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SUBJECT TITLE: EXERCISE THERAPY- I

SUBJECT CODE: BPT 2301
SEMESTER: III
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 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 position and muscle work in derived positions, Effects and uses of various positions	**12hrs**
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 **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	**14hrs**

Course Outcomes

BPT2301.1	Understanding the basic principles, concepts and terminologies of Fundamental exercise therapy and yogic practice..
BPT2301.2	Explaining biomechanics of fundamental exercise therapy and yogic practice.

BPT2301.3	Describing the concepts of therapeutic gymnasium, hydrotherapy and goniometry.
BPT2301.4	Analyzing the use of various types of exercises in appropriate condition

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

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

Instruction of Question Paper setter

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SUBJECT TITLE: ELECTROTHERAPY-I
SUBJECT CODE: BPT 2303
SEMESTER: III
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 of course: Through this course student should be able to

• Interpret basic concepts in Electrotherapy.

• Analyse physiological and therapeutic applications of various electrotherapy modalities.

• Interpret indication and contraindications of various electrotherapy modalities.

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Basic Physics(Review)** : Static electricity, Current electricity, Transfomers, 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	**14hrs**
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	**14hrs**

	TENS, Types of TENS, Techniques of treatment with TENS, Sinusoidal currents, Didynamic currents **Electrodiagnostic test and electrical reaction** : Assessment by analyzing the results of stimulating nerve and muscle through SD Curve., electrodiagnosis, Pain modulation, evoked potentials, introduction to NCV and EMG, Biofeedback, chronaxie, Rheobase & pulse ratio	
UNIT-III	**Medium frequency currents** : interferential Currents, application and precaution, effects of interferential Currents,damage due to therapeutic nerve and muscle stimulating currents	**14hrs**
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, Therapeutic uses of cold, Types of application of heat therapy, Methods of applying cold therapy, Contrast bath and dangers of cold therapy **Fluidotherapy and compression therapy** : construction, method of application, therapeutic uses, indications and contraindications, advantages and disadvantages, Intermittent compression therapy	**12hrs**

Course Outcomes

BPT2332.1	Understanding and applying the basic concepts for the assessment of sensations, reflexes, blood pressure, pulserate chest expansion and Respiratory rate. .
BPT2303.2	Utilizing the basic principles and concepts of Exercise therapy, joint movements, free exercises, relaxation techniques, yoga, starting and Derived positions.
BPT2303.3	Developing the basic concepts of using suspension therapy, goniometry, The various equipment used in a clinical therapeutic gymnasium setting.
BPT2303.4	Examine the knowledge of the student therapeutic skill in physiotherapy

Recommended Books: 1. Electrotherapy explained: principles and practice by Val Robertson, Alex ward , John Low , Ann Reed, Butterworth-heinemann (elsevier)

2. CLAYTONS ELECTROTHERAPY by A. FORSTER AND N. PALASTANGA, BAILLIÈRE TINDALL (ELSEVIER)

Instruction of Question Paper setter

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SUBJECT TITLE: PATHOLOGY
SUBJECT CODE: BPT2307
SEMESTER: III
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 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**

Course Outcomes

BPT2307.1	Understanding the basic concepts of abnormal physiological and Pathological disease processes of various body systems.
BPT2307.2	Describing the concepts of infection prevention, sterilization and disinfectants and mechanisms of disturbances, manifestation sof tissue Response to injury and homeostasis.
BPT2307.3	Explaining various microbes, their classification, routes of infection, basic immunological responses, common diagnostic tests and interpretation of Tests.
BPT23047.4	Applying the knowledge of disease processes when assessing and treating A patient.

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 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: MICROBIOLOGY
SUBJECT CODE: BPT2308
SEMESTER: III
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 of course: Through this course student 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

BPT2308.1	Describe diversity of microorganisms, bacterial cell structure and function,
BPT2308.2	Describe microbial growth and metabolism
BPT2308.3	Define different types of microorganisms playing an integral role in diseases
BPT2308.4	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 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: BIOMECHANICS AND KINESIOLOGY-I
SUBJECT CODE: BPT2305
SEMESTER: III
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 students 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

BPT2305.1	Understandingtheconceptsandprinciplesof biomechanics
BPT2305.2	Analyzingtheapplicationofconceptsandprinciplesofbiomechanicsin Musculoskeletalfunctionand dysfunction.
BPT2305.3	Applyingconceptsofanatomyandmechanicstothejointmotion,gait Andposture .
BPT2305.4	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 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 sy

SUBJECT TITLE: PHARMACOLOGY-I
SUBJECT CODE: BPT2309
SEMESTER: III
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 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

BPT2309.1	Describingthe basicpharmacologyofcommonlyuseddrugs.
BPT2309.2	Understandingthe physiological effects and side effectsof drugs. "
BPT2309.3	Analyzingtheimportanceofdrugsintheoveralltreatmentincluding physiotherapy.
BPT2309.4	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 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: BIOMECHANICS AND KINESIOLOGY-I LABORATORY

SUBJECT CODE: BPT2306
SEMESTER: III
CONTACT HOURS/WEEK: 3

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	3	2

Duration of Exam; 3 Hrs

Course Objectives: 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

BPT2306.1	Describing all anatomical structures from a regional perspective.
BPT2306.2	Identifying muscles, bones, bony prominences joints, along with surface landmarks.
BPT2306.3	Demonstrating movements of joints.
BPT2306.4	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: EXERCISE THERAPY-I LABORATORY

SUBJECT CODE: BPT-2302
SEMESTER: III
CONTACT HOURS/WEEK: 3

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	3	2

Duration of Exam; 3 Hrs

Course Outcomes: 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 ProprioceHSive Neuromuscular Facilitation patterns and techniques.**	**6hrs**

Course Outcomes

BPT2302.1	Understanding and applying the basic concepts for the assessment of sensations, reflexes, blood pressure, pulse rate, chest expansion and Respiratory rate. .
BPT2302.2	Utilizing the basic principles and concepts of Exercise therapy, joint movements, free exercises, relaxation techniques, yoga,startingand Derived positions.
BPT2302.3	Developing the basic concepts of using suspension therapy, goniometry, The various equipment used in a clinical therapeutic gymnasium setting.
BPT2302.4	Examine the knowledge of the student therapeutic skill in physiotherapy

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

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: ELECTROTHERAPY-I LABORATORY
SUBJECT CODE: BPT 2304
SEMESTER: III
CONTACT HOURS/WEEK: 3

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	3	2

Duration of Exam; 3 Hrs

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

• Learn the application of various electrotherapy modalities

• Demonstrate the practical application of various electrotherapy modalities

• Interpret the clinical relevance of electrotherapy modalities

• Understand the precautions to be taken while administering various electrotherapy equipment

List of Practicals / Experiments

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.	8hrs

	Demonstration and technique of application of whirlpool bath, Fluidotherapy. **Demonstration and technique of application of paraffin wax bath unit.**	
IV	**Demonstration and technique of application of Cryotherapy.**	**8hrs**
V	**Demonstration and technique of application of EMG and NCV.**	**8hrs**

Course Outcomes

BPT2304.1	Identifyingvariousmodalities.
BPT2304.2	Applyingheatandcoldtherapy,lowfrequencyandmediumfrequency CurrentsandTENS. .
BPT2304.3	Practicingwithfaradicandgalvaniccurrentstoelicit musclestimulation.
BPT2304.4	Analyzing the electro diagnostic procedures

Recommended Books:

1. CLAYTON'S ELECTROTHERAPY by ELIZABETH & PALASTANGA, NIGEL FORSTER, BAILLIERE TINDALL (ELSEVIER)

2. PRINCIPLES AND PRACTICE OF ELECTROTHERAPY by JOSEPH KAHN, CHURCHILL LIVINGSTONE

3. MANUAL OF PRACTICAL ELECTROTHERAPY by JAGMOHAN SINGH, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.

SUBJECT TITLE: EXERCISE THERAPY-II

SUBJECT CODE: BPT2401

SEMESTER: IV
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 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 **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	**14hrs**

	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 Outcome

BPT2401.1	Understandingtheconcepts,principlesandtechniquesofexercise Therapyin-depth.
BPT2401.2	Explaining the basic concepts, indications, contraindications andprecautionsofvarioustypesandmodesofexercises,homeprogramand ergonomics.
BPT2401.3	Summarizinglimb-musclegirthmeasurement,balance,coordination, posture,musclere- educationandwalkingaids.
BPT2401.4	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

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SUBJECT TITLE: GENERAL MEDICINE
SUBJECT CODE: BPT2407
SEMESTER: IV
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 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 achlasia cardia, 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, psychosomatic reactions, stress and health and theories of stress illness, drug dependence and alcoholism, somatoform and dissociate disorders - conversion reactions somatization, dissociate amnesia and	**14hrs**

	dissociate fugue, personality disorders, child psychiatry disorders, attention deficit syndrome and behavioral disorders, geriatric psychiatry	

Course Outcome

BPT2407.1	Describe the influence of social and environmental factors on the health of the individual and society
BPT2407.2	Describing the basic pharmacology of commonly used drugs.
BPT2407.3	Design the methods to rehabilitate patients with various disorders
BPT2407.4	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 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: GENERAL SURGERY

SUBJECT CODE: BPT2408
SEMESTER: IV
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 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, ophthalmology- surgical management of ophthalmologic conditions, refraction errors, conjunctivitis, glaucoma, corneal ulcer, iritis and cataract, retinitis, detachment of retina, defects of extra-ocular muscles	**14hrs**

BPT2408.1	Understand basic principles of general surgery
BPT2408.2	Recognize the clinical manifestations of various surgical conditions
BPT2408.3	Design the surgical management of various surgical conditions
BPT2408.4	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 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: BIOMECHANICS AND KINESIOLOGY-II
SUBJECT CODE: BPT2405
SEMESTER: IV
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 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

BPT2405.1	To enhance the critical analysis of applying and integrating the analysis of forces on diagnosing various disorders
BPT2405.2	Understanding the concepts and principles of biomechanics
BPT2405.3	Analyzing the application of concepts and principles of biomechanics in musculoskeletal function and dysfunction.
BPT2405.4	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 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: ELECTROTHERAPY-II
SUBJECT CODE: BPT2403
SEMESTER: IV
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 students should be able to

- Analyze the use of high frequency currents in various conditions.
- Identify the key physiological effects of the 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 **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	**14hrs**

	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

BPT2403.1	Applying the principles of apparatus testingwith preparation of treatmenttray.
BPT2403.2	Utilizingthewind-upprocedureafterelectrotherapytreatment
BPT2403.3	Developingthetechniquesforpatientevaluationandapplicationof variouselectro-modalities.
BPT2403.4	Demonstrate the knowledge regarding application of modalities in various conditions

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 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: EXERCISE THERAPY-II LABORATORY

SUBJECT CODE: BPT2402

SEMESTER: IV
CONTACT HOURS/WEEK: 3

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	3	2

Duration of Exam; 3 Hrs

Course Objectives: Through this course students should be able to

- Learn the application techniques used in exercise therapy
- Validate different methods of application of therapeutic exercises
- Design different treatment protocols for different conditions

S.NO.	List of Practicals/Experiments	Contact Hours
EXP-I	Demonstration of Mobilization techniques of Upper Limb.	4 hrs
EXP-II	Demonstration of Mobilization techniques of Spine & Lower Limb.	4 hrs
EXP-III	Demonstration of various traction techniques, including manual, mechanical and electrical procedures.	4 hrs
EXP-IV	Evaluation and assessment of Equilibrium / Balance and practice various techniques to improve balance.	4 hrs
EXP-V	Evaluate and practice the use of various ambulation aids in gait training.	4 hrs
EXP-VI	Demonstration of assessment and evaluation of normal and abnormal gait patterns	4 hrs
EXP-VII	Demonstration of Mat Exercises	4 hrs
EXP-VIII	Demonstration of assessment and evaluation of normal and abnormal Posture and corrective techniques.	4 hrs
EXP-IX	Demonstration of Group therapy.	4 hrs

EXP-X	**Demonstration of Suspension Therapy in Upper and Lower Limb.**	**4 hrs**

Course Outcomes

BPT2402.1	Demonstrating the basics of exercisetherapyalongwithgoniometry,ManualMuscleTesting,movementsandProprioceptiveNeuromuscular Facilitation.
BPT2402.2	Practicingvarioustypesandmodesofexercises,functionalre-education, Stretchingandjointmobilization.
BPT2402.3	Applyingtheknowledgeoflimbandgirthmeasurement,gaitassessment Andpostureevaluation.
BPT2402.4	Application of aerobic and anaerobic training protocol

References: 1. THERAPEUTIC EXERCISE: FOUNDATIONS AND TECHNIQUES by CAROLYN KISNER, LYNN ALLEN COLBY, F.A. DAVIS COMPANY

2. PRACTICAL EXERCISE THERAPY by MARGARET HOLLIS, HYLLIS FLETCHER COOK, WILEY

3. THE PRINCIPLES OF EXERCISE THERAPY by M DENA GARDINE, CBS PUBLISHERS & DISTRIBUTORS PVT. LTD

SUBJECT TITLE: BIOMECHANICS AND KINESIOLOGY-II LABORATORY
SUBJECT CODE: BPT2406
SEMESTER: IV
CONTACT HOURS/WEEK: 3

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	3	2

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.

List of Practical's / Experiments:

Sr. No	Contents	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	**6hrs**

II	**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	6hrs
III	**Ankle complex** • demonstration of arthrokinematics and osteokinematics of ankle joint • demonstration of functions of ankle joint	6hrs
IV	**Foot complex** • demonstration of structure and functions of transverse tarsal joint • demonstration of structure and function of tarsometatarsal and metatarsophalangeal joint	6hrs
V	**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	6hrs

Course Outcomes

BPT2406.1	Identifying gait parameters, abnormal gait and abnormal posture of various body systems.
BPT2406.2	Demonstratingmovementanalysisandmuscleinsufficiencies
BPT2406.3	Applyingtheconcepts ofaxisandplanes of anatomicalstructures
BPT2406.4	To make the students understand about the analysis of forces acting on various joints.

References: JOINT STRUCTURE AND FUNCTION A COMPREHENSIVE ANALYSIS by CYNTHIA C NORKIN, F.A. DAVIS COMPANY

SUBJECT TITLE: ELECTROTHERAPY-II LABORATORY
SUBJECT CODE: BPT2404
SEMESTER: IV
CONTACT HOURS/WEEK: 2

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

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.

Sr. No	Contents	Contact Hours
EXP 1	Demonstration of technique of therapeutic ultrasound. Demonstration of methods of application of US and its parameters.	6hrs
II	Demonstration of technique of shortwave diathermy. Demonstration of methods of application of SWD and its parameters.	6hrs
III	Demonstration of technique of Infrared radiation therapy. Demonstration of methods of application of IRR bulb and its parameters.	6hrs
IV	Demonstration of technique of ultraviolet radiation therapy. Demonstration of methods of application of UVR and its parameters.	6hrs
V	Demonstration of technique of LASER therapy. Demonstration of methods of application of Laser and its parameters.	6hrs
VI	Demonstration of technique of Microwave diathermy. Demonstration of methods of application of MWD and its parameters.	6hrs
VII	Demonstration of technique of CERVICAL TRACTION.	6hrs
VIII	Demonstration of technique of LUMBAR TRACTION.	6hrs
IX	Demonstration of technique of HYDROTHERAPY.	6hrs
X	Demonstration of technique of LONGWAVE therapy.	6hrs

Course Outcomes

BPT2404.1	Applying the principles of apparatus testingwith preparation of treatmenttray.
BPT2404.2	Utilizingthewind-upprocedureafterelectrotherapytreatment
BPT2404.3	Developingthetechniquesforpatientevaluationandapplicationof variouselectro-modalities.
BPT2404.4	Demonstrate the knowledge regarding application of modalities in various conditions

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: PHYSIOTHERAPY IN MEDICAL AND SURGICAL CONDITIONS

SUBJECT CODE: BPT3505
SEMESTER: V
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 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 disorders

Contents of Syllabus:

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, osteogenesis imperfecta, 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/surgicalconditionsduringassessment ofpatient.

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 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: COMMUNITY MEDICINE AND REHABILITATION
SUBJECT CODE: BPT3507
SEMESTER: V
CONTACT HOURS/WEEK: 2

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

- 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 Immunisation programme, 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 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	**9hrs**
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 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: ORTHOPAEDICS-I

SUBJECT CODE BPT3501

SEMESTER: V
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 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
- Understand the various rheumatological ailments and metabolic disorders
- Analyse the different soft tissue injuries and injuries to peripheral nerves
- Understand about the various tumors and genetic disorders

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Diagnosis in orthopaedics :** 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 **Subluxations and dislocations :** classification, pathoanatomy in subluxation and dislocation, complications and treatment	**12hrs**
UNIT-II	**Injuries of the shoulder, upper arm and elbow :** fractures 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, principles of definitive treatment, 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 :** sprains, strains, contusion, tendinitis, tenosynovitis, tendinosis, bursitis, ligament injuries of knee, meniscal injuries of knee, lateral ligament of ankle, wrist sprains, quadriceps and hammstring strains, quadriceps, gluteal, calf, deltoid contusions, achilles tendon rupture, rotator cuff muscle tear, PASTA lesion, biceps tendon injuries **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 **Amputations:** definitions, level(upper and lower limb), indications, contraindications **Orthopaedic Surgeries :** arthodesis, arthoplasty, osteotomy, spinal stabilization	**14hrs**

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 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: NEUROLOGY-I
SUBJECT CODE: BPT3503
SEMESTER: V
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 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
UNIT-I	**Over view of anatomy & physiology of nervous system :** cerebrum, cerebellum, brain stem, meningeal layers, ventricles, basal ganglia, cranial nerves, blood supply of brain, spinal cord and tracts, neuromuscular junction, muscle physiology **Clinical assessment in patients with neurological disorders :** history taking, level of consciousness, higher cortical function examination, cranial nerve examination, sensory examination, motor examination, reflexes, coordination, balance, gait examination, bladder and bowl examination, imaging studies, electrophysiological studies, CSF analysis, muscle biopsy, blood reports	12hrs
UNIT-II	**Traumatic and vascular lesions of nervous system :** stroke, traumatic brain injury, spinal cord injury	14hrs
UNIT-III	**Demyelinating and degenerating disorders of nervous system** : multiple sclerosis, transverse myelitis, ADEM disease, Guillain – Bare syndrome, motor neuron disease	14hrs
UNIT-IV	**Congenital and developmental disorders of nervous system :** cerebral palsy, autism, Down's syndrome, congenital spinal anomalies, hydrocephalus **Infectious disorders of the nervous system :** meningitis, encephalitis, lyme disease, HIV infection of brain, syphilis, rabies, tuberculosis infection of brain and spine, poliomyelitis	14hrs

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

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.

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: PHYSIOTHERAPY IN MEDICAL AND SURGICAL CONDITIONS LABORATORY
SUBJECT CODE: BPT3506
SEMESTER: V
CONTACT HOURS/WEEK: 2

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

Duration of Exam; 3 Hrs

Course Outcomes: 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 the cancer patients and pain management

List of Practicals / Experiments:

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

BPT3506.1	Relate the neuro-anatomical structures and its functions relevant to the clinical manifestation of neurological disorders
BPT3506.2	• Apply basic neurological examination procedures relevant to the neurological disorders
BPT3506.3	• Describe the conservative medical and surgical management to the specific neurological disorders
BPT3506.4	Summarizingtheknowledgeofvariousneurologicaldiseaseconditions;

	Theiridentificationandmanagement.

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 COMPANY

SUBJECT TITLE: COMMUNITY MEDICINE AND REHABILITATION LABORATORY
SUBJECT CODE: BPT3508
SEMESTER: V
CONTACT HOURS/WEEK: 1

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

Duration of Exam; 3 Hrs

Course Outcomes: Through this course students 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

Sr. No	Contents	Contact Hours
UNIT-I	**Health and Disease : conceHSs, dimensions and indications of health, conceHS of well-being, spectrum and determinants of Health, ConceHS and natural history of Disease, conceHSs 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, conceHS 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**	9hrs

	mental health, role of Physiotherapist in mental health problems such as mental retardation **Health Education : conceHSs, 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, HSB 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	Describing the influence of social and environmental factors on health of individual and society
BPT3507.2	Analyzing the methods of preventing and managing common conditions
BPT3507.3	Designing the methods to rehabilitate patients with various disorders
BPT3507.4	Interpreting the principles of upper limb and lower limb prosthesis, orthotics and splints

RECOMMENDED BOOKS: 1. PREVENTIVE AND COMMUNITY MEDICINE by BRIAN MACMAHOR, DUNCAN CLARK, LITTLE, BROWN BOOK GROUP

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

3. TEXTBOOK OF REHABILITAION by S SUNDER, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.

SUBJECT TITLE: NEUROLOGY-I LABORATORY
SUBJECT CODE: BPT3504
SEMESTER: V
CONTACT HOURS/WEEK: 3

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

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
EXPERIMENT-I	**DEMONSTRATION OF SUBJECTIVE EXAMINATION OF PATIENT WITH cerebrovascular CONDITION.** .	**8hrs**
II	**Demonstration of examination of objective examination of patient with cerebrovascular condition**,	**8hrs**
III	**Demonstration of examination of patient with movement disorders.** 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**

Course Outcomes

BPT3504.1	Relating neuro-anatomical structures and its functions relevant to the clinical manifestation of neurological disorders
BPT3504.2	Application of basic neurological examination procedures relevant to the neurological disorders
BPT3504.3	Describing conservative management of specific neurological disorders
BPT3504.4	Describing medical and surgical management of specific neurological disorders

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: ORTHOPAEDICS-I LABORATORY

SUBJECT CODE BPT3502

SEMESTER: V
CONTACT HOURS/WEEK: 3

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

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 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
- Understand the various rheumatological ailments and metabolic disorders

Contents of Syllabus:

Sr. No	Contents	Contact Hours
EXP 1	SUBJECTIVE EXAMINATION IN ORHTOPAEDIC CONDITIONS	12hrs
II	CLINICAL ASSESSMENT AND MANAGEMENT OF UPPER LIMB FRACTURES.	14hrs
III	CLINICAL ASSESSMENT AND MANAGEMENT OF LOWER LIMB FRACTURES.	14hrs
IV	CLINICAL ASSESSMENT AND MANAGEMENT IN CASE OF ORTHOPAEDIC SURGERIES.	14hrs
V	CLINICAL ASSESSMENT AND MANAGEMENT IN CASE OF AMPUTATIONS.	12hrs

Course Outcomes

BPT3502.1	Applyingtheconcepts,methodsofassessmentofmusculoskeletal,nervous, cardiovascular and respiratory system through casepresentations.
BPT3502.2	Selecting the appropriate test, tool and technique essential for effective rehabilitation.
BPT3502.3	Interpreting the diagnostic procedures, Electromyography, NerveConductionVelocityStudies,X-ray,Electrocardiogramforinterpretationofreports.
BPT3502.4	Analyzingthespecialtestsandtheirinterpretations.

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

SUBJECT TITLE: ORTHOPAEDICS-II
SUBJECT CODE: BPT3601
SEMESTER: VI
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 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
- Enumerate the principles and procedures of amputation and various orthopaedics surgeries

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Infections :** Osteomylitis(Acute, Chronic), Broodi's Abscess, TB of Spins, Hip, Knee, Shoulder, Elbow, Leprosy **Inflammation and degenerative conditions :** still's disease, Charcot's joint, Haemophylitic arthritis	

		12hrs
UNIT-II	**Regional conditions of Shoulder, Elbow, Hand and wrist :** adhesive capsulitis, Rotator cuff tendinitis, supraspinatus tendinitis, infraspinatus tendinitis, biccipital tendinitis, subacromial bursitis, tennis elbow, golfer's elbow, olecrenon bursitis, triceps tendinitis, de quervian tenosynovitis, ganglion, trigger finger and thumb, mallet finger, carpel tunnel syndrome, dyuptens contracture **Regional conditions in Spine. :** pivd, spinal stenosis, cervical and lumbar spondylosis, spondylolysthesis, lumbago/lumbosacral strain, sacralisation, lumbarsation, coccydinea, hemivertebra, scoliosis	**14hrs**
UNIT-III	**Regional conditions of Pelvic, Hip, Knee and Ankle :** it band syndrome, piriformis syndrome, trochantric bursitis, osteochondritis dissicans, 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 crossed syndrome, lower crossed syndrome, arthogyposis multiplex conginita, osteogenesis imperfecta, cervical rib, genu valgum, genu varum, genu recurvatum, coxa vara, coxa valga, 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, osteogenesis imperfecta, neurofibromatosis, down's syndrome, radio-ulnar synostosis, congenital short femur, congenital tibial bowing	**14hrs**

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 ARNOLD PUBLICATION

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 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: NEUROLOGY-II
SUBJECT CODE: BPT 3603
SEMESTER: VI
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 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** : definition, etiology, pathophysiology, classification, clinical signs and symptoms, investigation, differential diagnosis, management of cerebellar infarction, cerebellar hemorrhage, tumours of the cerebellum, cerebellar degeneration, arnold chairi malformation, dandy walker malformation, friedreich's ataxia, hereditary cerebellar ataxia, ataxia telangiectasia **Disorders of the basal ganglia and other central nervous system conditions :** definition, etiology, pathophysiology, classification, clinical signs and symptoms, investigation, differential diagnosis, management of dystonia, chorea, athetosis, hemiballisimus, tics, wilson's disease, hutington's disease, infectious diseases, metabolic and nutritional disorders of the central nervous system	14hrs
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 :** definition, etiology, pathophysiology, classification, clinical signs and symptoms, investigation, differential diagnosis, management of brachial plexus injury, axillary nerve injury, musculocutaneous nerve injury, radial nerve injury, median nerve injury, ulnar nerve injury, common entrapment neuropathies in the upper extremity	14hrs

	Peripheral nerve injuries in the lower extremity : definition, etiology, pathophysiology, classification, clinical signs and symptoms, investigation, differential diagnosis, management of injuries to the 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, management of muscular dystrophies, myotonia, polymyositis, dermatomyositis, spinal muscular atrophy, metabolic and mitochondrial myopathies, myasthenia gravis, lambert eaton syndrome	**14hrs**

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 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-I
SUBJECT CODE: BPT3607
SEMESTER: VI
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 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	**Subjective Examination :** Demographic Data and Chief Complaints in CNS Disorders, History Taking and Vital signs Examination, On Palpation and On Observation in CNS Disorders **Examination of Higher Functions :** Level of Conciousness by GCS Scale and Orientation examination, Memory and Attention, Speech and Emotional lability **Examination of Cognition :** Fund of Knowledge, Calculation and Proverb Interpretation, Examination of Executive Function, Mini Mental Scale Evaluation **Examination of Perception :** Body Scheme and Body Image Disorders, Spatial Relation Disorders, Agnosia and Apraxia **Examination of Cranial Nerves :** Sensory Cranial Nerves, Motor Cranial Nerves, Mixed Cranial Nerves	**12hrs**
UNIT-II	**Examination of Sensory system** : Superficial and Deep Sensation, Combined Cortical Sensation, Sensory Grading **Examination of Motor System :** Muscle Tone examination by CCRS and MAS Scale, Muscle Power Examination by Daniel & Worthinghams, Range of Motion and Muscle Girth Evaluation, VMC and Limb Length Evaluation **Examination of Relflex :** Superficial Reflexes and Deep Reflexes, Wexler Grading **Examination of Coordination :** Non Equilibrium Test and Grading, Equilibrium Test and Grading	**14hrs**

	Examination of Balance : Static and Dynamic Balance, Functional Balance Scale **Examination of Posture :** Static and Dynamic Posture Evaluation, Outline of Postural Analysis by Medicapteurs, Wintrack Foot pressure sensitive walkway	
UNIT-III	**Examination of Gait :** Cadence, Step Length, Stride Length and Gait Velocity, Dynamic Gait Index and Gait Analysis **Examination of Other system :** Intergumentary and Musculoskeletal system, Respiratory and Cardiovascular System, Bladder & Bowel, Gastrointestinal and Sexual Function **Differential Diagnosis :** DDx in CNS Disorders **Investigations and Imaging Techniques :** Outline of Laboratory Investigations in CNS Disorders, Outline of Xray, CT Scan and MRI in CNS Disorders, Outline of EMG and NCV in CNS Disorders **Physical Therapy Diagnosis :** Etiological, Pathological and Provisional Diagnosis, Functional Diagnosis, Goals and Management	**14hrs**
UNIT-IV	**Cerebrovascular Accident** : Examination, Scandinavian Stroke scale evaluation, Acute Management, Activities in Lying, Activities in Sitting, Activities in Standing **Traumatic Brain Injury :** Examination, Ranchos Los Amigos Scale evaluation, RLAS Stage wise Management **Spinal cord injuries & congenital spinal anomalies :** Examination of cervical and lumbar SCI, Asia Impairment scale evaluation, Acute phase management, Subacute phase management **Multiple Sclerosis :** Examination, Physiotherapy Management **Motor Neuron Disease :** Examination, Physiotherapy Management **G.B. Syndrome :** Examination, Physiotherapy management **Infectious Diseases of CNS :** Examination and PT management of Menigitis, Examination and PT management of Viral Encephalitis, Examination and PT management of Transverse Myelitis	**14hrs**

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 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: ORTHOPAEDIC PHYSIOTHERAPY-I

SUBJECT CODE: BPT3605
SEMESTER: VI
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 students should be able to

•Identify the various orthopaedic ailments in upper and lower limbs

• Justify the role of physiotherapist in emergency care

• Describe the physiotherapy management for soft tissue injuries

• Analyze the various degenerative diseases of bones and their physiotherapy management

• Prepare rehabilitation program for patients with bone tumors

• Recall the anatomy behind congenital deformities and their management

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 clavicle, fracture scapula, fracture neck humerus, fracture shaft humerus, 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 injuries around spine and pelvis:** fracture of cervical spine ,relevant anatomy, classification of pelvic fractures and management **Physiotherapy assessment and management of lower limb injuries :** fracture neck femur, subtrochanteric fracture, trochanteric fracture, dislocation of hip joint, fracture shaft femur, 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 :** sprains, strain, bursitis, torticollis, tendon injuries, peripheral nerve injuries, sprengel deformity, congenital dislocation of hip, congenital talipes equinovarus **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

BPT3605.1	Identifying various orthopedic ailments in upper and lower limbs
BPT3605.2	Describing the physiotherapy management for soft tissue injuries
BPT3605.3	Justifying the role of physiotherapist in emergency care
BPT3605.4	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

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: ORTHOPAEDICS-II LABORATORY
SUBJECT CODE: BPT 3602
SEMESTER: VI
CONTACT HOURS/WEEK: 3

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

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
- Enumerate the principles and procedures of amputation and various orthopaedics surgeries

Contents of Syllabus:

Sr. No	Contents	Contact Hours
EXP I	**ASSESSMENT AND MANAGEMENT OF INFECTIONS AND DEGENERATIVE DISEASES.**	12hrs
II	**ASSESSMENT AND MANAGEMENT OF Regional conditions of Shoulder, Elbow, Hand and wrist.** **ASSESSMENT AND MANAGEMENT OF Regional conditions in Spine.**	12hrs
III	**ASSESSMENT AND MANAGEMENT OF Regional conditions of Pelvic, Hip, Knee and ANKLE.**	12hrs
IV	**ASSESSMENT AND MANAGEMENT OF Deformities :** CTEV, CDH, torticolis, flat foot, vertical talus, lardosis, kyphosis, upper crossed syndrome, lower crossed syndrome, arthogyposis multiplex conginita, osteogenesis imperfecta, cervical rib, genu valgum, genu varum, genu recurvatum, coxa vara, coxa valga, hammer toe, metatarsalgia. **Rheumatic disorders :** osteoarthritis, rheumatoid arthritis, systemic lupus erythematosus, spondyloarthropathies, fibromyalgia Crystal deposition disorders : gout, pseudogout, calcium phosphate crystal disease	12hrs
V	**ASSESSMENT AND MANAGEMENT OF Metabolic and endocrine disorders :** osteoporosis, rickets, osteomalacia, hyperparathyroidism, scurvy, Paget's disease, hyperpituitarism, cushing's syndrome	12hrs

	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, osteogenesis imperfecta, neurofibromatosis, down's syndrome, radio-ulnar synostosis, congenital short femur, congenital tibial bowing	

Course Outcomes

BPT3602.1	Assessment and management of regional conditions of upper limb and lower limb
BPT3602.2	Assessment and management of various deformities of upper limb and lower limb
BPT3602.3	Assessment and management of metabolic and endocrine disorders
BPT3602.4	Examination and management of Genetic disorders and skeletal dysplasias

Recommended Books: 1.APLEY'S SYSTEM OF ORTHOPAEDICS AND FRACTURES by LOUIS SOLOMON, HODDER ARNOLD PUBLICATION

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.

SUBJECT TITLE: NEUROLOGY-II LABORATORY
SUBJECT CODE: BPT 3604
SEMESTER: VI
CONTACT HOURS/WEEK: 3

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

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

• 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 and management of Disorders of the cerebellum** and basal ganglia.	12hrs
EXP-II	**Examination and management of Disorders of Peripheral neuropathies.**	12hrs
EXP-III	**Examination and management of Disorders of Peripheral nerve injuries in the upper extremity and Peripheral nerve injuries in the lower extremity.**	12hrs
EXP-IV	**Examination and management of Disorders of Disorders of the muscles and neuromuscular junction.**	12hrs
EXP V	**Examination and management of Disorders of based on different quantitative scales.**	12hrs

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. 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

SUBJECT TITLE: ORTHOPAEDIC PHYSIOTHERAPY-I LABORATORY

SUBJECT CODE: BPT-3606

SEMESTER: VI
CONTACT HOURS/WEEK: 2

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

Duration of Exam; 3 Hrs

Course 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 test
- Modify the physiotherapy procedure according to the degrees of orthopedic injuries
- bone tumors

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**

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. PRACTICAL ORTHOPEDICS by JOHN EBNEZER, I. K. INTERNATIONAL PUBLISHING HOUSE

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

SUBJECT TITLE: NEURO PHYSIOTHERAPY-I LABORATORY
SUBJECT CODE: BPT3608
SEMESTER: VI
CONTACT HOURS/WEEK: 2

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

Duration of Exam; 3 Hrs

Course Objectives: 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

List of Practicals / Experiments:

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

BPT3607.1	Identifying the appropriate neurological examination procedures used in central nervous system disorders
BPT3607.2	Evaluating the effectiveness of various treatment technique used in central nervous system disorders
BPT3607.3	Applying various assessment principles in the central nervous system disorders
BPT3607.4	Analyzing the various physiotherapy treatment techniques used in central nervous system disorders

RECOMMENDED BOOKS: 1. PHYSICAL REHABILITATION by SUSAN B. O'SULLIVAN, THOMAS J. SCHMITZ, F.A. DAVIS COMPANY

2. BICKERSTAFF'S NEUROLOGICAL EXAMINATION IN CLINICAL PRACTICE by PRASAD, PAPERBACK

SUBJECT TITLE: ORTHOPAEDIC PHYSIOTHERAPY-II
SUBJECT CODE: BPT4701
SEMESTER: VII
CONTACT HOURS/WEEK: 3

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

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 orthopaedic conditions and critical care.

•Execute the management of injuries and regional condtions with recent orthopedic techniques

• Integrate the current research into the planning of orthopedic rehabilitation

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Injuries and regional conditions of spine** : Assessment and management of spinal fractures, Low back ache, kyphosis, scoliosis, lordosis, spondylolysthesis, ankylosing spondylitis, prolapsed disc	**12hrs**
UNIT-II	**Injuries around shoulder complex :** Assessment and management of fracture of clavicle, scapula, dislocation of shoulder, fracture of surgical neck of humerus, greater tubercle, humerus shaft	

	Injuries around elbow and wrist : Assessment and management of Supracondylar fracture of humerus, fracture head and neck of radius, ulna fracture, forearm bones, dislocation of elbow, capitulum and olecranon, scaphoid, monteggia and galeazzi fracture dislocation, colles and smith's fracture **Injuries of hand :** Assessment and management of bartons fracture, bennett's fracture and rolando's fracture, fracture of metacarpals, phalanges, tendon injuries, crush injuries of the hand	**14hrs**
UNIT-III	**Injuries and regional conditions around the pelvis and hip :** Assessment and management of fractures of pelvis, dislocation of hip, fracture neck and intertrochanteric area, shaft femur, congenital dislocation of hip (CDH)	**14hrs**
UNIT-IV	**Injuries and regional conditions around the knee,ankle and foot :** Assessment and management of fracture condyles of femur, ligament injuries of knee, meniscal injuries of knee, fracture of shaft tibia and fibula, fracture of tarsals, metatarsals and phalanges, congenital talipus equino varus (CTEV)	**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)

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: BPT4702
SEMESTER: VII
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 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
UNIT-I	**Assesment and physiotherapy management of peripheral nerve injuries :** Facial nerve injury, trigeminal neuralgia, meralgia paraesthetica, radial nerve injury, median nerve injury, ulnar nerve injury, lateral popliteal nerve **Assesment and physiotherapy management of brachial plexus injury :** Upper brachial plexus injury, Lumbosacral plexus injury femoral sciatic and tibial nerve, obstetric brachial plexus injury, parsonage-turner syndrome, rucksack palsy	**14hrs**
UNIT-II	**Assesment and physiotherapy management of diabetic neuropathy :** Autonomic neuropathy, proximal neuropathy, peripheral neuropathy, focal neuropathy **Assesment and physiotherapy management of hydrocephalus :** Congenital hydrocephalus, acquired hydrocephalus, communicating hydrocephalus, non communicating hydrocephalus	**14hrs**
UNIT-III	**Assesment and physiotherapy management of infectious disease and polyneuropathy :** Gullian barre syndrome, chronic sensorimotor polyneuropathy, spina bifida, acute disseminated encephalomyelitis	**12hrs**
UNIT-IV	**Assesment and physiotherapy management of neuromuscular junction disorder and muscular dystrophy :** Duchenne muscular dystrophy, myotonic muscular dystrophy, facioscapulohumeral muscular dystrophy, oculopharyngeal muscular dystrophy, becker muscular dystrophy, emery-dreifuss muscular dystrophy, limb girdle muscular dystrophy, myasthenia gravis	**14hrs**

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. 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 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: CARDIOPULMONARY PHYSIOTHERAPY
SUBJECT CODE: BPT4705
SEMESTER: VII
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 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	**14hrs**

	vascular diseases management, cardiac rehabilitation for post cardiac transplantation, post CABG and myocardial infraction	

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 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: RESEARCH METHODOLOGY AND BIOSTATISTICS

SUBJECT CODE: BPT4707
SEMESTER: VII
CONTACT HOURS/WEEK: 3

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

- 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	**14hrs**

	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	

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 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: ORTHOPAEDIC PHYSIOTHERAPY-II LABORATORY

SUBJECT CODE: BPT4702
SEMESTER: VII
CONTACT HOURS/WEEK: 2

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

Duration of Exam; 3 Hrs

Course Objectives: Through this course students should be able to

•Analyze and perform physiotherapy assessment of infective, neuromuscular conditions and apply appropriate management

•Understand the importance of assessment of amputated patients and preparation for prosthetic fitting and bandaging methods

•Understand and perform pre and post operative assessment of patients undergone tendon transfer

• Evaluate patients with regional deformities and physiotherapy management

• Evaluate the patient pre and post operative procedures for various conditions

•Understand the various regional musculoskeletal conditions and plan a suitable management

List of Practical's / 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,	4hrs

	spondylolisthesis, lumbago/lumbosacral strain, sacralisation, lumbarisation, coccydinea, hemivertebra, scoliosis.	
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

References: ESSENTIALS OF ORTHOPEDICS AND APPLIED PHYSIOTHERAPY by DR PRAKASH KOTWAL , JAYANT JOSHI, ELSEVIER

SUBJECT TITLE: NEURO PHYSIOTHERAPY-II LABORATORY
SUBJECT CODE: BPT4704
SEMESTER: VII
CONTACT HOURS/WEEK: 2

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

Duration of Exam; 3 Hrs

Course Objectives: Through this course students should be able to

- Apply extensive physiotherapy assessment in various neurological disorders
- Assess the various physiotherapy management according to the neurological conditions
- Analyze treatment outcomes through various established measures
- assessment and management of spina bifida and hydrocephalus

EXP.	TOPICS	HOURS
I	**Demonstration of traditional approaches in neurological physiotherapy- demonstration of Bobath and Brunstormtechniques**	**8hrs**
II	**Demonstration of proprioceHSive 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 PUBLISHERS PVT. LTD.

SUBJECT TITLE: CARDIOPULMONARY PHYSIOTHERAPY LABORATORY
SUBJECT CODE: BPT4706
SEMESTER: VIII
CONTACT HOURS/WEEK: 2

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

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	Evaluate the cardiopulmonary patients with various scales and grading of assessment
BPT4706.2	Demonstrate the steps involved in secretion mobilization using various hands on techniques
BPT4706.3	Describe the various modes of mechanical ventilators and list out different types of cardiopulmonary equipment used in intensive care unit
BPT4706.4	Discuss the comprehensive procedures involves in post-surgical rehabilitation 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: 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 and outcome 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 Outcomes

BPT 4801.1	Demonstrate the level of knowledge and skills to choose appropriate physiotherapy techniques in sports rehabilitation
BPT 4801.2	Discuss the principles of nutrition and exercise on body composition and athletic performance
BPT 4801.3	Administer the rehabilitation protocols for treatment of an athlete
BPT 4801.4	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: 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
- Apply biomechanical principal in treating sports injuries
- Discuss the principles of nutrition and exercise on body composition and athletic performance
- Discover sporting skills through different sports training

List of Practicals / Experiments:

EXP 1	**Demonstration ofPre-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: MANAGEMENT AND ETHICAL ISSUES IN PHYSIOTHERAPY
SUBJECT CODE: BPT4807
SEMESTER: VIII
CONTACT HOURS/WEEK: 2

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
2	0	0	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,	**9hrs**

	Relationship with patient and medical professionals, Documentation, confidentiality and responsibility, Major ethical issues in physiotherapy practice	
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 Outcomes

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 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: OBSTETRICS AND GYNAECOLOGY

SUBJECT CODE: BPT4805
SEMESTER: VIII
CONTACT HOURS/WEEK: 2

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
2	0	0	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-eclamptic toxaemia 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	**9hrs**

	Gynaecological surgeries and PT management : hysterectomy, oophrectomy, salpingectomy, myomectomy, caesarean section, colporrhaphy, dilatation and curettage, laproscopy and colposopy, carcinoma of female reproductive organs, mastectomy	

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 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: PAEDIATRICS AND GERIATRICS PHYSIOTHERAPY
SUBJECT CODE: BPT4803
SEMESTER: VIII
CONTACT HOURS/WEEK: 2

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
2	0	0	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 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 design, sensory changes relationship to functional ability within the environment	**9hrs**

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 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: OBSTETRICS AND GYNAECOLOGY LABORATORY

SUBJECT CODE: BPT4806
SEMESTER: VIII
CONTACT HOURS/WEEK: 2

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

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:

Sr. No	Contents	Contact Hours
EXP 1	**Review of anatomy and assessment** • **detailed anatomy of female reproductive system** • **general assessment of obstetrics and gynecological conditions**	**4 hrs**
EXP 2	**Physiology of pregnancy and diagnosis** • **diagnostic approaches for pregnancy** • **assessment of physiological changes during pregnancy**	**4 hrs**
EXP 3	**Complications of pregnancy** • **assessment and management of complications of pregnancy**	**4 hrs**
EXP 4	**Labour** • **physiotherapy management during labour**	**4 hrs**
EXP 5	**Antenatal period** • **physiotherapy assessment and management of antenatal period**	**4 hrs**
EXP 6	**Postnatal period** • **physiotherapy assessment and management of post natal period**	**4 hrs**

EXP 7	**Gynaecological conditions surgeries and physiotherapy management** **• detailed assessment of various gynecological conditions** **• physiotherapy management of various gynecological conditions** **• detailed assessment of various gynecological surgeries** **• physiotherapy management of various gynecological surgeries**	**4 hrs**

Course Outcomes

BPT4806.1	Explain the anatomy and physiology of female reproductive system by using models
BPT4806.2	Demonstrate and apply various assessment and treatment techniques in gynaecological conditions
BPT4806.3	Framing physiotherapy management for gynaecological conditions
BPT4806.4	Design the exercise prescription for antenatal and postnatal care

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. LT

SUBJECT TITLE: PAEDIATRICS AND GERIATRICS PHYSIOTHERAPY LABORATORY
SUBJECT CODE: BPT4804
SEMESTER: VIII
CONTACT HOURS/WEEK: 3

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
0	0	3	2

Duration of Exam; 3 Hrs

COURSE OBJECTIVE: Through this course 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

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 prescriHSion 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	Interpret the findings of assessment to reach at the diagnosis for various paediatric and geriatric conditions
BPT4804.2	Apply various advanced approaches used for paediatric rehabilitation
BPT4804.3	Construct the physical therapy programme for common paediatric and geriatric disorders
BPT4804.4	Formulate the exercise programme to decrease the fall risk in elderly

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

PHYSICAL MANAGEMENT IN NEUROLOGICAL REHABILITATION by MARIA STOKES, ELSEVIERGERIATRIC PHYSICAL THERAPY by ANDREW A. GUCCIONE, ELSEVIERPEDIATRIC PHYSICAL THERAPY by JAN S. TECKLIN, LIPPINCOTT WILLIAMS & WILKINS